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Case-Level Evidence on the Grossman-Helpman Protection for Sale Model

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Abstract

As successive rounds of global trade liberalization have lowered broad industry-level tariffs, antidumping duties have emerged as a WTO-consistent means of protecting certain industries. Using the Grossman-Helpman (GH) "Protection for Sale" model, we examine the extent to which political contributions affect the outcomes of decisions in antidumping cases. We find that antidumping duty rates tend to be higher for politically-active petitioners. The relationship between the import penetration ratio and duties imposed depends on whether or not petitioners in a case are politically active. Consistent with the predictions of the GH model, antidumping duties are positively correlated with the import penetration ratio for politically inactive petitioners, but negatively correlated for politically active petitioners. Thus, our paper supports the predictions of the Grossman-Helpman model using a fresh set of data that allows us to avoid some of the compromises made in previous empirical work.

Keywords: Trade policy, Antidumping, Political economy
JEL Classifications: F13

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1 Introduction

As successive rounds of global trade liberalization have resulted in reductions in broad, industry-level tariffs, antidumping duties have emerged as an alternative, WTO-sanctioned way of protecting certain domestic industries. As shown in Figures 1 and 2, while overall tariff rates have trended down over time, antidumping duty rates have, in contrast, tended to increase.[1] In theory, antidumping duties are intended to defend domestic industries from "unfair" behavior by foreign firms selling at less than "normal value."[2]

[1] Tariffs in Figure 1 are the average overall tariff across 4-digit SIC industries. The data through 1988 are on a SIC-1972 basis and are taken from Magee, "U.S. Tariffs at the SIC Level, 1974-1988." Data for 1989 and later are on a 1987-SIC basis and are taken from the dataset described in Feenstra, Romalis and Schott (2002). The break in 1989 is likely explained by the shift across datasets. The antidumping duties in Figure 2 are from Blonigen, Case8095.xls; they are case-specific "all other rates". Blonigen describes these rates as "the average of the firm-specific margins weighted by each foreign firm's share of the import volume from the investigated country." He adds that "Imports of any firm from the investigated country without an assigned firm-specific AD duty often must face this "all other" duty." See Blonigen, Case8095Descrip.doc.

[2] Both term "normal value" and the term "fair value" are used in the context of antidumping. The only distinction between the two may be that the term "normal value" is the more technical one and is used in assessing whether or not dumping has occurred. According to the ITC, "Selling at less than fair value, or dumping, is defined in section 771(34) of the Act (19 U.S.C. §1677(34)) as "the sale or likely sale of goods at less than fair value." In more specific terms, dumping is defined as selling a product in the United States at a price which is lower than the price for which it is sold in the home market (the "normal value"), after adjustments for differences in the merchandise, quantities purchased, and circumstances of sale. In the absence of sufficient home market sales, the price for which the product is sold in a surrogate "third country" may be used. Finally, in the absence of sufficient home market and third country sales, "constructed value," which uses a cost-plus-profit approach to arrive at normal value, may be used." (USITC (2005))

In practice, determining, even defining, concepts such as "normal value" is difficult at best, and (not surprisingly in the light of such ambiguity) there appears to be a wide degree of discretion involved in making decisions in antidumping cases.[3] In fact, a sizeable literature has shown that not only economic variables related to injury to domestic industries, such as the volume of imports, but also political variables, such as Congressional representation, have some effect on outcomes.[4]

The objective of this paper is to examine both whether and in what ways political donations by filing petitioners affect the outcomes of antidumping cases. Using an empirical framework based on the Grossman and Helpman (1994) "protection for sale" model, we link case outcomes to political donations by the political action committees (PACs) associated with petitioners filing the cases and to industry-level import penetration ratios. We perform our analysis for both the decision on whether or not a case receives protection at all and for the level of protection conferred.

We find that antidumping duty rates tend to be higher for politically-active petitioners. The relationship between the import penetration ratio and duties imposed depends on whether or not petitioners in a case are politically active – antidumping duties are positively correlated with the import penetration ratio for politically inactive petitioners, but negatively correlated for politically active petitioners.

Our paper also contributes to the literature on empirical analysis of the Grossman-Helpman (GH) model of the political economy of trade policy. Using our fresh set of data allows us to avoid some of the compromises

[3] See Blonigen (2003).

[4] For example, see Hansen and Prusa (1997). For a survey, see Blonigen and Prusa (2003).

made in prior empirical work on the GH model. By using these data, we are able to incorporate tariffs (rather than non-tariff barrier coverage ratios) and political contributions by those who directly benefit from any protection conferred (rather than broad industry-level donations). Our results generally support the predictions of the GH model.

2 The Antidumping Decision-Making Process and Previous Research

In the United States, two agencies are involved in the antidumping decision-making process – the International Trade Administration (ITA) of the Department of Commerce (DOC) and the International Trade Commission (ITC). Domestic petitioners (normally firms or labor unions) file petitions with these two agencies requesting protection from imports that are being sold at less than "normal value." Both the ITA and the ITC make two (preliminary and final) determinations. While the ITC decides whether or not the domestic industry is being injured, the ITA determines whether dumping has occurred, and, if so, the margin between the price of sale in the United States and the "fair" price.[5] A number of factors are examined in the course of the investigations, including things such as the volume of imports in and profits of the domestic industry and costs and prices in other markets for the foreign firm being investigated.[6] The process, however, also apparently involves a large degree of discretion.[7]

[5] That margin then becomes the duty rate that is applied on imports of the subject product into the United States.

[6] For some discussion of the process at the ITA/DOC, see Blonigen (2003).

[7] See Blonigen (2003).

Numerous studies have investigated the determinants of antidumping case outcomes. Blonigen and Prusa (2003) provide an overview of the literature. Studies have examined both of the main phases of the investigation process – decision on injury and determination on antidumping margin. As for decision on injury, economic factors (such as the volume of imports and loss of profits) influence outcomes, but political pressure (as proxied by Congressional representation and industry PAC contributions) also matters a lot. As for the determination on antidumping-duty margins, ITA officials appear to have a great deal of discretion – there are a number of different ways in which to calculate the antidumping duties, and the method used seems to matter.[8]

Previous work, while extensive and informative, leaves a number of questions unanswered and issues unaddressed. For example, some have argued that antidumping duties have become a way of protecting certain industries and that politically powerful industries have a great deal of say in how the laws are written, but little research exists linking political donations precisely to outcomes of specific cases.[9] In addition, while a connection between political factors and an affirmative/negative decision has been shown,

[8] For discussion of these issues, see Blonigen (2003).

