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THE ECONOMIC AND STRATEGIC MOTIVES FOR ANTIDUMPING FILINGS

Thomas J. Prusa
Susan Skeath

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ABSTRACT

This paper takes a critical look at the trends in worldwide antidumping (AD) case filings during the last two decades. We examine the motives for AD filings by countries in an attempt to identify whether economic or strategic concerns are driving the recent upsurge in AD use. We begin by providing a comprehensive overview of the data on cases initiated in the 1980 to 1998 period. We then use non-parametric methods to identify national motivations for the use of antidumping. Results show considerable support for the importance of strategic concerns in driving AD case filings. This suggests that the rise in AD activity cannot be solely explained by an increase in unfair trading practices.

Thomas J. Prusa
Department of Economics
New Jersey Hall
Rutgers University
New Brunswick, NJ 08901-1248
and NBER
prusa@econ.rutgers.edu

Susan Skeath
Department of Economics
106 Central Street
Wellesley College
Wellesley, MA 02481
sskeath@wellesley.edu

I. Introduction

Despite the accomplishments of the Uruguay Round of the GATT,¹ there remains concern that nations are circumventing the agreements by means of various non-tariff barriers. One specific concern is that the “Antidumping Agreement,”² created to allow unilateral measures against dumped imports causing material injury to domestic firms, is being used more often as pure protection than as a trade remedy and that it is being used to excess by an increasingly large number of countries.

Antidumping (AD) use has increased dramatically over the last two decades (Miranda, Torres and Ruiz, 1998; Prusa, 2001). For instance, more than three times the number of countries have been involved in AD disputes – both in terms of those filing cases and those being filed against – during the 1990s as compared with the 1980s. Perhaps the most interesting aspect of the growth and certainly the most crucial for the issues examined in this paper is the fact that the “traditional” users of antidumping (Australia, Canada, the E.U., New Zealand, and the U.S.) have been joined by an ever-growing group of “new” users, including South Africa, Brazil, and Mexico among others.

In theory, AD actions are intended for use only against importers suspected of unfair trade practices. In practice, there is considerable latitude in usage due to the manner in which most AD codes are written. As the number of users and cases filed annually grow, it is increasingly difficult to identify the motives of the users of AD and to argue that increased usage signals merely an increase in unfair trade.

¹ Since the end of the Uruguay Round in 1994, the General Agreement on Tariffs and Trade (GATT) has been administered by the World Trade Organization (WTO). This latest round of agreements reduced developed country tariffs on industrial products by 40% and increased the percentage of product lines with bound tariff levels from 78% to 99% in the developed countries and from 21% to 73% in the developing countries; further details on the agreements reached during the Uruguay Round can be found at www.wto.org/wto/about/agmnts2.htm.

² The Antidumping Agreement is formally known as the “Agreement on Implementation of Article VI of the General Agreement on Tariffs and Trade 1994.”

This paper uses data on all antidumping cases filed and reported to the GATT/WTO between 1980 and 1998 to examine these motives of AD users. We identify two sets of motives to which AD usage can be tied, one “economic” and one “strategic,” and analyze filing patterns over the two decades to determine which of the motives receive support in the data. In addition, we take a critical look at the differences in filing patterns and motives across the two groups of AD users.

The economic motives we consider are based on the traditional view of AD as a response to unfair trade and on the newer description of AD as “special protection” (Bagwell and Staiger, 1990). Here we look for evidence of AD cases filed against “big” suppliers or against suppliers with large import surges. Our set of strategic motives follows work by Finger (1993) and Prusa (2001) in identifying “club” and “retaliation” motives for AD use. Countries who have used previously used AD protection (against any country) are considered club members. The retaliation motive is more narrowly defined and refers to a country filing AD actions specifically against those countries that had previously named it in the past.

Our analysis consists of an overview first of the number of AD cases initiated during the 1980s and 1990s, including a break-down by country of origin, and then of the number of cases consistent with the various economic and strategic motives we have identified. We also provide some formal non-parametric tests that allow us to quantify the statistical significance of the observed trends.

The results of the analysis are striking. The general picture we find is in full accordance with the concerns regarding increased usage of AD. That is, the growth in the number of cases has been tremendous and the use of AD is spreading rapidly across countries. Beyond those well-acknowledged figures, however, we find in the raw data evidence to support both economic and strategic motives for AD case filings for both traditional and new users, with the most support for use against big suppliers and AD club members. Formal tests for statistical significance of the various motives show

greater variation across the two user types, with traditional users showing more significance in both the economic and strategic motive categories but with considerable support for the existence of strategic motives for AD use. While further research aimed at distinguishing the individual effects of each motive is warranted, we believe that our results here help to reject the notion that the rise in AD activity can be solely explained by an increase in unfair trade.

The remainder of the paper proceeds as follows. The next section provides a brief overview of the historical trends in AD use and its spread during the last two decades. Section III reviews the theoretical underpinnings for the various explanations for AD use. In Section IV, we describe our data, including a breakdown of cases consistent with each of the different motives and in Section V we present the results of our non-parametric tests. Concluding comments are provided in Section VI.

II. Spread of Antidumping Use

The relatively recent upsurge in antidumping case filings and the attention it has received belies the longer history of antidumping policy and its use. Antidumping was, in fact, in use very early in the 20th century. The first modern antidumping law was passed in Canada in 1904 with Australia following close behind in 1906. By 1921, the U.S., France, Britain and most of the British Commonwealth had similar laws on their books (Finger, 1993, pp. 15-23).

Despite its long lineage AD was not a widely used trade law until the late-1970s. For example, according to Finger and Fung (1994) fewer than a dozen cases were filed each year during the 1960s. The reason is two-fold. First, tariffs were higher so industries were less exposed to import competition and fewer industries perceived imports as a threat. Second, during this period the rules for imposing AD duties were difficult to satisfy. The U.S., for instance, did not levy duties in a single AD case during the entire decade of the 1950s. The pattern during the 1960s was about the same with

only about 10 percent of U.S. AD cases resulting in duties. The high standards were in effect among all contracting parties. In 1958, when the contracting parties canvassed themselves about the use of AD, the resulting tally showed only 37 AD decrees in force across all GATT member countries (Finger, 1993).

However, AD's life in the backwater of trade policy ended with the 1979 Tokyo Round agreement. The agreement contained two key amendments that transformed this little used trade statute into the workhorse of international trade protection. First, the definition of "less than fair value" (LTFV) sales was broadened to capture not only price discrimination but also sales below cost.³ Cost-based allegations now account for between one-half and two-thirds of U.S. AD cases (Clarida, 1996) and for as much as ninety percent of EU cases against developing countries (Messerlin, 1989). According to one noted legal expert cost-based AD petitions have become "the dominant feature of US antidumping law" (Horlick, 1989, p. 136).⁴

Second, there was a change to the procedures involved in showing material injury to domestic firms. The Kennedy Round Code had required that the dumped imports be "demonstrably the principal cause of material injury" before duties could be imposed. In response to pressure from a number of the developed countries, the Tokyo Round Code revised this provision to render such a demonstration unnecessary.

