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Political Influence in a New Antidumping Regime

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Political Influence in a New Antidumping Regime: Evidence from Mexico

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Abstract: We examine the role of political factors in Mexico's antidumping regime, considering both the characteristics of target countries subject to antidumping duties and industry-specific factors for sectors receiving protection. Our results are broadly consistent with the recent theoretical literature on endogenous protection, in terms of both the political costs and the political benefits of providing protection. They are also in line with the existing empirical literature on antidumping, which is focused primarily on the experience of the U.S. and the EU. Our results also suggest that WTO Membership of trading partners increases the political costs of supplying administered protection.

Keywords: antidumping, political economy of trade policy, Mexico, endogenous import protection, endogenous tariffs

JEL codes: F10, F13

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1. Introduction

Antidumping and countervailing duty (AD and CVD) regimes have long been an important channel for import protection in the United States, the European Union, Canada, and Australia. With the rising importance of regional trade agreements, and the role of the GATT/WTO in limiting the scope for increases in most-favored nation (MFN) tariffs, AD duties have become increasingly important instruments for developing countries as well.

The theoretical literature on the political economy determinants of import protection (Hillman, 1982 and 1989; Findlay and Wellisz, 1982; Mayer, 1984; Hillman and Usprung, 1988; and Grossman and Helpman, 1994 and, 1996) suggests a number of political factors that may help explain the pattern of import protection. There is strong evidence from the U.S. and EU that the application of administered protection is indeed influenced by such political factors. This comes from a number of empirical studies which, following the seminal article by Finger *et al.* (1982), estimate logit or probit models of the outcome of investigations. Thus, Finger *et al.* (1982) and Eymann and Schuknecht (1993) find that the likelihood of positive AD decisions increases with the size of the complaining industry in terms of employment or output for the U.S. and the EU, respectively. A similar result is obtained by Baldwin and Steagall (1993), though only for CVD cases in the U.S. Baldwin and Steagall's study also suggests that injury findings in U.S. AD and CVD cases are more likely, the less the complaining industry is 'competitive' internationally (as measured by the import penetration ratio). Tharakan and Waelbroeck (1994) find that in the EU concentrated industries have a greater chance of success when filing AD complaints. Finally, Czinkota and Kotabe (1997) show that the U.S. International Trade Commission (ITC) supports both sunset industries and relatively concentrated industries with stable or growing markets.

The empirical literature on AD and CVD regimes has focused almost exclusively on the U.S., the EU and a few other traditional AD users. Since the 1980s, however, there has been a rapid spread of AD regimes to middle- and low-income countries. More than 60 countries have adopted AD rules in the last two decades (Zanardi,

2002). This process accelerated with the implementation of the Uruguay Round Agreements that formed the World Trade Organization. The result is that AD and CVD regulations are now a feature of many WTO Member trade regimes. Since the early 1990s, middle- and low-income countries as a group—led by India, South Africa, Argentina, Brazil and Mexico—have overtaken the major traditional users in terms of total number of AD investigations.[1]

In this paper we extend the literature in terms of both country coverage and the set of political and protection indicators. We examine the influence of politics in one of the more enthusiastic new AD regimes, the one in Mexico. This country adopted its AD law in the mid-1980s, at the same time that it joined the GATT and implemented a radical policy shift from import substitution to trade liberalization. A first close look at AD policy practice in Mexico reveals that investigations—undertaken by the International Trade Practices Unit, part of the Ministry of the Economy—may well have been influenced by political factors. Like elsewhere, the demand for AD protection in Mexico goes up during macroeconomic downturns (see Francois and Niels, 2003). In the 1990s there were waves of antidumping actions against China—targeting 44% of total imports from that country across a large number of very broad product categories—and against steel imports from a large number of different countries. The database we use for this paper—described in more detail below—shows that the success rate of complaints is relatively high—67%, compared to a global average of 56% (Zanardi, 2002)—in particular for investigations involving the EU, East Asia, steel imports and the constructed value methodology. Duties tend to be significant (50% *ad valorem* on average excluding China, and 253% on average for China).[2]

In order to test the influence of political factors more formally we consider two categories of potential explanatory variables that may influence the outcome of AD investigations. Both categories can be conceptually mapped to the marginal costs and benefits to administrative authorities of supplying import protection. The first are country-specific factors that relate to the characteristics of the countries targeted in

[1] Historical data on AD usage by country is provided in Nagaoka (1996), Miranda *et al*. (1998) and Zanardi (2002).
[2] See Niels and Ten Kate (forthcoming) for a descriptive overview of AD policy in Mexico.

the investigation (often referred to as the named countries). The second category consists of industry-specific factors. We assess whether complaining industries with certain characteristics have a greater chance of success than industries that do not share these characteristics. This stands in contrast to the related political economy literature on trade policy, which is focused more on industry-specific factors than on country-specific factors. This is because this literature is mainly concerned with traditional tariff and non-tariff protection that ostensibly applies across imports from all countries, whereas AD (and other forms of contingent protection) is country-specific. Finally, a number of time-related explanatory variables are also examined.