[9] Blonigen and Prusa (2003) write "Not only does AD law allow politicians to offer politically preferred industries protection without violating GATT/WTO principles, but they can also tinker with the rules to broaden the scope and availability of AD protection....To politically powerful industries, losing a case is not a sign that the foreign competition is traded fairly; rather it is simply a sign that the law needs changing." (p.252)

Hansen and Prusa (1997) examine industry-level PAC contributions to politicians on committees that oversee trade policy. Olson and Liebman (2004) examine the effects of contributions on sponsorship of the Byrd Amendment. The Byrd Amendment allowed collected antidumping duties related to a given antidumping case to be distributed to petitioners in that case.

there is far less evidence on whether politics influences the level of duties imposed.[10] Finally, there has not been much analysis of possible links between political and economic factors.

In order to address these issues, in this paper we link cases directly to the political donations most likely to be associated with their outcomes – the donations by the political action committees (PACs) associated with the firms or groups who participated as petitioners in filing the cases. Using these data, we examine the effect of political factors on duty determination of antidumping cases in the context of the GH model of the political economy of trade policy, a framework that allows us to learn something about the interaction between political and economic factors in the structure of antidumping decisions.

3 Empirical Framework – The Grossman-Helpman Model

As our framework, we adopt what has become a workhorse model of the political economy of trade policy – the Grossman and Helpman (1994) "protection for sale" model. While previous work on the political economy of trade policy had incorporated political factors, the GH model linked the cross-industry structure of protection to a few fundamental underlying variables and yielded a parsimonious, intuitive equilibrium outcome that could readily be used as an empirical framework for examining the determinants of trade protection.

In the model, $N+1$ goods are produced by N specific factors and labor

[10] Francois and Niels (2004) do examine the effects of political factors on antidumping duty rates and find some effect.

(which is used in all sectors, as well as in the production of the numeraire). Some of the sectors are politically organized, whereas others are not.[11] The organized groups make political donations with the aim of influencing trade policy. More specifically, they desire the imposition of a tariff that would create a wedge between the international price and the domestic price for the good that they produce. Politicians value both contributions and aggregate welfare and weigh the tradeoff between their gains from contributions and the deadweight-loss costs of tariffs.[12] Faced with the contribution schedules (i.e., a series of combinations of contributions and prices) of each lobby, politicians set the economy's level of trade protection.

Ultimately, the model yields a very simple equation describing the determinants of trade policy:

$$\frac{t_i}{1+t_i} = \frac{I_i - \alpha_L}{\frac{\beta}{1-\beta} + \alpha_L} \left(\frac{\left(\frac{X}{M}\right)_i}{e_i} \right), i = 1, ..., n \quad (1)$$

$$= \frac{-\alpha_L}{\frac{\beta}{1-\beta} + \alpha_L} \left(\frac{\left(\frac{X}{M}\right)_i}{e_i} \right) + \frac{1}{\frac{\beta}{1-\beta} + \alpha_L} I_i \left(\frac{\left(\frac{X}{M}\right)_i}{e_i} \right) \quad (2)$$

where t_i is the ad valorem tariff on good i, e_i is the import demand elasticity of good i, X_i is domestic output, M_i is imports, α_L is the fraction of the population organized into lobbies, β is the weight that the government places on welfare, and I_i is an indicator variable that takes a value of 1 when sector i is politically organized, and 0 otherwise.

[11] Our notation and development are based largely on Gawande and Krishna (2001) who provide a comprehensive survey of empirical studies of the political economy of trade policy and on Goldberg and Maggi (1999), one of the first empirical tests of the GH model.

[12] Using the notation and development in Goldberg and Maggi (1999), in the model the government's objective function is given by $U^G = \beta W + (1-\beta) \sum_{i \in L}^{n} C_i$ where W is aggregate welfare and C_i is the contributions given by lobby group i. In the context of our paper, the model indicates the welfare of those affected by these antidumping decisions.

The model predicts that, all else equal, tariffs will be higher when elasticities are lower and when the government places less weight on welfare. (The prediction on elasticities follows from the fact that the deadweight loss to welfare will be lower for a given t_i for goods with lower elasticities.) For a given inverse import penetration ratio, protection tends to be higher in sectors that are politically organized ($I_i = 1$), reflecting the fact that the government values political donations. The relationship between protection and the import penetration ratio depends on whether or not a sector is politically organized. As shown in the first term on the right in equation 2, for sectors that are not politically organized, protection increases as the ratio between domestic output and imports (the inverse of the import penetration ratio, i.e. $\left(\frac{X}{M}\right)_i$), decreases. As shown in the second term on the right, however, within the group of politically organized industries ($I_i = 1$), protection is higher with a higher inverse import penetration ratio. This is because organized interests in industries with a relatively high ratio of domestic output to imports (the inverse of the import penetration ratio, i.e. $\left(\frac{X}{M}\right)_i$) stand to gain more from protection (because of the higher price that they, in turn, receive for selling their good), and are thus motivated to give more to politicians. Moreover, the cost to society is relatively low (due to relatively low imports).

This equation lends itself well to empirical analysis, and a number of studies have found support for the predictions of the model.[13] We will use

[13] The first papers to conduct such tests were Goldberg and Maggi (1999) and Gawande and Bandyopadhyay (2000), who found, using data for 1983, that the pattern of protection in the data was broadly consistent with the model. Subsequent work has introduced a number of important additional issues, including firm heterogeneity (Bombardini (2004)), explicit participation by labor unions (Matschke and Sherlund (2004)), imperfect rent cap-

equation 2 as the basis for our estimation.

4 The Data

In order to examine the role of politics in antidumping decisions, we needed to match data from a number of sources. Our case-level data on antidumping decisions, duties, and related information are drawn from the extensive and valuable database created by Bruce Blonigen. We examine cases filed from 1981 to 1995. The data on petitioners in antidumping cases are from a companion dataset to the case-level one, also compiled by Bruce Blonigen.[14] All of these data were, in some cases, supplemented with additional consultation with ITC, ITA/DOC, and Customs and Border Protection websites and documents.[15]

In order to determine the extent of political organization, previous studies (in both the antidumping and protection-for-sale literatures) have generally used industry-level contributions by PACs.[16] One potential problem with that approach is that an industry's donations are unlikely to be entirely related to trade issues.[17] In addition, aggregating up to an overall industry measure means that donations by firms with perhaps no interest whatsoever in trade could be linked to protection for a product within the same

turing (Facchini, Biesebroeck and Willmann (2005)), foreign lobbies (Gawande, Krishna and Robbins (2004)), and competition among lobbies (Gawande and Krishna (2005)). See Gawande and Krishna (2001) for an overview of the literature.