There was an almost immediate increase in the number of AD disputes (Figure 1).⁵ In 1980, 69 new AD cases were filed and more than 150 cases were filed the following year. In fact, in only one year since 1980 has the number of cases fallen below 100. In recent years, about 250 AD cases have been initiated each year. Over the entire

³ The rule codified recent practice in several of the signatory states, including Australia, Canada, and the United States.

⁴ Lindsey (1999) provides strong evidence for Horlick's view: over the four-year period 1995-98, only 4 of 141 LTFV calculations were based on a true price-to-price comparison.

⁵ All AD data reported in this paper are based on the mandatory "Reports of AD activity" required by the GATT/WTO.

19-year period, over 3500 AD cases were filed worldwide (an average of 185 cases per year), with the bulk of these being filed during the 1990s.

Despite the increase in its use, it did not initially appear that AD was a worldwide problem; it was an instrument wielded by only a handful of countries. Until the late-1980s, essentially all AD actions were initiated by the five “traditional” users: the U.S., Canada, the European Union, Australia, and New Zealand. Traditional users were responsible for a total of 99.4% of all of the AD cases filed between 1980 and 1985 as well as for more than 95% of the cases filed during the entire decade of the 1980s.

By the late-1980s, however, the AD club was no longer nearly as exclusive: the traditional users were being joined at an increasing rate by non-traditional or “new” users of AD. To highlight this point we also plot the percentage of AD cases filed by new users in Figure 1. New users first filed a significant fraction of all worldwide AD cases (20%) in 1987. Their prominent role in AD use has never abated; in every year since 1993 new users initiated over half of all AD cases filed and were responsible for more than two-thirds of AD disputes in both 1996 and 1998. Overall, during the 1990s, new users accounted for more than 40% of the total number of cases filed, a considerable increase over the 4.5% of cases filed by new users during the 1980s.

It is informative to see which countries filed AD cases over the two decades covered by our study and to look at their changing roles in the international filing patterns. Table 1 provides details on the countries that filed AD cases between 1980 and 1989, as well as those that filed between 1990 and 1998, indicating the percentage of filings over each period that can be attributed to individual nations. For new users, the year of their first AD filing is also shown in the table. As mentioned above, over 95% of the cases filed during the 1980s can be attributed to the five traditional users. With the exception of Finland, new users began filing AD complaints only in the latter half of the decade, with South Korea starting in 1985 and Mexico and Brazil following shortly thereafter in 1987 and 1988 respectively.

The difference across the periods is remarkable. No single new user of AD accounted for more than 3% of the total cases filed during the 1980s and new users as a group accounted for fewer than 5% of all cases filed during that decade. During the 1990s the picture changed dramatically. That decade saw a noticeable increase in the number of countries filing AD complaints to a total of 33, compared to only nine in the 1980s. The 24 countries that first filed AD cases after 1990 joined the list of AD users in a steady stream. Eleven countries (including Japan, Argentina, Turkey, and Israel) first used AD between 1991 and 1993; eight countries (including South Africa, Malaysia, and Trinidad and Tobago) first used AD between 1994 and 1996; a further five countries (including Egypt, Czechoslovakia, and Nicaragua) started using AD in 1997 and 1998.

Most of the new users filed a very small percentage of the total AD complaints lodged during the decade, with 21 countries filing fewer than 2% of the total cases each. Within those 21 countries were nations from all stages of economic development and from all parts of the world, ranging from Japan, Poland, Turkey and Egypt, to Nicaragua, Venezuela, Singapore and Thailand. The cumulative effect of this AD activity by new users was such that the five traditional users accounted for only slightly more than half (56%) of the cases filed in the 1990s. This fact emphasizes the manner in which the increased AD filings by non-traditional users eclipsed traditional user behavior over the last decade.

One of the goals of this paper is to examine the motives behind the increasingly large number of AD complaints filed each year, especially by non-traditional users. Countries can always claim, of course, that they are motivated only by a sincere desire to “level the playing field” and “fight unfair trade.” The enthusiasm with which the new users have embraced AD, however, certainly makes us question whether other factors are involved.

Along these lines we highlight one particularly interesting trend in the final column of Table 1. There we indicate, for each new user, the number of AD cases filed

against that country between 1980 and the year of its first AD filing. For instance, when South Korea began to use AD law in 1985 it had been subject to almost 40 AD investigations since 1980. When Brazil started its AD program in 1988, it had been the subject of 55 investigations. With the exception only of Panama and Guatemala, every new user was subject to AD complaints before it initiated its own AD policy; many countries had been named in dozens of investigations. In fact, almost two-thirds of the 28 new users were subject to at least ten investigations before they began to initiate their own AD complaints.

This suggests that the new users were not unfamiliar with the implications of AD policy prior to their first filed complaints, that they had prior experience with the vagaries of the broad notions of injury and dumping, and that they would have been able to identify those countries that had successfully used AD against them in the past. If ulterior motives lie behind the increase in AD filings by new users in the 1990s, the data in the last column of Table 1 suggest why such countries might have felt that strategic retaliation was warranted. We will return to this issue in the following sections.

When considered as a whole package, the evidence on recent trends in AD use suggests that, to a large extent, the table has turned for the traditional users. The share of cases accounted for by the United States, the world's most prolific user of AD law, decreased by almost 50% during the 1990s as compared with the 1980s. In fact, the United States is now the second most *investigated* country, trailing only PR-China.⁶ Countries such as Mexico, Argentina, South Africa, Brazil, and India have become some of the heaviest users of AD. And every year, new countries that have been investigated by others in the past make their own forays into the AD policy arena. Such striking trends certainly raise the specter that countries are using AD law for reasons other than punishing unfair trade.

⁶ Leaving out cases brought by U.S. industries, the United States is the country most often alleged to have dumped.

III. Motivations for Antidumping Use

Our look at the trends in antidumping use raises questions regarding the motivations that underlie the use of antidumping policy. Although AD actions, in their purest form, should occur only after an incident of dumping, AD statutes as generally written allow countries significant discretion in their application of the law and implementation by authorities is often poor. Thus, the data reviewed in Section II lead us to ask whether the upsurge in AD case filings is truly indicative of an upsurge in unfair trading practices with the increased importance of global markets or whether there might be other incentives that drive each nation's decision to file, or begin to file, AD complaints. In reviewing the economic literature on antidumping, we find competing explanations for the use of AD, from the traditional analysis of AD as a response to unfair trade, through a more modern explanation of AD as special or safeguard protection, to the possibility that countries might use AD strategically.