While there are similarities between the approach in this paper and that followed by Finger *et al*. (1982) and the subsequent literature, our empirical approach also differs in three important ways. First, we do not make an explicit distinction between political and 'technical track' variables, beyond the use of constructed value (a technical factor) and the role of regime shift in 1993. In part this is because further technical data are not systematically available from the published decisions in the Mexican *Official Journal*. Additionally, some technical variables can also be easily interpreted in political terms. For example, the Tharakan and Waelbroeck (1993) study on the EU includes a technical variable indicating whether the investigation is against a centrally planned economy. Such investigations allow authorities a high degree of discretion when selecting substitute countries or when constructing the 'fair' value, which can be as much political as technical. Our results here for the Mexican use of the 'constructed value' methodology also support the notion that it is political factors that matter at the margin (as discussed further below). At the same time, we identify a shift in the entire Mexican regime post-1993 (a change in technical mechanisms) that has yielded a greater overall supply of antidumping protection. A second difference with the Finger *et al.* type of approach is that we do not model dumping and injury findings separately. Such separation makes sense for bifurcated systems such as the U.S., where the Department of Commerce and the ITC decide on dumping and injury, respectively, but less so for Mexico where the same authority decides on both aspects. If political factors play a role, they may be expected to do so at either stage of the investigation. Finally, a third difference is that we examine the level of the duty actually imposed, in addition to a logit specification where the

outcome of the investigation is the dichotomous dependent variable. We depart from much of the literature in this respect, which is focused on the dichotomous outcome of investigations. Our emphasis on the actual level of protection supplied more closely maps to the more recent theoretical literature on the political economy of trade policy, as discussed below.

2. Economic and Political Indicators

We have constructed a database of AD investigations in Mexico from 1987, when the first investigations were initiated, to 2000.[3] The relevant variables for the present exercise are summarized in Table 1. The database builds heavily on one developed by the Directorate General for Economic Studies of the Mexican Federal Competition Commission, called SIAM.[4] SIAM summarizes the information on all AD and CVD decisions published by the antidumping authority in the Mexican *Official Journal*. For a typical investigation, the authority publishes three different decisions, announcing, respectively, the initiation of the investigation, the preliminary duties (if any), and the final outcome. Where an investigation covers multiple named countries we consider each named country as a separate case. For practical reasons we do not make further separations for investigations involving multiple exporting firms or multiple products (since some cases target several or very broad tariff classes). Our sample consists of 167 AD investigations initiated from 1987 to 2000.[5]

[Table 1 about here]

The outcome of each AD investigation is specified as the dichotomous dependent variable in a logit model (called *OUTCOME*). This variable takes the value of 1 for cases resulting in a measure—ie, a duty or undertaking—and the value of 0 in case of a negative outcome. Of the 167 investigations in the sample, 113 resulted in a

[3] These data are available on request, and can be downloaded as well from the internet (see reference in footnote on title page).
[4] SIAM stands for Sistema de Información sobre Acciones antidumping y antisubvenciones de México (Information System on AD and CVD Actions in Mexico).
[5] Towards the end of this period there were five other investigations of which the outcome was as yet unknown at the time of the analysis. These have not been included. It should also be noted that our paper is only concerned with AD investigations. Between 1987 and 2000 there were 18 CVD investigations in Mexico as well.

measure and 54 had a negative outcome.[6] Hence, the total number of observations for *OUTCOME* is 167. In our alternative specification the level of the *ad valorem* AD duty imposed is the dependent variable (called *DUTY*). We only have 120 observations for this variable, namely 66 cases for which we know the level of duty and the 54 cases with a negative outcome (and corresponding duty level of zero).[7] The other 47 were cases where the measure was either an undertaking, a volume-based duty or not specified in the published decision. It should be noted that the empirical literature on antidumping is focused almost exclusively on the dichotomous outcome of investigations. In part, this is because data on the level of protection are not as readily available as data on affirmative and negative determinations. However, the theoretical literature is more focused on the level of protection itself. Therefore, while we follow the empirical literature and explore the dichotomous outcome of investigations, we also follow the theoretical literature and explore the level of protection supplied through the antidumping channel.

The literature on the political economy determinants of import protection highlights a number of factors that may explain the pattern of administered protection. This guides our selection of variables. The political support and electoral competition approaches (Hillman, 1982; Grossman and Helpman, 1994 and 1996) both stress the government's trade-off between general welfare, and the potential contributions that follow from assisting specific industries. With competing lobbyist and electoral competition models, the relative concentration of industries may also play a role (Findlay and Wellisz, 1982; Grossman and Helpman, 1994 and 1996). In all of these frameworks, as well as Mayer's (1984) median voter model, the relative size of an industry should be positively linked with import protection, while the import elasticity of demand is inversely linked to protection. In the lobbying literature, factors that, at the margin, shift the government's relative valuation of industry profits and welfare may also shift the equilibrium supply of protection. The exact components of the marginal cost of protection (for an optimizing government) will vary depending on the underlying political model, the importance government places

[6] Within *OUTCOME* we do not distinguish between duties and undertakings because the latter were only imposed in six cases.

[7] In some cases the authority has imposed different levels of duty to different exporting firms from the named country. In those cases we have taken the highest as the *DUTY* observation.

on overall welfare, and the broader institutional context in which the losers from any import protection can make their pain felt by the government making the decision.