[14] Both datasets are available at http://darkwing.uoregon.edu/~bruceb/adpage.html.

[15] More information is available from the authors upon request.

[16] One exception is Bombardini (2004), who uses firm-level PAC donations for some of the analysis.

[17] The studies, including Gawande and Bandyopadhyay (2000), do acknowledge and make an effort to deal with this issue.

industry that it does not even sell. In contrast to these previous studies, we use PAC donations by specific firms that have petitioned for antidumping protection from imports. As such, the link between political organization and protection is far tighter than is the case for industry-wide measures of protection and contributions. Although firms could clearly have concerns apart from those related to trade, this is far less likely than would be the case at the industry level.

Data on PAC contributions by election cycle are gathered by the Federal Election Commission (FEC). FEC files (and/or other sources with related information) containing levels of contributions by individual PACs were searched for the firms associated with the requests for protection in the antidumping cases.[18] In some cases, a firm had its own corporate PAC, and the match was straightforward. In other cases, the firm listed in the antidumping data did not have an eponymous PAC, but was the subsidiary of or was linked to a firm that did have a PAC. Information on these links was obtained through consultation with company websites, documents from the ITC, ITA/DOC, and Customs and Border Protection, and numerous other sources.[19] Labor unions were among the petitioners in the antidumping cases, and we have treated them in the same way that we have treated

[18] The FEC files are available at ftp://ftp.fec.gov/FEC/. To supplement the FEC data and as the primary sources for some of the earlier years, we also used information from Zuckerman (1992) and Congressional Quarterly's Federal PACs Directory.

[19] Sources included Hall (1992), Congressional Quarterly's Federal PACs Directory, Zuckerman (1992), Mergent (2005), 2005 LexisNexis Group Corporate Affiliations, Sheridan, Finan, Leonard and Murphy, eds (2001), Surratt and Gossett, eds (2004), U.S. Customs and Border Protection reports, Opensecrets.org, Campaignmoney.com, http://www.business.com/index.asp, and numerous other relevant websites. More information is available from the authors upon request.

firms.

As each FEC data point corresponds to a two-year period of time (an election cycle), we took the level of contributions for the same or subsequent year as the year in which the case was filed. Thus, for example, donations for the 1982 cycle were linked to cases for 1981 and 1982. Once we had the contributions for all petitioners in a case, we aggregated the spending by all participants in that case in order to create a measure of the level of political participation associated with a given antidumping case.

To estimate the model, we also need elasticities of demand and import penetration ratios. The Blonigen dataset provides the 4-digit SIC code associated with each case, and we incorporate our data on elasticities and import-penetration ratios based on these codes. For the elasticities of demand, we use Armington elasticity estimates provided by Gallaway, McDaniel and Rivera (2003) who used a dataset spanning the period from 1989 to 1995.[20] We calculate the import penetration ratios at the 4-digit SIC level using data provided by Robert Feenstra and the NBER productivity database.[21]

Tables 1 and 2 show the characteristics of our data. As shown in the top panel of Table 1 (which refers to the full sample), about 40 percent of cases were decided affirmatively and 40 percent decided negatively, with the

[20] Gallaway et al. (2003) provide estimates of Armington elasticities, whereas the GH model specifies own-price elasticities. Although there is a conceptual distinction, the two are equal, or nearly so, either when the share of the given good in overall consumption is small (See Kohli (1991).) These do not seem like unreasonable assumptions for our data and, given the paucity of estimates of these elasticities, we have chosen to use the Gallaway et al. (2003) estimates.

[21] Import data are from Feenstra (1996). In that dataset, SIC58_92.ASC includes the value of domestic shipments from Bartelsman and Gray (1996).

remainder suspended or terminated. The number of petitioners associated with the two outcomes was also about 40 percent each. The mean PAC contribution associated with the two types of cases, however, differed substantially, with contributions associated with affirmative outcomes about 70 percent higher than those associated with negative outcomes.

Table 2 (the top panel refers to the full sample) shows the case information broken up by time period. The number of cases and the percent of affirmative decisions did not shift substantially over the period in our dataset. The average duty applied, however, increased by about 20 percentage points between the first and second time spans, and increased by another 20 percentage points in the final period. The mean PAC contribution also increased over the periods, more than doubling in each five-year span.

In our analysis, we do not use the cases that were suspended or terminated. We use only cases in the manufacturing industries, and availability of data further reduced the number of observations. The characteristics of the actual sample data are shown in the lower panels of the two tables. They are generally quite similar to the overall data set.

5 Empirical Strategy

We base our empirical work on equation 2. Estimating the model involves a number of complications. First, the import demand elasticities that we use are themselves estimates, and therefore subject to measurement error. To deal with this problem, we move the elasticity to the left-hand side. The

basic equation thus takes the form:

$$\frac{t_i}{1+t_i}e_i = \frac{-\alpha_L}{\frac{\beta}{1-\beta}+\alpha_L}\left(\frac{X}{M}\right)_i + \frac{1}{\frac{\beta}{1-\beta}+\alpha_L}I_i\left(\frac{X}{M}\right)_i + \varepsilon_i \quad (3)$$

$$\equiv \beta_1 z_i + \beta_2 I_i z_i + \varepsilon_i \quad (4)$$

A second problem arises because both right-hand side variables (z_i and $I_i z_i$) are inherently endogenous to the trade protection decision. As Trefler (1993) first showed, tariff levels have an effect on import penetration ratios, suggesting that z_i must be treated as endogenous. Political activism, as represented by I_i, may also be endogenous to the protection outcome. A firm involved in an antidumping case could base its decision on whether or not to be politically active on the outcome of the antidumping case; donations could be intended either to influence future and concurrent decisions or to provide compensation for past favorable treatment. To address this issue, we introduce instruments for both the inverse import penetration ratio and the political organization indicator. We use the lagged inverse import penetration ratio as an instrument for the inverse import penetration ratio.

Motivated by previous analysis, such as Trefler (1993), Goldberg and Maggi (1999), and Gawande et al. (2004), we choose as instruments for the political organization indicator variables that would be expected to affect the likelihood of political organization within an industry. The decision to lobby is affected by the costs and benefits of doing so, with one important consideration being the extent to which a free-rider problem affects the incentives of any one individual firm within the industry. Since industry concentration affects the degree to which firms internalize the possible payoffs from lobbying, we use the four-firm concentration ratio, the Herfindahl index, and the number of firms within the relevant industries. Also included is unionization within an industry, as it impacts the ease of political orga-

nization. Larger firms are more likely to be able to pay the fixed costs of becoming organized, so we include average value-added per firm among the instruments.