The standard theoretical explanation for AD is based on the existence of dumped imports, goods that are sold either at a price below that set in the importer's domestic market or at a price below the importer's cost of production, implying that goods are not sold at "fair value."⁷ In response to such unfair trade practices an importing country may then file AD actions. Such actions are consistent with the GATT/WTO code that provides for the imposition of AD duties in cases in which dumped imports are found to have caused material injury to domestic firms.

⁷ For a formal theoretical treatment of dumping as international price discrimination, see Brander and Krugman (1983); for dumping as below-cost sales, see Ethier (1982).

Given the level of detail at which the WTO records AD actions we are constrained to use country-level data in our current study. Therefore, we cannot directly identify instances of dumping or unfair trading practices. However, we can look for indirect evidence of such practices. For example, one could expect that exporting at unfairly low prices would result in large import volumes and/or large increases in imports. If AD cases were predominantly directed at trading partners with such trends, that fact could be construed as evidence of the use of AD to combat unfair trade.⁸

A newer explanation for the use of antidumping categorizes AD policy as an example of “special protection.” Such protection has been argued to be an important component in achieving overall trade liberalization by allowing countries to suspend their tariff-reduction obligations for those industries that are more significantly injured by imports than trade negotiators anticipated. Bagwell and Staiger (1990) provide a formal game-theoretic model in which special protection arises as a short-term cooperative remedy for changes in the underlying trade flows.

The tariff reduction game between two countries has the structure of a prisoners’ dilemma, with the “cooperative” tariff rate being at the low, trade-liberalizing level. In a repeated version of the game, countries could solve the dilemma by using contingent strategies that incorporate punishment schemes to handle instances of defection from the cooperative outcome, or by the creation of formal agreements that include third-party enforcement mechanisms, such as the GATT.⁹ Bagwell and Staiger (1990) argue, however, that schemes such as these cannot account for the growing incidence of the use

⁸ The injury requirement also makes it more likely that one would name countries with large imports or large changes in imports since such trends are usually taken as evidence of economic harm.

⁹ Papers by Dixit (1987), Jensen and Thursby (1984), Mayer (1981), and Riezman (1982) explore these issues.

of special protection such as escape clause actions, VERs and AD. Their model incorporates observed random shocks to each country's output with positive shocks leading to higher volumes of trade. Crucially, they then show that the cooperative tariff rate is increasing in both import size and variance. In other words, Bagwell and Staiger formalize Corden's (1974) argument that special protection may be a tacitly agreed method to maintain cooperation in volatile trade periods.

When looking for Bagwell-Staiger incentives for the use of AD in our data, we check to see whether AD cases are being filed against a country's largest trading partners or against those trading partners with recent surges in import volume. Our indirect measures of such behavior include measures of trade volume and trade surges. Evidence of filings against countries would also be consistent with the use of AD to combat unfair trading practices.

A final possible explanation for the observed trends in AD filing behavior points to potential strategic motives on the part of the involved countries. Within the Bagwell-Staiger model, special protection-based changes in tariff levels are equilibrium responses to changes in the level or variance of imports. Yet, other work points out that there may be additional factors that should be considered. For example, Finger (1993) argues that the countries that use AD form a type of "club," in that they tend to apply AD against one another rather than against non-club members. As evidence, Finger notes that during the 1980s about two-thirds of AD cases were filed against countries who also used AD (p. 7). Similarly, Prusa (2001) argues that many countries appear to file AD actions against countries that have previously investigated them, suggesting a type of retaliatory behavior.

Both of these arguments suggest that countries may be using AD in a strategic fashion to punish defectors from the cooperative (liberalized) equilibrium, or perhaps to deter such defection. Neither the club nor the retaliation motive for AD use is consistent with AD as protection against unfair trade, nor are they possible as equilibria within an unmodified Bagwell-Staiger model.¹⁰ Another possibility is that worldwide AD use is not in equilibrium (in the Bagwell-Staiger notion of cooperative equilibrium). That is, the heavy use of AD law during the late 1970s and the early 1980s may have been too aggressive. Rather than maintaining the cooperative tariff level as implied by Bagwell and Staiger, such heavy use may have been perceived as a defection to the non-cooperative (one shot) prisoners' dilemma equilibrium. If this is the case, then recent AD actions might be "out of equilibrium" responses to the earlier defections.

IV. Data description

In order to investigate the motives for filing AD cases, we examine AD filing patterns in more detail. Before we begin our analysis we note that about one-fifth of the AD cases initiated between 1980 and 1998 were filed against non-market economies. This is noteworthy because the rules for determining the existence of dumping are quite different when the affected country is a non-market economy (Boltuck and Litan, 1991). As a result, the motivation for filing against a non-market economy is likely to be quite different than that for filing against a market economy. Therefore, from this point on we

¹⁰ Extensions to the Bagwell-Staiger model might be made in order to generate club or retaliatory AD filings. Incorporating imperfect monitoring of demand shocks (following Green and Porter (1984)) or political economy incentives to misuse AD (following Grossman and Helpman (1994)) could give rise to observing AD cases filed as indirect (club) or direct (retaliatory) punishment for previous AD use.

drop cases against non-market economies from our analysis. Furthermore, because of limited availability of bilateral import data, we must drop 1998 filings from our analysis.

We will be testing for two different explanations for AD filings, “economic” and “strategic.” In terms of the economic incentives, we will be looking for evidence that AD cases are filed against the largest suppliers (“big supplier” hypothesis) and/or against suppliers who have the largest percentage change in imports (“import surge” hypothesis). Unfortunately, the Bagwell-Staiger model does not provide any guidance on how to define “big” so we test their theory as follows. For each year, we first rank each country’s import suppliers from biggest to smallest. Suppliers who are above a specified cut-off percentile will be considered “big.” This means that a country might be considered a big import supplier for the U.S. market in one year but not in other years. It also means that a country might be considered a big import supplier for one market but not another (e.g., big for the U.S. but not for Canada). We perform similar ranking (based on the percentage change in imports) to derive whether each supplier’s “import surge” is big. For each hypothesis we present results for three cut-offs: 50th, 75th, and 90th percentile. As we will show, the results are not particularly sensitive to the choice of cut-off. We find this reassuring as it suggests that the main insights are not being driven by how we define “big.”

As for the strategic explanations we will be looking for evidence for “club” and “retaliation” motives. Empirically, we will be looking for evidence that AD cases are filed against countries that also use AD (regardless of whom they have filed against). Such evidence would support the “club” hypothesis. For example, if in 1990 South Korea has previously used AD, then, under the club hypothesis, Mexico would be more

likely to name South Korea than Uruguay (i.e., a country that had not used AD at all). For the “retaliation” hypothesis we will be looking for evidence that countries file AD cases against suppliers who have previously filed an AD case against them. For example, if Australia has filed cases against Mexico prior to 1990, then Mexico will be more likely to file cases against Australia in 1990 than against, say, Japan (i.e., a country that had not previously filed against Mexico).