Following Helpman's (1997) stylized characterization of this literature, our variables can be broadly grouped into those that indicate a higher marginal cost to providing protection on the one hand (country-specific trading partner variables in the present case), and those that reflect higher marginal benefits from providing protection to industry (industry-specific variables). Some of our industry variables also map to a world-view of competing lobbies of varying size and power (industry size/concentration).

The first country-specific explanatory variable (*XSHARE*) relates to the importance of the named country as a destination for Mexican exports, as measured by the share of total Mexican exports going to that country in the year the complaint was filed. The hypothesis is that Mexico's trade authorities may be less tough on a country that is an important export destination for Mexican companies, so as not to disturb trade relations or perhaps for fear of retaliatory measures. Hence, because the costs of protection should map directly to this variable, a negative relationship is expected with our left-hand variable.[8] Yearly data on country shares of Mexican exports were taken from various issues of the IMF *Direction of Trade Statistics Yearbook*.

The second country-specific variable (*PTA*) is a dummy variable reflecting whether the named country had signed a preferential trade agreement with Mexico at the time of the decision (in which case *PTA* is equal to 1). Again, as this may indicate a relatively higher marginal cost of providing protection, a negative relationship with *OUTCOME* is expected. The hypothesis is that the trade authorities may not wish to disturb trade relations with partners to an agreement by pursuing AD cases aggressively. However, there may be two alternative, and less political, explanations for the impact of trade agreements. One is that dumping occurs less frequently within free trade areas, because exporters' home markets are no longer sheltered (making price differentials more difficult to sustain). The other is that agreements

[8] The same variable is analysed by Finger *et al.* (1982) and Tharakan and Waelbroeck (1994) for the U.S. and EU, respectively, although neither of these studies finds a statistically significant relationship with the outcome of the investigation.

such as NAFTA lead to increased foreign direct investment, and hence increased intra-firm trade, within the region, and dumping is less likely to occur (or be noticed) in intra-firm trade.[9] Nevertheless, both explanations would be expected to have more of an impact on the total number of AD complaints (ie, the demand for protection) rather than on the outcome of investigations (the supply of protection). In total, PTA is equal to 1 in 29 cases. Table 2 gives an overview of the preferential trade agreements Mexico has in place, and the number of AD decisions against other parties to the agreements since the date these agreements came into force.

[Table 2 about here]

The third country-specific variable (*WTO*) is determined by whether the named country was a member of the WTO or a signatory country to its predecessor, the GATT, at the time of the decision. *WTO* is a dummy variable with a value of 1 for members and 0 for non-members.[10] A negative relation is expected, under the hypothesis that non-members are less able to impose political costs following duties, so that they are more vulnerable to discretionary use of the AD rules. In contrast, signatories are (at least to some extent) protected from such discretion by the GATT/WTO framework. Indeed, Blonigen and Bown (2001) find that the U.S. antidumping authorities' decisions are influenced by the threat of foreign retaliation under the GATT/WTO dispute mechanism. A total of 42 investigations in our model involved non-members.

In several of these cases, especially against China and former USSR states, the named countries were considered non-market economies. AD investigations against such countries often use the constructed value methodology to determine the 'fair value', which tends to increase the chance of a positive finding (in Mexico the success rate in AD investigations using the constructed value was 77% on average). In order to assess whether any *WTO* effect may be explained by the use of the constructed value

[9] In this respect, a study by Waldkirch (2003) demonstrates that foreign direct investment into Mexico has indeed increased under NAFTA, and that this increase is mainly due to the NAFTA partners, rather than from countries outside the agreement. A number of empirical studies on tariff protection in general also find some evidence that industries engaging in more intra-industry trade tend to receive less protection. See, for example, Marvel and Ray (1987).
[10] The date of entry into GATT or the WTO of each member state can be found at www.wto.org.

approach, a dummy variable *(CVAL)* is tested separately for the latter—taking a value of 1 if constructed value was used (in 43 investigations). It should be noted that *CVAL* and *WTO* are not highly correlated—the correlation coefficient is –0.20. This is because, first, the constructed value approach has been used in a number of investigations against GATT/WTO members as well (specifically, against Brazil, Malaysia, South Korea, Canada, Germany, the Netherlands and the U.S.), and, second, in 24 of the 43 cases against non-GATT/WTO signatories the Mexican authorities in fact did not use the constructed value approach (comparing third-country export prices instead).

The last country-specific variable is a dummy variable that reflects whether the target country itself had taken any AD action against Mexican exports. This variable tests the sometimes-heard allegation that AD actions can provoke retaliatory ('tit-for-tat') AD actions by the target country and thus trigger trade wars.[11] Again, this can be viewed as a measure of the potential political cost of imposing import protection. Two alternative specifications are considered. The first (*TFTAT_INV*) equals 1 for AD investigations that were opened within 12 months after the target country had opened an AD investigation against Mexico, and 0 otherwise. The second specification (*TFTAT_MEA*) reflects whether the target country had imposed an AD measure against any Mexican exports in the 12 months before the outcome of the case.[12] Data on AD actions against Mexico from 1986 to 2000 were provided by the Rules Division of the WTO Secretariat. In 51 out of the 167 cases the target country had opened an AD investigation against Mexico, and in 29 cases it had

[11] It should be noted that the model only considers *antidumping* measures against Mexico. Other types of protection measures (for example, under the safeguard rules or for environmental reasons) might equally trigger AD retaliation but are not included in the analysis.