Given that fixed assets would be hard to shift quickly to another industry (and therefore the payoffs from protection perceived as relatively larger), we use the size of the capital stock as another instrument for political organization. Similarly, production workers are perhaps the group more likely to be impacted by imports, so we include the ratio of production workers to total workers within an industry. Finally, we include the sheer number of workers, since a more populated industry is more likely to receive political attention if industry interests do choose to lobby.

A third complication for our estimation is that we observe our dependent variable (the antidumping duty rate determined by the ITA) for only a subset of the sample population. Recall that the antidumping decision process is one of multiple stages involving two agencies, the ITC and the ITA. The ITC determines whether or not an industry has been injured by imports, while the ITA examines whether or not dumping has occurred and, if so, the dumping margin. In order for a given case to receive an antidumping duty rate, both agencies must have ruled in the affirmative in all steps of the process.[22] In fact, most cases that have a negative outcome in the end (our sample defines the affirmative/negative decision as the final outcome of the case) reflect a negative injury finding by the ITC, rather than a negative dumping finding by the ITA.[23]

[22] There is one stage at which the ITA could rule negatively and the case would continue. However, it would still have to rule in the affirmative at a later stage in the process.

[23] Of the total number of cases filed between 1981 and 1995 (inclusive), only 4 percent ended in a negative finding by the ITA. For more information, see Commission (2004).

Given this context, we frame our estimation as a sample selection problem, where we observe the antidumping duty rate determined by ITA/DOC only for those cases which have received an affirmative injury decision in the ITC stages of the process, as only those cases will have continued to the duty-determination stage in the process. Although we have information on a larger number of cases overall, we only observe the actual antidumping duty rate applied for the subsample that makes it through the injury phase of the process.

More formally, we utilize a two-stage sample selection model in which the selection equation is:

$$\Pr(A_i = 1) = \gamma_1 + \gamma_2 T_i + \varphi_i \tag{5}$$

where A_i takes the value of 1 if the final outcome of the case is an affirmative decision and 0 if it is negative. The T_i are exogenous variables that we believe affect the likelihood of receiving an affirmative decision. We include lagged values of the inverse import penetration ratio, the lagged inverse import penetration ratio interacted with the lagged political organization variable, and all of the instruments for the political organization indicator variable described above.

The regression equation in our framework is:

$$\frac{t_i}{1+t_i} e_i = \beta_1 z_i + \beta_2 I_i z_i + \beta_3 \lambda_i + \varepsilon_i \tag{6}$$

where the z_i and $I_i z_i$ are as in equation 4, while λ_i is the inverse Mill's ratio, defined as the ratio of the standard normal probability distribution function to the standard normal cumulative density function from our estimation of the selection equation.

A fourth complication we face is that the case-level observations that we

observe may not be independently distributed. We therefore report robust standard errors that have been corrected for clustering.[24]

A final complication is how to decide for which cases petitioners were politically organized. We base the political organization indicator variable on the level of contributions in the year in which the antidumping case took place or the year immediately following that year. Thus, donations for the 1982 cycle were linked to cases in 1981 and 1982. In one set of results, we define as politically active a group of petitioners that has given any donations at all during the two-year period. For a second definition, we follow the previous literature on empirical analysis of the GH model and try to account for the fact that not all political donations address trade-related concerns. We therefore define a group as politically active only if it gives an amount greater than the mean annual donation in our sample, and as not politically active otherwise. In a final set of results, we introduce the level of PAC donations as a continuous variable, using a functional form that follows from Eicher and Osang (2002a). We divide the donations of the group of petitioners affiliated with a given case in a given year by the aggregate donations by all firms and labor organizations in that same year and adjust that ratio by a uniform scaling factor. Descriptive statistics for our sample are provided in Tables 3 (overall) and 4 (across industry types).

[24] We report standard errors based on clustering by 4-digit-SIC/date-initiated. We also considered clustering on countries, years, industries, and cases, with no appreciable effect on the results.

6 Empirical Results

6.1 Core Analysis

Table 5 reports the results for the first step of our procedure – the probit selection equation – with the three columns providing our estimates for the three definitions of political organization. Although this specification is outside the framework of the GH model, the coefficients are nonetheless of some interest. Of note, the two variables that generally stand out in terms of statistical significance are the lagged inverse import penetration ratio interacted with the political indicator variable ($I_i z_i$) and the ratio of production workers to total employment within an industry. The sign and significance of the former suggest that the relation between the likelihood of an affirmative injury decision and the inverse import penetration ratio differs depending on whether or not petitioners are politically active. The sign of the latter suggests that affirmative decisions are associated with a lower proportion of production workers in the industry of the petitioning firms.

Our main results are in Table 8 (the first-stage two-stage least squares estimates are in Tables 6 and 7.) As shown in the first column of results (in which petitioners are considered politically active if they make any contributions at all), political organization does seem to affect the level of antidumping protection conferred, as predicted by the GH model. β_1 (the coefficient on z_i) is negative and β_2 (the coefficient on $z_i I_i$) is positive (both to statistically significant degrees), while $\beta_1 + \beta_2$ is positive (although not to a statistically significant degree). $\beta_1 < 0$ implies that politically unorganized industries face increasing antidumping duty rates as the import penetration ratio increases. However, $\beta_1 + \beta_2 > 0$ implies that politically

organized industries face *decreasing* antidumping duty rates as the import penetration ratio increases. Furthermore, $\beta_2 > 0$ implies that antidumping duties, all else equal, are higher in politically organized industries. Our estimate of the fraction of the population represented by a lobby (α_L) is about 59 percent, compared to the 68 percent of cases considered politically active in the sample. Our estimates indicate that the government places a very large weight (β) on welfare (over 99 percent) compared to the weight on political contributions (less than 1 percent).[25]

In the second column of results, in which petitioners are considered politically active if they make contributions in excess of the annual sample mean, the data are also somewhat supportive of the GH model. Again β_1 is negative and β_2 is positive (although neither coefficient is statistically significant), while $\beta_1 + \beta_2$ is positive (but not to a statistically significant degree). Our estimate of the fraction of the population represented by a lobby is about 27 percent, compared to the 26 percent of cases considered politically active in the sample. Our estimates again indicate that the government places a very large weight on welfare (over 99 percent) compared to the weight on political contributions.

Our final set of results introduces the scaled level of contributions by petitioners in a case, relative to all corporate and labor donations, as a continuous variable. The coefficients on the key variables continue to support the GH model, as does the sum of β_1 and β_2, and all of these estimates are statistically significant. Our estimates indicate that the government places a large weight on welfare (about 96 percent), but to a lesser degree than in the results described in the first two columns.