For the strategic motives we also consider whether recent filing activity is more important for club and/or retaliation incentives. That is, it seems plausible that AD users might discount behavior in the relatively distant past and put more weight on recent actions. To be precise, consider Finland’s use of AD. Finland filed about 20 AD cases during the 1980s but last used it in 1991. It is possible that by the mid-1990s other countries no longer considered Finland a “club” member. Similarly, despite being the subject of a Finnish AD action in 1988, it seems reasonable to believe that Poland might no longer hold retaliation incentives against Finland after sufficient time had passed.

In order to address this concern, we consider two versions of the club and retaliation hypotheses, “long” memory and “limited” memory. Under the long memory scenario, club and retaliation incentives are never discounted. This means that Finland should be considered a club member throughout the 1990s and retaliation incentives should exist for all the countries Finland investigated during the 1980s. By contrast, under the limited memory scenario we hypothesize that the strategic incentives are only operative for the three years following the initiation of a particular case. In the case of Finland this means that it would be considered a club member only through 1994.

Similarly, any retaliation incentives that Poland might have against Finland (due to the 1988 case) would be relevant only through 1991.

In Table 2 we report the percentage of cases consistent with the various hypotheses. This gives a feel for how the four hypotheses are reflected in the raw data. Several insights are quickly observed. First, we can see that regardless of the cut-off used, almost all AD cases are aimed at big suppliers. For instance, when we use the 75th percentile to define “big,” over 90% of AD cases initiated by new users and over 97% initiated by traditional users are against big suppliers. When the 90th percentile is used, the share of cases for both new and traditional users falls to a still non-trivial 80%.

Second, there is far less support for the import surge hypothesis. Even when we use the 50th percentile cut-off – the most liberal interpretation of “big surge” – only about half of the AD cases over the sample are against suppliers whose imports have surged. When we use the more stringent cut-offs (75th and 90th percentiles) the fraction of cases against suppliers whose imports have surged falls dramatically. Fewer than 6% of all cases can qualify as having been filed against importers with surges when using the 75th percentile cut-off; fewer than 1% of all cases qualify at the 90th percentile.

Third, the club hypothesis receives strong support. More than 80% of AD cases filed by new users are against club members; almost 60% of AD cases by traditional users are against club members. The fact that there is almost no difference between the long and limited memory results reflects the fact that AD is an addictive habit; once countries begin using AD protection, they rarely cease using the statute for very long. In other words, the case of Finland is the exception to the rule.

Fourth, retaliation patterns are also reflected in the data. Overall, countries file about half of their cases against countries that previously had used AD against them, slightly more for new users, slightly less for traditional users. Even when we restrict retaliation incentives to only the previous three years (i.e., limited memory) we find that almost 40% of cases are consistent with the retaliation motive.

A few comments are in order. First, these statistics suggest that of the economic hypotheses, being “big” matters more than surges do. However, we need to be cautious before embracing this conclusion. First of all, it is more difficult for large suppliers to experience a large percentage change in imports (a surge) simply because they are starting with such a large base. The countries with “surges” tend to be those that are initially small suppliers, making it easier to experience a large “surge.” This is a reminder that while it often appears that AD actions are motivated by import surges one must be careful to examine the entire universe of suppliers before drawing such a conclusion.

Second, AD cases are often aimed at quite narrow product categories, a particular type of steel, for example, rather than all steel products. Unfortunately the WTO does not require countries to report the exact categories, so we cannot identify trade at these disaggregated levels. As long as our trade measure is correlated with trade at the product category level, our analysis is accurate. If, however, trade at the disaggregated level consistently varies from our measure, we might be understating the importance of the surge hypothesis. Taken together, these two caveats lead us to be very cautious in interpreting results for the surge hypothesis.

Overall, we find the support for retaliation incentives quite striking. New and traditional users alike tend to file AD cases against those who have investigated them in the past. Because so many users apparently file partly due to these incentives, we can identify countries that are being named (or investigated) in AD disputes for apparent retaliatory motives. In Figure 2 we plot the shares of cases consistent with retaliation for each country (over the entire 1980-98 period). On the *x*-axis we plot the share of *initiated* cases that are consistent with retaliation (i.e., the tendency for a country's use of AD to reflect retaliation incentives). On the *y*-axis we plot the share of cases in which the country is *investigated* that are consistent with retaliation (i.e., the tendency for a country to be named in a way consistent with retaliation incentives). The 45-degree line indicates countries that file and are subject to the same share of cases consistent with retaliation. Countries lying above (below) the line are subject to more (less) retaliation than their own filings suggest.

The figure is quite revealing. Even though about half of the AD actions initiated by traditional users (EU, Australia, U.S., Canada) are consistent with a retaliation incentive, a larger, near-90 percent of the cases in which they are investigated are initiated by countries that have a retaliation incentive. Only two new users, Chile and Costa Rica, demonstrate a similar pattern. The data for all the other new users reflect that their filings tend to be more retaliatory than the cases in which they are investigated. This pattern suggests that the traditional users are paying a high price for their refusal to strengthen AD rules. They are paying heavily for their past transgressions because they are now being regularly investigated in a retaliatory fashion.

In Figure 3 we also plot the shares of cases consistent with retaliation (initiated and investigated), but here we restrict ourselves to looking only at the 1994-98 period. This allows us to control for the fact that the four major traditional AD users had a near monopoly on AD filings during the 1980s. In a sense, the analysis for the more recent years reflects a more level playing field because both new and traditional users were actively filing AD actions over the period. And as we can see, the story changes somewhat when we restrict ourselves to the more recent period. While the traditional users continue to be subject to a higher fraction of retaliatory cases, the new users have shifted up and now have a larger share of cases in which they are investigated consistent with retaliation. The lesson appears to be that as countries (both new and traditional users) embrace AD protection, they are subjecting themselves to long run costs in the form of ongoing retaliation.

V. Nonparametric analysis of filing patterns

The evidence from the raw data, presented in the previous section, provides support for both the economic and strategic incentives for AD filings. We now offer formal tests that allow us to quantify the statistical significance of the trends. In computing these tests we focus on the filings by country, and ask whether the cases filed by each country in each year are statistically consistent with each of our hypotheses.

In Table 3 we look at South Africa's filings in 1994 in order to illustrate the type of statistical tests that we use to determine whether each hypothesis is supported in the data. In 1994 South Africa filed 15 AD cases. Of these 15 filings, 11 (73%) were consistent with the retaliation hypothesis (i.e., 11 cases were against countries who had

named South Africa in 1993 or earlier); 13 cases (87%) were consistent with the club hypothesis; 14 (93%) were against big suppliers (using the 50th percentile cut-off); only one case (6.7%) was against a big import surge supplier (again, using the 50th percentile cut-off).