[12] Several variations to these specifications have also been tested, but are not reported here. These are all combinations of the following options: (i) whether the target country had opened an investigation (as for *TFTAT_INV*) or imposed a measure (as for *TFTAT_MEA*) against Mexico; (ii) whether this action by the named country was against the complaining industry specifically or against any Mexican industry (*TFTAT_INV* and *TFTAT_MEA* both consider actions against any industry); (iii) whether this action took place in the period of time before the start of the investigation (as for *TFTAT_INV*) or before the outcome of the investigation (as for *TFTAT_MEA*); and (iv) whether the period considered is 12 months, two years or three years. The time period considered is essentially arbitrary. Twelve months, which is taken for both *TFTAT_INV* and *TFTAT_MEA*, seems a reasonable timeframe within which to undertake retaliatory action. In contrast, in an empirical analysis of AD retaliation world-wide, Prusa and Skeath (2001) consider two time periods, one of three years, and one actually covering any time in the past. Both time periods arguably seem quite long to detect any retaliatory motives.

imposed an AD measure against Mexico. A breakdown of these cases by target country is reported in Table 3.

[Table 3 about here]

A potential problem with the country-specific analysis is that the variables reflecting export share (*XSHARE*), preferential trade agreements (*PTA*) and retaliation (*TFTAT_INV* and *TFTAT_MEA*) are all dominated by the United States. The U.S. is where most Mexican exports go to and where most AD actions are take against them, while most of the Mexican investigations that took place under a preferential trade agreement were against the U.S. under NAFTA (see Table 2). Table 4 shows that correlation between these variables is reasonably high.

[Table 4 about here]

The first of our industry-specific variables (*PTYPE*) is also a measure of the potential political cost of imposing protection. This is a dummy variable distinguishing between imports of final consumer goods (a value of 1) and imports of intermediate or capital goods (a value of 0). The hypothesis—also tested by Czinkota and Kotabe (1997) for the U.S.[13]—is that industrial users of imported intermediate or capital goods have greater scope to oppose AD measures than final consumers affected by such measures. An empirical study by Marvel and Ray (1983) on protection more generally finds such a relationship as well. A total of 36 out of 167 investigations in our model involved consumer goods.

The next two industry-specific variables measure the relative size of the complaining industry. *LSHARE* represents the share of the industry in total national employment in the year of the filing. *YSHARE* gives the share in GDP. As in some of the other studies referred to above, these variables are included to test the hypothesis common to the entire political economy literature that the size of the industry is an important factor directly linked to equilibrium protection.

[13] These authors reject the hypothesis, actually finding a statistically significant effect opposite to the one expected.

Employment and output data at the four-digit industrial classification level are taken from the last three issues of the Industrial Census (Censo Industrial), undertaken by the National Statistics and Geography Institute (INEGI). The Industrial Census forms part of the wider Economic Census held every five years; most recently in 1989, 1994 and 1999. This source is preferable to INEGI's Monthly Surveys which present the same type of information and are more up-to-date, but have a much narrower coverage. *LSHARE* and *YSHARE* are expressed in percentages of national totals rather than in absolute levels. The coverage of the Industrial Census is not 100%, so it seems more adequate to relate each four-digit industry figure to the total given in the same Census series. Figures for investigations initiated from 1987 to 1990 are taken from the 1989 Census (which gives data for 1988), figures for 1991–1995 from the 1994 Census (1993 data), and figures for 1996–2000 from the 1989 Census (1998 data).

The fourth industry-specific variable (*FSIZE*) represents the average firm size in the complaining industry, measured in number of employees. The hypothesis is that large firms generally have greater political clout and may thus be favored in AD decisions. Following some of the results in the political economy of protection literature, we are interested in whether the more organized industries (in terms of ability to lobby) tend to receive greater protection. Figures on average firm size at the four-digit industry level are also obtained from the Industrial Census (by dividing employment in the industry by number of 'economic units' in the industry, as reported in the Census). While *LSHARE*, *YSHARE* and *FSIZE* are each measures of industry size, they are not highly correlated (the only reasonably high correlation coefficient, 0.55, is between YSHARE and FSIZE).

The fifth industry-specific variable (*MSHARE*) reflects the importance of the allegedly dumped product relative to total Mexican imports. At the start of each investigation, the Mexican authority normally identifies the eight-digit import tariff class or classes under consideration (though some investigations have a very broad scope and cover tariff classes at the four-digit level). *MSHARE* gives the total imports for these tariff classes (from both targeted and other countries) in the year of the filing as a percentage of total Mexican imports. The data comes from a database

called MAGIC (Module to Analyze the Growth of International Commerce), owned by the UN Economic Commission for Latin America and the Caribbean.