[25] Note that high estimates for β are quite common in this literature. For example, see Goldberg and Maggi (1999) and Gawande and Bandyopadhyay (2000).

These results are generally supportive of the GH model and imply that antidumping duties are positively correlated with the import penetration ratio for politically inactive petitioners ($\beta_1 < 0$), but negatively correlated for politically active petitioners ($\beta_1 + \beta_2 > 0$). Further, our structural coefficient estimates are similar to other estimates from the GH model (Goldberg and Maggi (1999), Gawande and Bandyopadhyay (2000), Eicher and Osang (2002b), and Matschke and Sherlund (2004)).

6.2 Robustness Checks

Our base analysis assumed that the PAC donations related to a particular case outcome are given in the same or subsequent year of the relevant case. However, the link in time between the case event and PAC spending may not be so precise. Rather, donations given in earlier or later years could be associated with a given case. To take account of this possibility, we re-estimate our equations under alternative assumptions about the timing of donations in relationship to the relevant case.

We first link a given case outcome to donations made in the donation cycle previous to the year that the case took place. For example, a case that takes place in 1989 or 1990 is linked to political donations in 1987 through 1988, as opposed to donations in 1989 through 1990 (which was our assumption in the previous subsection). The results are shown in Table 9. Overall, the results are quite similar to those for the base case. Further, for two of the three definitions of political organization, antidumping duties are positively correlated with the import penetration ratio for politically inactive petitioners (with statistical significance for both definitions), $\beta_1 < 0$, but negatively correlated for politically active petitioners (with statistical

significance for only one definition), $\beta_1 + \beta_2 > 0$.

We also consider the possibility that donations may be associated with outcomes of cases already completed. Thus, a case that takes place in 1989 or 1990 could be associated with donations made in 1991 through 1992. The results for this specification are in Table 10. For all three of our definitions of political organization, antidumping duties are positively correlated with the import penetration ratio for politically inactive petitioners ($\beta_1 < 0$), but negatively correlated for politically active petitioners ($\beta_1 + \beta_2 > 0$), although, again, these results are not all statistically significant across all three specifications.

Finally, as donations over a longer time period may be relevant, we use a three-period (six-year) moving average of donations. These results are in Table 11 and are quite similar to those in the base case, i.e. they generally support the GH model.

7 Conclusion

As successive rounds of global trade liberalization have resulted in reductions in broad, industry-level tariffs, antidumping duties have emerged as an alternative, WTO-sanctioned way of protecting certain domestic industries. This paper aimed to examine both whether and in what ways political donations by filing petitioners affect the outcomes of antidumping cases. Using an empirical framework based on the Grossman-Helpman "protection for sale" model, we link case outcomes to political donations by the political action committees associated with petitioners filing the cases and to industry-level import demand elasticities and import penetration ratios.

We find that antidumping duty rates tend to be higher for politically-

active petitioners. The relationship between the import penetration ratio and duties imposed depends on whether or not petitioners in a case are politically active – antidumping duties are positively correlated with the import penetration ratio for politically inactive petitioners, but negatively correlated for politically active petitioners. Our paper also contributes to the literature on empirical analysis of the Grossman-Helpman (GH) model; we provide additional support for the predictions of the model using a fresh set of data that allows us to avoid making some of the compromises of previous empirical work.

A Data Appendix

The data and their sources are as follows:

Antidumping decision Affirmative, negative, terminated, or withdrawn. From Blonigen, Case8095.xls.

Antidumping duty rate From Blonigen, Case8095.xls.

Inverse import penetration ratio Calculated from imports and shipments as provided at http://www.nber.org/ftp/feenstra/. The data are provided on a 4-digit 1972 SIC basis. We converted the data to 1987 SIC basis using http://www.macalester.edu/research/economics/page/haveman/

trade.resources/Concordances/FromusSIC/sic7287.txt, as referenced at http://www.macalester.edu/research/economics/page/haveman/

trade.resources/TradeConcordances.html#FromusSIC.

Elasticities Armington elasticities (elasticity of substitution between imports and domestic goods) from Gallaway et al. (2003). They represent the "degree of substitution between imported and domestic goods due to changes in the relative price of these two goods."

Value added 1992 Census of Manufactures, available at http://www.census.gov/prod/1/manmin/92mmi/92manuff.html, contains data for 1992 and earlier years. 1993 data are from 1994 Annual Survey of Manufactures, and 1994 data are from 1995 ASM, both available at http://www.census.gov/mcd/asm-as1.html.

Shipments 1992 Census of Manufactures, available at http://www.census.gov/prod/1/manmin/92mmi/92manuff.html, contains data for 1992 and earlier years. 1993 data are from 1994 Annual Survey of Manufactures, and 1994 data are from 1995 ASM, both available at http://www.census.gov/mcd/asm-as1.html.

Number of firms Census of Manufactures 1977–1997; linear interpolation between CMs.

4-firm concentration 1992 Census of Manufactures (for all years in data we use values from 1992 CM); available at http://www.census.gov/mcd/historic/mc92cr.txt.

Number of employees 1992 Census of Manufactures, available at http://www.census.gov/prod/1/manmin/92mmi/92manuff.html, contains data for 1992 and earlier years. 1993 data are from 1994 Annual Survey of Manufactures, and 1994 data are from 1995 ASM, both available at http://www.census.gov/mcd/asm-as1.html.

Herfindahl 1992 Census of Manufactures (for all years in data we use values from 1992 CM); available at http://www.census.gov/mcd/historic/mc92cr.txt.

Unionization http://www.unionstats.com/; Hirsch and Macpherson (2003)

CPS codes used in dataset concorded to 1987 SIC codes based on

http://www.bls.census.gov/cps/bindcd.htm and

http://www.trinity.edu/bhirsch/unionstats/Ind3_80.htm.

Capital stock NBER-CES Manufacturing data base (http://www.nber.org/nberces/; www.nber.org/nberces/bbg96_87.xls)

Documentation for the 1958-1991 version: NBER Technical Working Paper No. 205

Fraction of employees classified as production workers Data on number of production workers are in the 1992 Census of Manufactures, available at

http://www.census.gov/prod/1/manmin/92mmi/92manuff.html, contains data for 1992 and earlier years. 1993 data are from 1994 Annual Survey of Manufactures, and 1994 data are from 1995 ASM, both available at

http://www.census.gov/mcd/asm-as1.html.