The question is whether these filing patterns provide any support for the various hypotheses. Consider first the economic hypotheses. If economic motives were **not** present then we would expect cases to be filed independently of the volume of imports from any particular country. Therefore, we would expect that the share of cases against big suppliers would be the same as the cut-off percentile used to define “big” (i.e., 50th, 75th, or 90th percentile).

In the case of South Africa in 1994, 93% of its cases were filed against big suppliers. Under the null hypothesis that economic motives were **not** present, we would expect only 50% of its cases to be filed against big suppliers when using the 50th percentile cut-off. Using the binomial test we can indeed conclude that such a large fraction of cases against big suppliers is highly (99%) unlikely; the binomial probability $\Pr(15,14,50\%)$ is essentially zero. Therefore, we can reject the null hypothesis and conclude that South Africa’s 1994 filings provide statistical support for the big supplier hypothesis.

Using the same logic as above, we can test the big import surge hypothesis after constructing a null hypothesis that there is **no** motive to use AD against big import surges. In this case, we would again expect the share of cases against big surge suppliers to be the same as the cut-off percentile used to define “big.” In the case of South Africa in 1994 when using the 50th percentile cut-off, only one case was against a big surge

supplier. Under the null hypothesis, however, we would expect 50% of the 1994 cases to be filed against big suppliers. Using the binomial test we find that we should expect (with 99% likelihood) that at least one case would be filed against a big surge supplier. Therefore, South Africa's 1994 filings do **not** provide any statistical support for the big surge hypothesis.

Consider next the strategic hypotheses, beginning with the club hypothesis. Table 3 shows that only 10% of South Africa's suppliers had ever used AD (against any country) in the past, so only 10% of its suppliers qualify as club members. Under the null hypothesis that the club effect is **not** present, we would expect cases to be filed independently of whether a country is a club member. Given the information about South Africa's suppliers, we would expect that under the null hypothesis only 10% of South Africa cases should be against club members. We observe, however, that 13 of South Africa's 15 AD cases (87%) were against club members. To statistically confirm that this pattern is significant, we again use the binomial test. We conclude that such a large fraction of cases against club members is highly unlikely (essentially zero). Thus, South Africa's 1994 filings provide statistical support for the club hypothesis.

Finally, similar calculations can be performed to test for evidence of the retaliation motive. Only 4.7% of South Africa's suppliers had ever named it in an AD case by 1994; yet, 73% of South Africa's cases were against countries that had named it in the past. Once again, formulating the null hypothesis that there is **no** retaliation motive we can use the binomial test to conclude that such a large fraction of cases consistent with retaliation is extremely unlikely. Thus, South Africa's 1994 filings also show support for the retaliation hypothesis.

We perform such binomial tests on the filing patterns for each country in each year.¹¹ For example, South Africa's AD activity gives us four years of filings (1994, 1995, 1996, and 1997) on which we can perform binomial tests. Over all countries and all years of their AD use, we have a total of 212 country-year pairs and we present results for 212 separate binomial tests of each of our four hypotheses. We use a significance level of 5% to determine whether a country-year observation supports a hypothesis. Depending on how many country-year observations have significant tests, we can determine the extent to which each hypothesis is supported by the data.

In Table 4 we report the binomial test results for the economic hypotheses. These results indicate that AD filings are far better explained by the big supplier hypothesis than by the import surge hypothesis. For instance, when we use the 50th percentile cut-off, about half of the annual observations (104 of 212) support the big supplier hypothesis but only 13 percent of the annual observations (29 of 212) support the import surge hypothesis. The same qualitative pattern exists regardless of what cut-off we use. Simply stated, the AD filings provide far more support for the big supplier hypothesis than for the import surge hypothesis.

There are also important differences between traditional and new user filing patterns. In particular, continuing to use the 50th percentile cut-off, we note that over 90 percent of the annual observations on traditional users' AD activity support the big supplier hypothesis. In particular, 70 of the 77 country-year observations have binomial probability less than 0.05. Interestingly, less than 30 percent (23 of 77) of the annual observations on traditional users' AD activity support the big surge hypothesis.

¹¹ Once a country begins using AD protection, we perform the tests in every year thereafter.

By contrast, we find that new user AD activity provides far less statistical support for either economic hypothesis. For example, only about one-quarter of the observations on new users' AD activity support the big supplier hypothesis. The big surge hypothesis receives even less support. Less than five percent of the observations on new users AD activity support the big surge hypothesis.

The qualitative results are the same for the 75th and 90th percentile cut-offs. Namely, traditional user AD activity strongly supports the big supplier hypothesis and provides (at best) weak support for the import surge hypothesis. On the other hand, new user AD activity provides no support at all for the import surge hypothesis, and only weak support for the big supplier hypothesis.

We report the binomial results for the strategic motives in Table 5. The first finding of note is that, overall, both the club and retaliation hypotheses receive strong support. Under either the long or limited memory scenarios, 56% (118 of 212) of the country-year observations are statistically significant with the club hypothesis at the 5% level. Between 40 and 50% of the observations support the retaliation hypothesis.

Interestingly, there is a striking difference between the new and traditional users. A full 87% of the annual observations on traditional users' filings are consistent with the club effect, but only 38% of the annual observations on new users' filings are consistent with the club effect. Similarly, over 70% of traditional users' filings, but only about 30% of new users' filings, support the retaliation hypothesis.

Thus, even though in the raw data it appeared that new users' AD filings were more often consistent with the retaliation and club hypotheses, once we control for the expanding set of AD users we are able to conclude that statistically the club and

retaliation motives are far more relevant for traditional users than for new users.

Nevertheless, new user filing behavior is better explained by strategic motives than by economic motives.

There are several possible interpretations of these results. First, the finding that economic considerations are not the only explanation for AD filings is consistent with earlier studies. Other research has found that EU and U.S. AD decisions are influenced by political pressure, national security interests, and historical economic relationships (Hansen and Prusa, 1996, 1997; Tharakan and Waelbroeck, 1994a, 1994b).

Second, the finding that economic motivations do a poor job explaining the filing behavior of new users may partially reflect the weak rules and informal institutions governing AD proceedings in those countries. New users are particularly likely to determine injury using very simple methods, especially when compared with methods employed by traditional users (Santos, 1998). Thus, it may be quite difficult for the new users to accurately evaluate economic injury. This would make it more likely that strategic considerations would play an unusually important role in new users' AD activity.