What is our expectation about the relationship between import share and outcome of the investigation? We remain agnostic. On the one hand, larger imports could be considered a signal that the domestic industry is subject to stronger international competition, which might make the authorities more willing to give AD protection as the marginal benefits may then be larger. This result is found in the Baldwin and Steagall (1993) study referred to in the introduction. Empirical work on general trade protection by Treffler (1993) also finds that industries that experience an increase in import penetration receive more protection. On the other hand, the Grossman–Helpman (1994) theoretical framework predicts that industries whose domestic output is high relative to imports receive greater protection (unless import demand is highly elastic). Higher important penetration may also mean that the foreign lobby has become more established, raising the political cost of protection (hence also implying an expected negative sign for the *MSHARE* coefficient).[14]

Finally, two additional control variables (*DRER* and *DUM93*) are included in the model. Both capture effects over time, which may be of relevance given that the success rate of AD complaints in Mexico has fluctuated over the years (see Figure 1). *DRER* measures the change in the real exchange rate of the peso in the six months before the decision is published. The model assesses whether macro-economic conditions—specifically appreciations or depreciations of the currency—affect the outcome of investigations. For example, an appreciation of the peso may increase the likelihood of an injury finding (in this respect *DRER* may also be interpreted as a 'technical track' variable). Such conditions do appear to influence the number of AD complaints (see Francois and Niels, 2003). Exchange-rate data are taken from the Mexican Central Bank (Banco de México). *DUM93* is a dummy variable that takes on the value of 1 for cases initiated from 1993 onwards. This is to control for a possible structural shift in the antidumping authority's 'aggressiveness' in this period, not explained by any of the other independent variables, as suggested by Figure 1. One explanation for such a shift could be that in 1993 the AD rules were tightened in the

form of a new law and regulations, and the International Trade Practices Unit was created.

[Figure 1 about here]

3. Econometric Results

We first employ a logit model to explore the relationship between the investigation outcome variable and the other variables described above. This estimation equation takes the following form:

$$\begin{aligned} OUTCOME_i &= \alpha_1 XSHARE_i + \alpha_2 PTA_i + \alpha_3 WTO_i + \alpha_4 CVAL_i \\ &+ \alpha_5 TFTAT_i + \alpha_6 PTYPE + \alpha_7 LSHARE_i \\ &+ \alpha_8 FSIZE_i + \alpha_9 MSHARE_i + \\ &+ \alpha_{10} DRER_i + \alpha_{11} DUM93_i + e_i \end{aligned} \quad (1)$$

where c is a constant term, e an error term, and the other variables are explained above and in Table 1. Our second estimation equation involves the actual level of import protection supplied. Equation (2) is estimated using iterative feasible generalized least squared (GLS), and takes a form similar to equation (1).[15]

$$\begin{aligned} DUTY_i &= \alpha_1 XSHARE_i + \alpha_2 PTA_i + \alpha_3 WTO_i + \alpha_4 CVAL_i \\ &+ \alpha_5 TFTAT_i + \alpha_6 PTYPE + \alpha_7 LSHARE_i \\ &+ \alpha_8 FSIZE_i + \alpha_9 MSHARE_i + \\ &+ \alpha_{10} DRER_i + \alpha_{11} DUM93_i + e_i \end{aligned} \quad (2)$$

As mentioned above, our sample has 167 observations. However, several observations are ultimately excluded in various specifications for two reasons. First, several targeted products (for example, pencils, toys or prams) fall into very broad

[14] A number of recent empirical studies on the political economy of trade protection try to assess the influence of foreign lobbies on U.S. trade policy. See Gawande and Krishna (2003, pp. 230–231).

[15] Note that our estimating equations do not include an intercept term. In terms of underlying theory, this simply means that sectors with no imports and with firms characterized by zero employees and zero output do not benefit from sector-specific contingent import protection. Formal specification tests strongly support this specification.

industrial classifications, such as 'other manufactured products', so that most of the industry-specific independent variables available to us become meaningless because of aggregation problems. Second, a number of investigations are targeted at very broad product categories that encompass several industrial or import tariff classes, again rendering some of the industry-specific variables meaningless.

The first column of Table 5 presents the results of our estimation of equation (1), with *OUTCOME* as the dependent variable. The other two columns in the table show the results for equation (2), where *DUTY* is the dependent variable. The first set of results for equation (2) is estimated for the full sample of antidumping cases, while the second set of results, in the last column, corresponds to estimates for the sample of affirmative determinations only. Note that each of the three specifications is statistically significant overall at the 0.01% level.

[Table 5 about here]

From Table 5 it follows that the estimated coefficient for *WTO*—which reflects membership of the GATT/WTO—has the expected sign and is statistically significant at the 1% level in each specification. To give an idea of the economic (as opposed to statistical) impact of this variable, consider that the inverse of the odds-ratio in column (1) implies that investigations against non-members are 13 times more likely to result in duties or undertakings than investigations against members of the GATT/WTO. From the second two columns it follows that GATT/WTO members also receive lower duties. The coefficient in the second column, –0.404, suggests that duties are on average one-third lower (following the Halvorsen–Palmquist method for interpreting dummy variables in semi-logarithmic equations). Table 5 also indicates that this *WTO* effect cannot be explained by the use of the constructed value method. The correlation coefficient for *WTO* and $CVAL$ is –0.20 while the estimated coefficient for $CVAL$ in Table 5 is statistically insignificant for both the outcome of investigations and the level of duties subsequently applied. This is not surprising if we take a political economy rather than a technical view of the investigation process. The technical reading of constructed value in the literature is that by construction it always leads to a higher duty. This does not appear to be the case here. Rather, the level of protection is not sensitive to the technical variable

itself but to the political context of its application. If we view constructed value as just one of many technical options available for making a political decision through this administrative channel, this simply supports the notion that the process is more political than technical. Critically, WTO membership does appear to increase the cost-side of the political equation for setting industry protection through this channel.