PAC Contributions The data on PAC contributions are available at ftp://ftp.fec.gov/FEC/. To supplement the FEC data and as the primary sources for some of the earlier years, we also used information from Zuckerman (1992) and Congressional Quarterly's Federal PACs Directory. Information on matching PACs and petitioners was obtained from company websites, documents from the ITC, DOC, and Corporate Affiliations,

Hall (1992), Congressional Quarterly's Federal PACs Directory, Zuckerman (1992), Mergent (2005), 2005 LexisNexis Group Corporate Affiliations, Sheridan et al., eds (2001), Surratt and Gossett, eds (2004), U.S. Customs and Border Protection reports, Opensecrets.org, Campaignmoney.com, http://www.business.com/index.asp, and numerous other relevant websites. More information is available from the authors upon request.

The FEC data files also specify if a given PAC is a corporation or a labor-affiliated organization, and we use these codes in our analysis that includes the donations of the case-related PACs relative to total PAC donations.

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Table 1: Case Decisions

Full Sample	Affirmative	Negative	Terminated*	Total
Number of cases	309	301	143	753
Percent	41	40	19	
Number of petitioners	1,279	1,338	437	3,054
Percent	42	44	14	
Petitioners per case	4.14	4.45	3.06	4.06
Mean PAC Contributions	$548,357	$321,868	$300,361	$410,726
Estimation Sample	**Affirmative**	**Negative**	**Terminated**	**Total**
Number of cases	280	282	0	562
Percent	50	50	0	
Number of petitioners	1,158	1,203	0	2,361
Percent	49	51	0	
Petitioners per case	4.14	4.27	0	4.20
Mean PAC Contributions	$578,685	$184,759	$0	$381,021

* Includes 12 suspended cases.

Table 2: Time Trends

Full Sample	Number of Cases	Petitioners per case	Percent Affirmative	Average Duty Applied*	Mean PAC Contribution
1981-1985	271	3.51	30	27.21	$152,023
1986-1990	215	3.02	56	47.25	$323,312
1991-1995	267	5.45	40	66.81	$743,693
Estimation Sample	**Number of Cases**	**Petitioners per case**	**Percent Affirmative**	**Average Duty Applied***	**Mean PAC Contribution**
1981-1985	167	3.72	46	24.04	$145,030
1986-1990	182	3.11	57	49.23	$375,561
1991-1995	213	5.51	47	61.65	$570,712

* Only for affirmative cases; in percent.

Table 3: Descriptive Statistics

Variable Name	Unit	Mean	Median	Std. Dev.	Minimum	Maximum
Duty*	percent	46.91	31.33	47.72	0.54	259.17
$\frac{Duty}{1+Duty}$*	none	0.26	0.24	0.19	0.01	0.72
Inverse import penetration	none	9.71	6.10	18.54	0.72	208.65
$I_i z_i$	none	1.56	0.00	4.63	0.00	60.64
Import penetration	percent	21.16	16.40	20.10	0.48	139.55
I_i	1=lobby	0.25	0.00	0.43	0.00	1.00
Elasticity	absolute	1.19	1.02	0.60	0.02	2.76
Imports	$Billions	2.97	0.92	4.63	0.01	60.41
Shipments	$Billions	16.90	5.01	19.80	0.43	142.06
Total disbursements	$100 Thousand	3.81	0.33	9.94	0.00	63.44
Petitioners	Number	4.20	2.00	4.29	1.00	24.00
Affirmative	1=yes	0.50	0.00	0.50	0.00	1.00
Negative	1=yes	0.50	1.00	0.50	0.00	1.00

Notes: Political activity based on above average annual contributions. * Only for affirmative cases.

Table 4: Variable Means Across Industry Types

	Political Contributions				Decision	
	Any		Above Average			
Variable Name	$I_i = 0$	$I_i = 1$	$I_i = 0$	$I_i = 1$	Negative	Affirmative
Duty*	47.45	46.66	48.23	43.12	—	47.05
$\frac{Duty}{1+Duty}$*	0.25	0.27	0.27	0.25	—	0.26
Import penetration	19.26	22.23	19.18	27.12	19.90	22.42
Elasticity	0.95	1.32	0.99	1.78	1.18	1.19
Imports	1.86	3.59	1.96	6.03	3.39	2.55
Shipments	11.35	20.03	12.55	29.98	18.03	15.76
Total disbursements	0.00	5.96	0.39	14.12	1.85	5.79
Petitioners	2.26	5.30	2.95	7.98	4.27	4.14
Affirmative	0.44	0.53	0.49	0.51	—	—
Negative	0.56	0.47	0.51	0.49	—	—

* Only for affirmative cases.

Table 5: Selection Equation

	Measure of Political Activity		
Variable	Any Contributions	Above Average Contributions	Relative Contributions
Constant	1.1275	1.3366	1.3143
	(.8190)	(.8211)	(.8071)
$z_{i,t-1}$	-.0002	.0026	.0015
	(.0039)	(.0035)	(.0035)
$z_{i,t-1}I_{i,t-1}$	.0318	.0164	.3000
	(.0140)	(.0173)	(.1234)
4-firm conc.	.0236	.0209	.0184
	(.0199)	(.0195)	(.0195)
Herfindahl	-.0010	-.0010	-.0009
	(.0006)	(.0006)	(.0006)
Unionization	.0064	.0058	.0051
	(.0076)	(.0076)	(.0075)
Value added	.0028	.0028	.0034
	(.0042)	(.0041)	(.0041)
Employees	-.0002	-.0002	-.0001
	(.0024)	(.0025)	(.0024)
Capital	-.00001	-.00001	-.00001
	(.00001)	(.00001)	(.00001)
Production workers	-2.2023	-2.2279	-2.2025
	(1.0926)	(1.1095)	(1.0874)
Firms	-.00001	-.0001	-.00002
	(.0002)	(.0002)	(.0002)

Notes: Standard errors in parentheses. 562 observations.

Table 6: First-Stage Results: z_i

	Measure of Political Activity		
Variable	Any Contributions	Above Average Contributions	Relative Contributions
λ_i	-11.03	103.69	4.80
	(1.75)	(22.48)	(5.31)
$z_{i,t-1}$	.9375	1.0037	.8713
	(.0078)	(.0313)	(.0097)
$z_{i,t-1}I_{i,t-1}$	-.2403	1.0439	.4370
	(.0171)	(.2116)	(.6785)
4-firm conc.	-.1609	1.5144	.1021
	(.0408)	(.3208)	(.0776)
Herfindahl	.0080	-.0678	-.0032
	(.0016)	(.0146)	(.0035)
Unionization	-.0292	.4064	.0403
	(.0152)	(.0846)	(.0259)
Value added	-.0234	.1896	.0087
	(.0073)	(.0421)	(.0145)
Employees	-.0064	-.0343	-.0137
	(.0051)	(.0082)	(.0070)
Capital	.0001	-.0007	.00001
	(.00002)	(.0002)	(.00005)
Production workers	15.48	-143.02	-8.48
	(2.72)	(30.58)	(7.38)
Firms	.0004	-.0027	.0007
	(.0003)	(.0009)	(.0005)
R^2	.9878	.9789	.9770

Notes: Standard errors in parentheses. 280 observations.