Third, measurement issues are a concern across all of the hypotheses. As mentioned above, GATT/WTO reporting limits the level of disaggregation at which we are able to measure imports. While we would like to utilize product level import data, countries are not required to report which products are subject to AD case filings. As a result, our measures are more aggregated than we would like. Similarly, our variables capturing the strategic motives for AD use are also more broadly defined than the ideal. For instance, retaliation and club effects may play a particularly important role at the

industry level, and less so at the country level. Once again, until the WTO collects AD filing data at the industry level this issue cannot be addressed.

Fourth, the results suggest that both economic and strategic considerations play a role in motivating national-level AD filings. The nonparametric tests performed in this paper do not let us separate these effects, however. While such a task is beyond the scope of the current paper, we use parametric techniques in related work (Skeath and Prusa, 2001) and find results that are consistent with those discussed here. Namely, AD filing patterns cannot be explained completely by only economic considerations. Rather, a combination of both economic and strategic considerations is important in explaining trends in AD filings.

VI. Concluding Comments

Our review of the worldwide AD filing patterns between 1980 and 1998 indicates that strategic considerations are an important explanation for AD filings. After reviewing the filing patterns we find that three-quarters of all AD filings are consistent with the club effect and half are consistent with retaliation incentives. When we perform statistical tests on annual filings at the country level we find that approximately 50 percent of observations provide statistically significant support for the strategic hypotheses. For traditional users we find evidence that both economic and strategic motives are important; however, for new users we find that strategic motives are more important than the economic motives.

Our results are consistent with evidence beginning to be reported elsewhere in the literature. Both Blonigen (2000) and Bown (2001) investigate the effects of the threat of

foreign retaliation on U.S. antidumping case filing behavior. Their independently-derived results indicate that retaliation exposure and, in particular, the threat of foreign reciprocal AD duties can reduce the likelihood of U.S. AD cases being filed against certain countries. Further work needs to be done in this area as our findings indicate that the growth of AD has not slowed down and that AD club members tend to file against one another. Our results suggest that the dampening effect implied by Blonigen's and Bown's work may be statistically significant but not quantitatively important.

Taken together, the sources of evidence on the importance of retaliatory motives underscore the importance of including AD rules on the agenda in any future WTO negotiations. The fact that so many AD cases worldwide are apparently motivated by strategic considerations indicates that the rules currently in use are too broad and too easily subjugated to other forces. Improved AD rules and tighter guidelines for the implementation of AD legislation would greatly help in limiting the use of AD protection for reasons other than that intended by the WTO statute.

References

- Bagwell, Kyle and Robert Staiger. 1990. "A Theory of Managed Trade." *American Economic Review* 80(4), September, pp. 779-795.
- Blonigen, Bruce A. 2000. "U.S. Antidumping Filings and the Threat of Retaliation." Mimeo. University of Oregon.
- Boltuck, Richard and Robert E. Litan. Eds. 1991. *Down in the Dumps: Administration of the Unfair Trade Laws*. Washington, DC: Brookings Institute.
- Bown, Chad P. 2001. "Antidumping in the United States: The Channels of Foreign Retaliatory Threats." Mimeo. Brandeis University, March.
- Brander, James A. and Paul Krugman. 1983. "A 'Reciprocal Dumping' Model of International Trade." *Journal of International Economics* 15(3-4), November, pp. 313-321.
- Corden, W. Max. 1974. *Trade Policy and Economic Welfare*. Oxford and New York: Oxford University Press.
- Clarida, Richard H. 1996. "Dumping: In Theory, In Policy, and in Practice." in J. Bhagwati and R. Hudec. Eds. *Fair Trade and Harmonization: Prerequisites for Free Trade?* Cambridge: MIT Press, pp. 357-389.
- Dixit, Avinash K. 1987. "Strategic Aspects of Trade Policy." In Truman F. Bewley. Ed. *Advances in Economic Theory: Fifth World Congress*. New York: Cambridge University Press, pp. 329-362.
- Ethier, Wilfred J. 1982. "Dumping." *Journal of Political Economy* 90(3), June, pp. 487-506.
- Finger, J. Michael. Ed. 1993. *Antidumping*. Ann Arbor, MI: University of Michigan Press.
- Finger, J. Michael and Kwok-Chiu Fung. 1994. "Will GATT Enforcement Control Antidumping?" *Journal of Economic Integration* 9(2), June, pp. 198-213.
- Green, Edward J. and Robert H. Porter. 1984. "Noncooperative Collusion Under Imperfect Price Information." *Econometrica* 52(1), January, pp. 87-100.
- Grossman, Gene and Elhanan Helpman. 1994. "Protection for Sale." *American Economic Review* 84(4), September, pp. 833-850.

- Hansen, Wendy L. and Thomas J. Prusa. 1996. "Cumulation and ITC Decision Making: The Sum of the Parts is Greater than the Whole." *Economic Inquiry* 34(4), October, pp. 746-769.
- Hansen, Wendy L. and Thomas J. Prusa. 1997. "The Economics and Politics of Trade Policy: An Empirical Analysis of ITC Decision Making." *Review of International Economics* 5(2), May, pp. 230-245.
- Horlick, Gary N. 1989. "The United States Antidumping System." In John H. Jackson and Edwin A. Vermulst. Eds. *Antidumping Law and Practice: A Comparative Study*. Ann Arbor, MI: University of Michigan Press, pp. 99-166.
- Jensen, Richard and Marie Thursby. 1984. "Free Trade: Two Noncooperative Approaches." Ohio State University Working Paper.
- Lindsey, Brink. 1999. "The U.S. Antidumping Law Rhetoric versus Reality." Cato Institute Trade Policy Analysis Number 7. August.
- Messerlin, Patrick. 1989. "The EC Antidumping Regulations: A First Economic Appraisal, 1980-85." *Weltwirtschaftliches Archiv* 125(3), pp. 563-87.
- Miranda, Jorge, Raul A. Torres and Mario Ruiz. 1998. "The International Use of Antidumping: 1987 – 1997." *Journal of World Trade* 32(5), pp. 5-71.
- Prusa, Thomas J. 2001. "On the Spread and Impact of Antidumping." *Canadian Journal of Economics* 34(3) 591-611.
- Prusa, Thomas J. and Susan Skeath. 2001. "Modern Commercial Policy: Managed Trade or Retaliation?" Mimeo.
- Riezman, Raymond. 1982. "Tariff Retaliation from a Strategic Viewpoint." *Southern Economic Journal* 48(3), January, pp. 583-593.
- Santos, Leonard E. (ed.) 1998. *The Compendium of Foreign Trade Remedy Laws*, Washington, D.C., The American Bar Association.
- Tharakan, P.K.M. and J. Waelbroeck. 1994a. "Determinants of Anti-dumping and Countervailing Duty Decisions in the European Communities." In Mathias Dewatripont and Victor Ginsburgh. Eds. *European Economic Integration: A Challenge in a Changing World*. Amsterdam, London, and Tokyo: North Holland, pp. 181-199.
- Tharakan, P.K.M. and J. Waelbroeck. 1994b. "Antidumping and Countervailing Duty Decisions in the E.C. and in the US: An Experiment in Comparative Political Economy." *European Economic Review* 38(1), January, pp. 171-193.