The coefficients for both *XSHARE* and *PTA* turn out to be statistically insignificant. Therefore, the hypothesis that countries that are important trading partners to Mexico receive more favorable treatment must be rejected. In the context of the political economy literature, export market share and preferential arrangements seem to have at best a negligible role in assessment of the costs of supplying protection.

As to retaliation, *TFTAT_INV* produces more significant results than *TFTAT_MEA* for the outcome of investigations although only at the 10% level, as shown in column (1) of Table 5. The reported odds-ratio means that possibly retaliatory AD investigations—ie, those that were initiated within 12 months after the target country started an AD investigation against Mexico—are three times as likely to result in a positive outcome. However, while this matters for the finding of dumping, it appears to be irrelevant for the actual level of protection supplied.

The consumer- or producer-good split is significant at the 5% level in all three columns. Whether the investigated imports are producer or consumer goods does indeed have an impact on the observed outcome. Working from the odds ratio in the first column, investigations concerning final consumer goods are 4.5 times more likely to result in duties or undertakings than investigations concerning intermediate or capital goods. The coefficient in the second column, 0.28, suggests that duties on final consumer goods are 32% higher than those on producer goods. Again, this is consistent with the results of both the competing lobbies and electoral competition literature. It is also consistent with Marvel and Ray's (1987) results for the United States. It confirms the notion that industrial consumers are generally better able to organize against protection than are final goods consumers.

Of the measures of the complaining industry's relative size and political clout, only the one related to average firm size turns out to be significant across all three columns. This fits the competing lobbies view of the protection process, but does not fit the general role assigned to industry size in the theoretical literature. The share in employment and share in output (*LSHARE* and *YSHARE*) variables have statistically insignificant coefficients for the dichotomous outcome of investigations, and for the overall level of protection supplied (including failed and successful petitions). However, for the subset of cases where a duty has actually been imposed, we do find a significant role for the employment variable. The results are thus mixed. The general result in the literature that the importance of the industry in terms of employment or production is a determinant of protection does not seem to carry into the factors actually taken into account by the Mexican antidumping authority when deciding whether to impose duties. Yet, when duties are imposed, this does play a role. We then find a statistically significant and positive coefficient for the *LSHARE* variable as shown in column (3), which suggests industries that are large employers tend to receive higher levels of protection when protection is actually supplied (the *YSHARE* coefficient is significant at the 10% level but does not have the correct sign). This finding is again consistent with the political support, electoral competition and median voter approaches familiar from the political economy theory of trade protection.

Average firm size in the complaining industry does influence the outcome. The estimated coefficient for *FSIZE* is statistically significant at the 5% level in all columns. The positive sign of the coefficient indicates that industries dominated by larger firms are better able to secure protection. This is consistent with the Grossman-Helpman (1996) model, when firms target their own protection only and not the economy-wide pattern of protection. It is also consistent with the Findlay and Wellisz (1982) representation of competing lobbies.

The coefficient for *MSHARE*—the share of the investigated product in total Mexican imports, is statistically insignificant with respect to the dichotomous outcome of investigations, but significant with respect to the level of protection

actually supplied. The tariff results are in line with Treffler (1993) and suggest that industries subject to greater import competition receive higher levels of protection.

Finally, changes in the real exchange rate have no impact on AD decisions, while the dummy variable for 1993 onwards does turn out to be of relevance. The dummy variable for 1993 has a statistically significant coefficient at the 1% or 5% level in all three columns. The odds-ratio in column 1 implies that investigations from 1993 onwards were just over three times more likely to result in duties and undertakings, a structural shift not explained by any of the other variables. The other columns suggest that the resulting duties have also been significantly higher (roughly 30%–40% higher on average). As discussed above, the shift may be attributed to the new legal framework for AD that came into force in 1993, which appears to have channeled more protection through this mechanism.

4. Summary and Conclusions

Mexico is an example of an emerging economy that has embraced open, rules-based trade, while at the same time becoming a heavy user of AD laws. The recent political economy literature suggests that the outcome of the application of AD rules should be linked to political factors affecting both the costs of providing protection (at least as viewed by the administering authority) and factors linked to the benefits of providing protection (again as viewed by that same authority). Like the traditional developed country users of administered protection, our results suggest that Mexico has indeed used its AD regime to supply protection for political reasons along the lines pointed to in the recent theoretical literature.

AD investigations against countries that are outside the GATT/WTO system are much more likely to result in duties or undertakings than investigations against members. Non-members are more vulnerable to discretionary use of the AD rules, and are often assessed as non-market economies or under the constructed value methodology. This implies that WTO membership of trading partners does effectively increase the political costs of administered protection. We also find limited evidence for retaliatory motives, with investigations that were initiated within

12 months after the target country had opened an investigation against Mexico being three times as likely to result in a positive outcome.

As to industry-specific factors, we find that the Mexican antidumping authority treats industries dominated by large firms more favorably, presumably because these industries have greater political clout or are better able to focus their lobbying efforts. When we focus on the level of imposed duties, we find limited evidence that industry size as measured by employment matters as well, as predicted in most political economy models. Another finding is that investigations concerning final consumer goods are much more likely to result in duties or undertakings than investigations concerning intermediate or capital goods. Actual duties also tend to be higher for consumer good industries. This suggests that industrial users of imported intermediate or capital goods have greater scope to oppose AD measures than final consumers, again supporting the notion of competing interest groups of varying degrees of concentration, with industrial consumers being better organized than final consumers.