Table 7: First-Stage Results: $z_i I_i$

	Measure of Political Activity		
Variable	Any Contributions	Above Average Contributions	Relative Contributions
λ_i	-10.67	8.08	-1.22
	(1.76)	(2.61)	(.28)
$z_{i,t-1}$	-.0039	.0103	-.0028
	(.0079)	(.0036)	(.0005)
$z_{i,t-1}I_{i,t-1}$	.7018	1.0482	.6531
	(.0172)	(.0246)	(.0353)
4-firm conc.	-.1023	.1216	-.0111
	(.0410)	(.0373)	(.0040)
Herfindahl	.0056	-.0055	.0007
	(.0016)	(.0017)	(.0002)
Unionization	-.0348	.0316	-.0026
	(.0152)	(.0098)	(.0013)
Value added	-.0216	.0166	-.0025
	(.0073)	(.0049)	(.0008)
Employees	-.0057	-.0035	-.0007
	(.0051)	(.0010)	(.0004)
Capital	.0001	-.0001	.00001
	(.00002)	(.00002)	(.00001)
Production workers	14.19	-11.07	1.58
	(2.74)	(3.55)	(.38)
Firms	.0006	-.0002	.00004
	(.0004)	(.0001)	(.00003)
R^2	.9638	.9955	.9798

Notes: Standard errors in parentheses. 280 observations.

Table 8: Core Results

	Measure of Political Activity		
Variable	Any Contributions	Above Average Contributions	Relative Contributions
z_i	-.0014	-.0009	-.0011
	(.0006)	(.0006)	(.0005)
$z_i I_i$	.0024	.0034	.0419
	(.0009)	(.0030)	(.0118)
λ_i	.4025	.4011	.3960
	(.0418)	(.0406)	(.0417)
$\beta_1 + \beta_2$	.0010	.0024	.0407
	(.0008)	(.0030)	(.0117)
α_L	.5949	.2746	.0271
	(.2335)	(.2755)	(.0130)
a	419.57	296.29	23.87
	(155.12)	(4408.01)	(6.74)
β	.9976	.9966	.9598
	(.0009)	(.0030)	(.0109)
$\#\{I_i = 1\}$	191	72	—

Notes: Standard errors in parentheses. 280 observations.

Table 9: Lagged (Pre-Decision) Contributions

	Measure of Political Activity		
Variable	Any Contributions	Above Average Contributions	Relative Contributions
z_i	-.0014	-.0008	-.0012
	(.0006)	(.0005)	(.0005)
$z_i I_i$	.0022	-.0017	.0368
	(.0008)	(.0068)	(.0089)
λ_i	.4032	.4096	.3976
	(.0417)	(.0468)	(.0418)
$\beta_1 + \beta_2$	.0009	-.0025	.0356
	(.0007)	(.0068)	(.0087)
α_L	.6163	-.4862	.1742
	(.2431)	(2.0132)	(.0146)
a	449.01	-585.30	27.17
	(168.11)	(2341.26)	(6.56)
β	.9978	1.0017	.9645
	(.0008)	(.0069)	(.0083)
$\#\{I_i = 1\}$	192	72	—

Notes: Standard errors in parentheses. 280 observations.

Table 10: Future (Post-Decision) Contributions

	Measure of Political Activity		
Variable	Any Contributions	Above Average Contributions	Relative Contributions
z_i	-.0014	-.0009	-.0011
	(.0006)	(.0006)	(.0005)
$z_i I_i$	.0022	.0031	.0376
	(.0008)	(.0030)	(.0113)
λ_i	.4027	.4015	.3966
	(.0419)	(.0407)	(.0418)
$\beta_1 + \beta_2$	.0009	.0022	.0365
	(.0007)	(.0030)	(.0111)
α_L	.6152	.2962	.0290
	(.2395)	(.3168)	(.0145)
a	444.06	322.15	26.55
	(163.27)	(309.51)	(7.95)
β	.9978	.9969	.9637
	(.0008)	(.0030)	(.0105)
$\#\{I_i = 1\}$	194	72	—

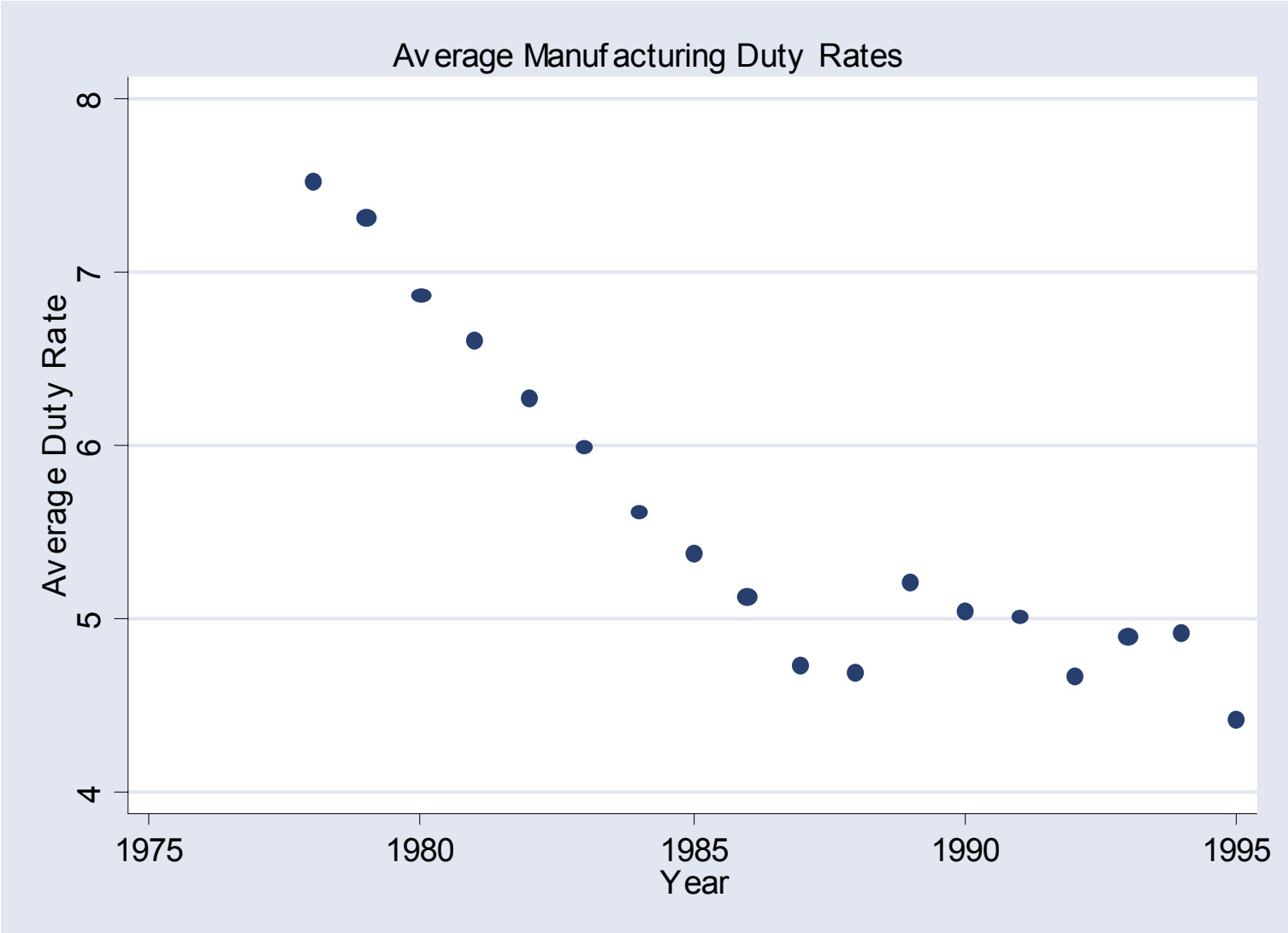
Notes: Standard errors in parentheses. 280 observations.