Table 1
Antidumping Activity: 1980s vs. 1990s

	Percent of total AD cases (worldwide)		Year country began using AD (GATT/WTO reports)	No. AD actions against country prior to the adoption of own AD statute
	1980-89	1990-98		
USA	28.2%	16.4%	---	---
Australia	25.5%	16.0%	---	---
Canada	21.3%	6.5%	---	---
EU	19.8%	14.6%	---	---
New Zealand	0.7%	2.4%	---	---
Finland	1.4%	0.1%	---	---
Mexico	2.6%	7.8%	1987	10
South Korea	0.4%	2.6%	1985	39
Brazil	0.1%	5.5%	1988	55
Argentina		6.3%	1991	16
South Africa		6.1%	1994	20
India		4.2%	1992	16
Turkey		1.6%	1993	15
Colombia		1.2%	1991	4
Poland		1.2%	1991	43
Israel		1.1%	1993	13
Indonesia		1.1%	1996	31
Venezuela		1.0%	1993	18
Peru		0.9%	1994	1
Malaysia		0.7%	1995	32
Philippines		0.7%	1993	9
Chile		0.5%	1993	5
Egypt		0.3%	1997	7
Thailand		0.3%	1993	35
Costa Rica		0.3%	1996	1
Trin-Tobago		0.2%	1996	3
Japan		0.2%	1991	164
Czechoslovakia		0.1%	1998	69
Nicaragua		0.1%	1998	2
Panama		0.1%	1998	0
Singapore		0.1%	1994	34
Ecuador		0.1%	1998	2
Guatemala		0.1%	1996	0
TOTAL #	1401	2113		

Table 2

Number of AD Actions consistent with alternative hypotheses

Economic Incentives			
Big Supplier	New Users	Traditional Users	Total
Imports > 50 th percentile	96.25%	99.89%	99.02%
Imports > 75 th percentile	90.12%	97.57%	95.78%
Imports > 90 th percentile	78.88%	79.70%	79.50%
Import Surge			
	New Users	Traditional Users	Total
% Δ Imports > 50 th percentile	46.51%	58.37%	55.51%
% Δ Imports > 75 th percentile	3.75%	6.64%	5.95%
% Δ Imports > 90 th percentile	0.17%	0.27%	0.25%
Strategic Incentives			
Club Effect	New Users	Traditional Users	Total
Long Memory	81.26%	58.21%	63.76%
Limited Memory	81.26%	58.15%	63.71%
Retaliation	New Users	Traditional Users	Total
Long Memory	57.58%	45.57%	48.46%
Limited Memory	45.32%	35.64%	37.97%

Table 3
South Africa AD Filings in 1994

	Number	Percent
Total AD actions	15	
AD actions consistent with Retaliation	11	73.33%
AD actions consistent with Club Effect	13	86.67%
AD Actions against Big Suppliers (50th %tile)	14	93.33%
AD Actions against Big %Δ Imports (50th %tile)	1	6.67%
Suppliers who had previously used AD		10.14%
Suppliers who had previously named S.Africa		4.73%
Binomial Probability		
Retaliation (15,11,4.73%)	0.00000	
Club (15,13,10.14%)	0.00000	
Big Suppliers (15,14,50%)	0.00049	
Big %Δ Imports (15,1,50%)	0.99960	

Table 4
Binomial Tests for Economic Incentives For Using AD Law

Big Supplier

Type of AD user	Total Number Obs.	<u>Imports > 50th percentile</u>		<u>Imports > 75th percentile</u>		<u>Imports > 90th percentile</u>	
		Number Significant @ 5% Level	Percent	Number Significant @ 5% Level	Percent	Number Significant @ 5% Level	Percent
New User	135	34	25.19%	30	22.22%	22	16.30%
Traditional AD user	77	70	90.91%	70	90.91%	52	67.53%
Total	212	104	49.06%	100	47.17%	74	34.91%

Import Surge

Type of AD user	Total Number Obs.	<u>%Δ Imports > 50th percentile</u>		<u>%Δ Imports > 75th percentile</u>		<u>%Δ Imports > 90th percentile</u>	
		Number Significant @ 5% Level	Percent	Number Significant @ 5% Level	Percent	Number Significant @ 5% Level	Percent
New User	135	6	4.44%	0	0.00%	0	0.00%
Traditional AD user	77	23	29.87%	1	1.30%	0	0.00%
Total	212	29	13.68%	1	0.47%	0	0.00%

Table 5
Binomial Tests for Strategic Motive For Using AD Law

Club Effect Hypothesis

Type of AD user	Total Number Obs.	Long Memory		Limited Memory	
		Number Significant @ 5% Level	Percent	Number Significant @ 5% Level	Percent
New User	135	51	37.78%	51	37.78%
Traditional AD user	77	67	87.01%	67	87.01%
Total	212	118	55.66%	118	55.66%

Retaliation Hypothesis

Type of AD user	Total Number Obs.	Long Memory		Limited Memory	
		Number Significant @ 5% Level	Percent	Number Significant @ 5% Level	Percent
New User	135	43	31.85%	37	27.41%
Traditional AD user	77	59	76.62%	54	70.13%
Total	212	102	48.11%	91	42.92%