Overall, Mexico's AD policy practice, like that in the U.S. and the EU, is dominated by political influence on the level of protection provided. Whether the same applies for the many other new AD regimes in middle- and low-income countries is something the empirical literature needs to explore further.

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Table 1: Description of the variables included in the regression models

Variable	Description	Data source	Characteristics	Expected sign
Dependent				
OUTCOME	Outcome of the investigation (negative=0; affirmative =1)	Own database built from several issues of the *Diario Oficial*	Dichotomous 54 x 0; 113 x 1	
DUTY	Measure of the *ad valorem* duty *t*, and equal to ln(*T*) where *T*=1+*t*	Own database built from several issues of the *Diario Oficial*	Linear Mean=62.2; St.dev=135.3	
Country-specific explanatory variables				
XSHARE	Share of total Mexican exports in year of complaint	IMF *Direction of Trade Statistics Yearbook*	Linear (0%–100%) Mean=26.4; St.dev=36.8	–
PTA	Preferential trade agreement with Mexico (no=0; yes=1)	Ministry of the Economy	Dichotomous 138 x 0; 29 x 1	–
WTO	GATT/WTO member (no=0; yes=1)	WTO website	Dichotomous 42 x 0; 125 x 1	–
CVAL	Constructed value approach used (no=0; yes=1)	Own database built from several issues of the *Diario Oficial*	Dichotomous 124 x 0; 43 x 1	+
TFTAT_INV	Antidumping investigation against Mexico in year before initiation (no=0; yes=1)	WTO Secretariat, Rules Division	Dichotomous 126 x 0; 51 x 1	+
TFTAT_MEA	Antidumping measure against Mexico in year before decision (no=0; yes=1)	WTO Secretariat, Rules Division	Dichotomous 138 x 0; 29 x 1	+

Table 1 continued:
Description of the variables included in the regression models

Industry-specific explanatory variables				
PTYPE	Whether dumped product is intermediate good (0) or final consumer good (1)	Own database built from several issues of the *Diario Oficial*	Dichotomous 131 x 0; 36 x 1	+
LSHARE	Share in total employment in Mexico	Last three issues of INEGI Industrial Census	Linear (0%–100%) Mean=2.00; St.dev=1.34	+
YSHARE	Share in total output in Mexico	Last three issues of INEGI Industrial Census	Linear (0%–100%) Mean=3.29; St.dev=1.45	+
FSIZE	Log of the average firm size (number of employees)	Last three issues of INEGI Industrial Census	Linear Mean=4.182; St.dev=0.954	+
MSHARE	Share of tariff class of dumped product in total Mexican imports in year of complaint	Module to Analyze the Growth of International Commerce (database owned by UN ECLAC)	Linear (0%–100%) Mean=0.09; St.dev=0.19	?
Time-related explanatory variables				
DRER	Change in real exchange rate in six months before decision (positive value means appreciation of the peso)	Banco de México, *Indicadores Económicos y Financieros*	Linear (%) Mean=2.9; St.dev=7.3	+
DUM93	Investigation initiated before (0) and after (1) January 1st 1993		Dichotomous 78 x 0; 89 x 1	+

Table 2: Mexico's preferential trade agreements

Signatory countries	Start date	Number of antidumping decisions since start date (up to December 2000)
Chile	January 1st 1992	1
USA and Canada (NAFTA)	January 1st 1994	25
Colombia and Venezuela (G3)	January 1st 1995	3
Costa Rica	January 1st 1995	0
Bolivia	January 1st 1995	0
Nicaragua	July 1st 1998	0
EU	July 2nd 2000	0
Israel	July 2nd 2000	0
Guatemala, El Salvador and Honduras (Northern Triangle)	March 15th 2001	n.a.
EFTA	July 1st 2001	n.a.

Note: Data on trade agreements provided by the Mexican Ministry of the Economy.

Table 3: Mexican antidumping cases with possible retaliatory motives[1]

Target country	Number of cases where target had opened AD investigation against Mexico in previous 12 months—*TFTAT_INV* (% of all cases against that target)	Number of cases where target had imposed AD measure against Mexico in previous 12 months — *TFTAT_MEA* (% of all cases against that target)
USA	41 (75%)	24 (44%)
EU (and member states)[2]	4 (24%)	3 (18%)
Brazil	4 (21%)	2 (11%)
Argentina	1 (100%)	0
Colombia	1 (33%)	0
Total (all target countries)	*51 (30%)*	*29 (17%)*

Note: [1] Data on AD cases against Mexico provided by the WTO Rules Secretariat. [2] The European Commission applies the antidumping rules for the EU as a whole, and member states do not have their own antidumping laws. Therefore, the dummy variable is set equal to 1 for cases where the European Commission, rather than the individual member state concerned, had taken action against Mexico (even if the Mexican action is against that member state only).