Table 11: Centered Moving Average of Contributions

	Measure of Political Activity		
Variable	Any Contributions	Above Average Contributions	Relative Contributions
z_i	-.0013	-.0009	-.0011
	(.0006)	(.0006)	(.0005)
$z_i I_i$	.0020	.0030	.0394
	(.0008)	(.0030)	(.0105)
λ_i	.4039	.4015	.3965
	(.0417)	(.0407)	(.0418)
$\beta_1 + \beta_2$	.0007	.0021	.0382
	(.0007)	(.0030)	(.0104)
α_L	.6694	.3020	.0288
	(.2601)	(.3291)	(.0138)
a	501.42	329.55	25.37
	(193.39)	(324.06)	(6.77)
β	.9980	.9970	.9621
	(.0008)	(.0030)	(.0097)
$\#\{I_i = 1\}$	198	72	—

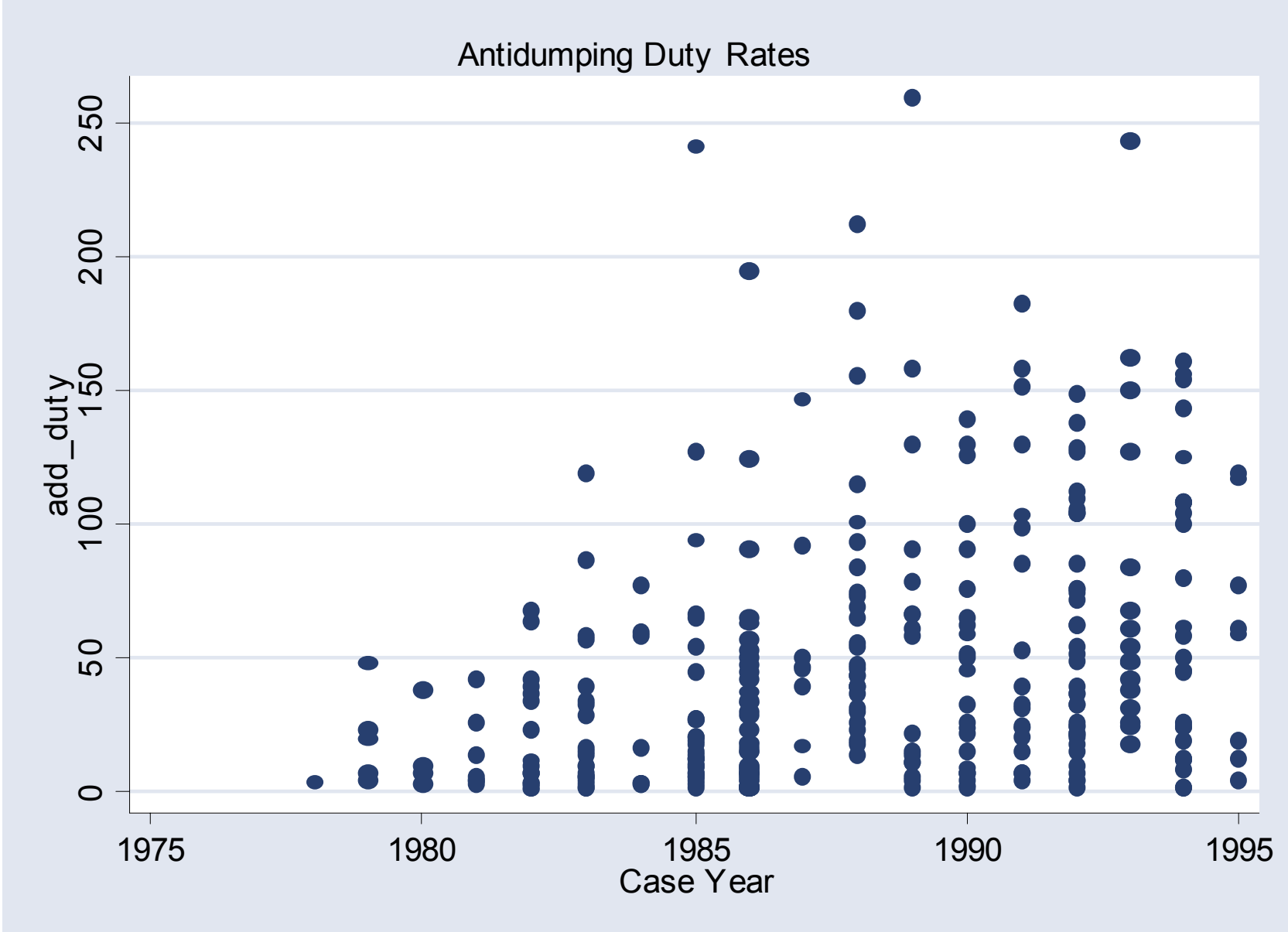
Notes: Standard errors in parentheses. 280 observations.

Figure 1



Sources: Magee (1998) and Feenstra et al (2002).

Figure 2



Source: Blonigen, Case8095.xls