Figure 1: Worldwide Use of Antidumping, 1980-1998

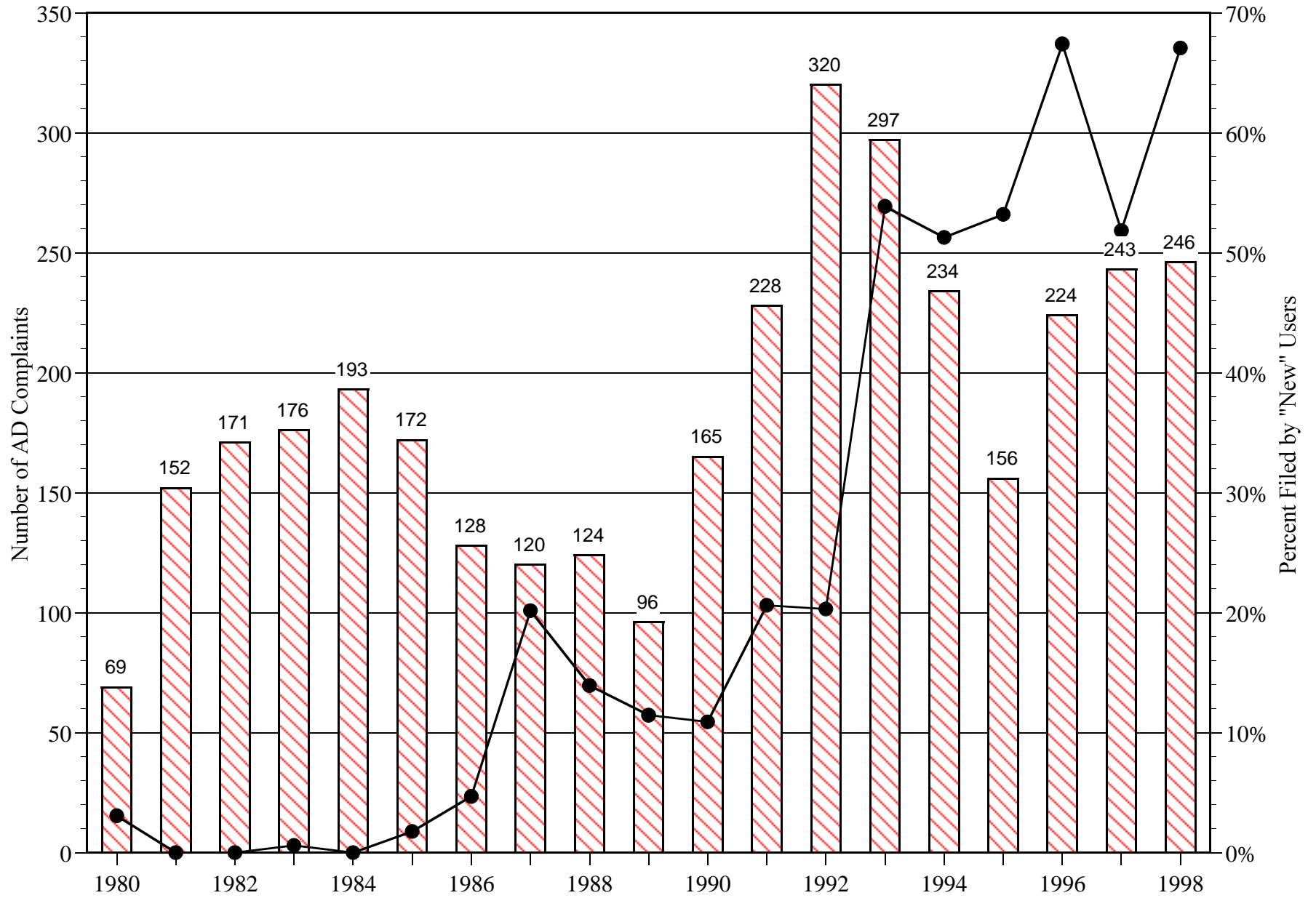


Figure 2: AD Filings Consistent with Retaliation
All Years

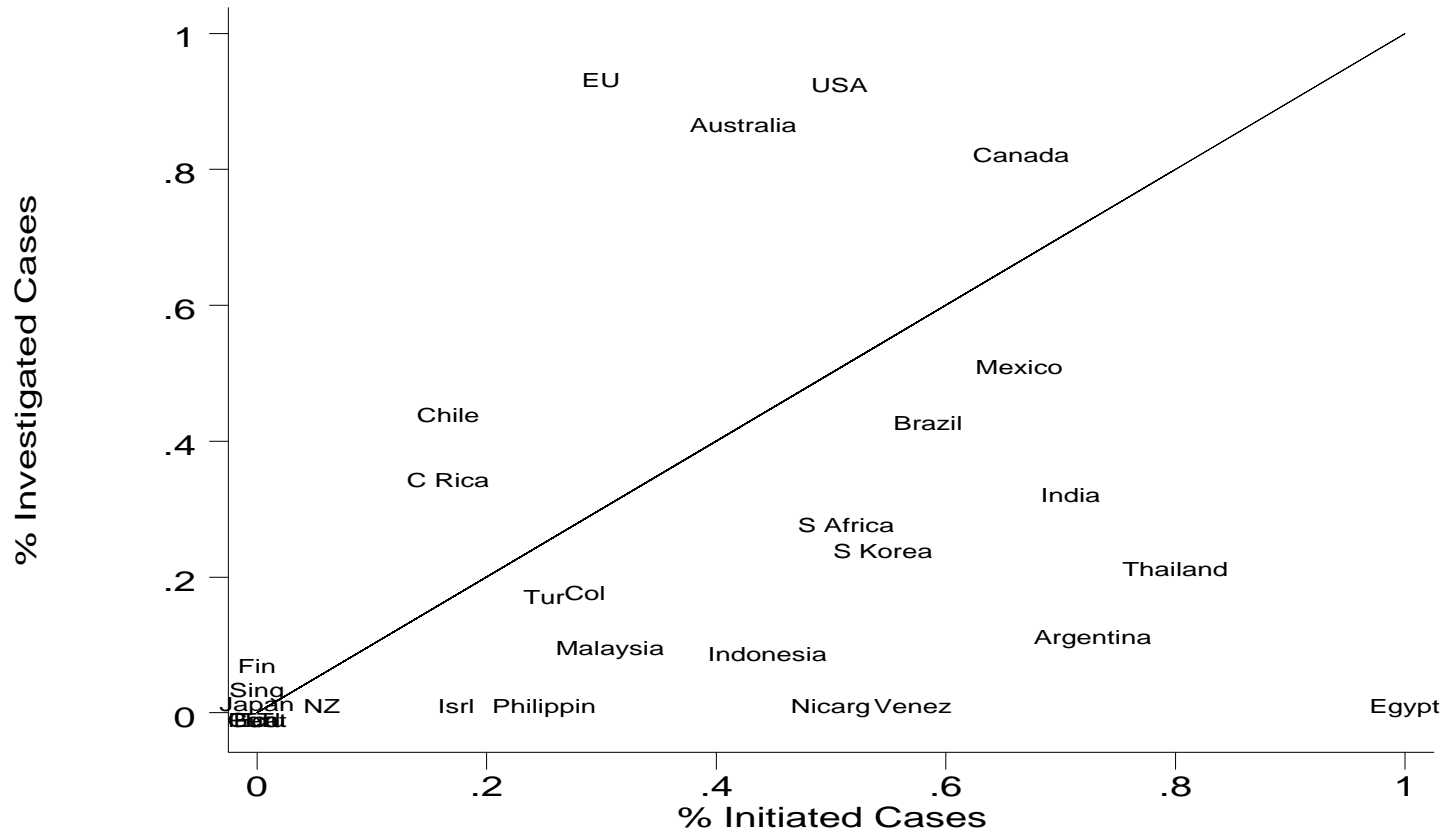


Figure 3: AD Filings Consistent with Retaliation
1994-1998