Table 4: Correlation matrix for the export share, preferential trade agreement and retaliation variables

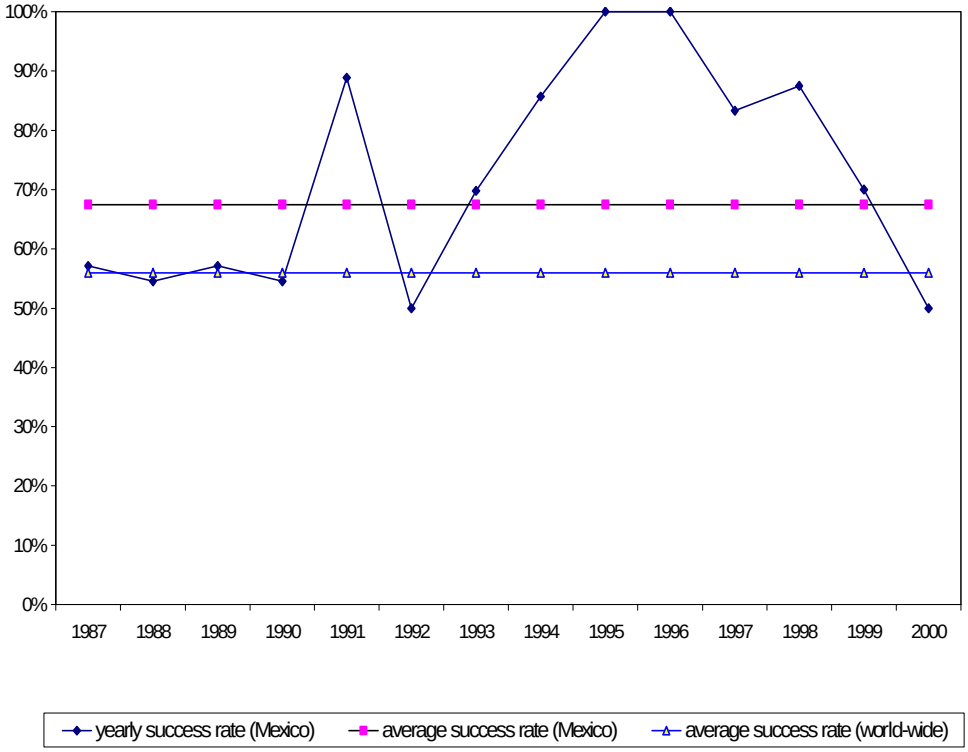
Variable	*XSHARE*	*PTA*	*TFTAT_INV*	*TFTAT_MEA*
XSHARE	1.00	0.48	0.67	0.49
PTA	0.48	1.00	0.24	0.23
TFTAT_INV	0.67	0.24	1.00	0.58
TFTAT_MEA	0.49	0.23	0.58	1.00

Table 5: Regression results for outcome of antidumping investigations with *OUTCOME* or *DUTY* as dependent variable

Explanatory variable	(1): LOGIT model of the outcome (either affirmative or negative) of investigations	(2): GLS estimates for ln(T) for full sample	(3):GLS estimates for ln(T) for affirmative determinations only
XSHARE	0.992 –(1.02)	–1.514E-4 –(0.11)	2.920E-4 (0.01)
PTA	0.458 –(1.05)	–0.100 –(0.95)	–0.020 –(0.14)
WTO	0.075 –(3.34)***	–0.404 –(4.92)***	–0.249 –(2.33)**
CVAL	1.031 (0.06)	–0.091 –(1.17)	–0.077 –(0.72)
TFTAT_INV	2.962 (1.70)*	0.085 (0.37)	0.014 (0.10)
TFTAT_MEA	1.025 (0.04)	–0.074 –(0.67)	–0.121 –(0.70)
PTYPE	4.534 (2.172)**	0.280 (3.11)**	0.242 (1.98)**
LSHARE	0.865 –(0.79)	0.049 (1.71)	0.112 (3.05)**
YSHARE	0.934 –(0.37)	–0.041 –(1.34)	–0.104 –(1.64)*
Ln(*FSIZE*)	2.030 (2.83)**	0.101 (3.06)**	0.141 (2.38)**
MSHARE	0.305 –(1.07)	0.486 (2.80)**	0.432 (2.26)**
DRER	1.047 (1.36)	0.004 (0.89)	–0.001 –(0.28)
DUM93	3.173 (2.01)**	0.317 (4.07)***	0.266 (2.23)**
observations	142	100	58
R-squared		0.7058	0.8273
Log likelihood	–70.1		
Chi-squared	37.3 (Wald) (p = 0.0004)***	239.94 (p = 0.0000)***	277.84 (p = 0.0000)***

Note: Logit regression for the binary variable *OUTCOME* with 142 included observations in specification (1) and iterative feasible generalized least squares estimates for 100 observations in specification (2) and 58 observations in specification (3). Estimated odds-ratios are shown for the logit model and estimated coefficients are shown for GLS models, both with *z*-statistic in parenthesis. *** means odds ratio or coefficient is statistically significant at 1% level; ** means significant at 5% level; * means significant at 10% level.

Figure 1: 'Success rate' of antidumping investigations 1987–2000 (% of cases initiated each year resulting in duties or undertakings)



Note: The years in the figure refer to the year of initiation of the investigation. The outcome of the investigation is sometimes published up to two years later. World-wide success rate taken from Zanardi (2002, Table 7).