ANTIDUMPING PROCESS OF CANADA: PREVIOUS EXPERIENCE, FILING ACTIVITIES AND OUTCOMES

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ABSTRACT

This paper addresses how a firm's learning experience from prior filing activities during the antidumping process in Canada affects its future filing behavior and outcomes. Previous experience may affect both filing costs and outcome probabilities. By using the normal logit regression and multinomial logit regression to analyze Canadian antidumping data from 1993 to 2003, the paper shows that firms with previous filing experience are more likely to obtain final decisions, whether affirmative or negative from antidumping authorities rather than abandoning the process in mid-stream. This may be because prior experience increases petitioners' effectiveness in arguing their cases. However, industries with experience decrease their future filing activities. This may due to the increasing likelihood of final negative outcomes and the significant cost incurred in the long process of investigation.

Keywords: Antidumping; Previous experience; Filing activities and outcomes

Subject Terms: Antidumping experience; Filing activities and outcomes

DEDICATION

To my parents

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I offer my enduring gratitude to my parents, who give me continuous love, trust and support during my whole life.

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1. Introduction

In 1904 Canada introduced the first antidumping legislation in the world. It was soon followed by legislation in New Zealand in 1905, Australia in 1906 and the U.S. in 1916. Before World War II, most developed countries had developed their own national antidumping laws and had put them into practice. However, before 1980, there were relatively few antidumping disputes and almost all antidumping activities were confined to six entities: the U.S., the European Community, Australia, Canada, South Africa and New Zealand. (Blonigen and Prusa, 2001, p. 4). From the mid 1970s, antidumping gradually became a major concern. Significant reductions in tariffs caused developed countries to seek other methods to restrict trade, among which, antidumping was frequently employed because of its flexibility and opacity. In addition, developing countries, for example, Argentina, Brazil, India, Mexico, South Africa, and Turkey, became new and intensive users of antidumping policies as a device to relieve pressure from trade liberation or as a method of retaliation. Since that time, the proliferation of antidumping actions across the world has been a great concern to the world community, and is also an intriguing and controversial topic in the academic world. Considerable research has been devoted to analyzing the different aspects of antidumping, and the debate will go on with the increasing globalization of national economies.

Most papers have focused on the antidumping policy of the U.S, the EU and other developing countries; much less work has been done on Canada, the first

country to launch antidumping legislation. This paper empirically examines one aspect of Canadian antidumping system: how firms' previous filing experience will affect their filing activities and outcomes. Blonigen (2006) took the first systematic look at the relations between antidumping filing experience and future filing activities for US firms. I followed his method and focused on Canadian antidumping cases from 1993 to 2003. The empirical study led to the following findings. First, previous experience of Canadian industries and firms increases the likelihood that the process will lead to a decision, whatever positive or negative, and decreases the likelihood of termination before a decision is reached. Second, industries with previous filing experience have less filing activities in the future.

The paper proceeds as follows. First, a brief review of the development of Canadian antidumping laws and practices is introduced, followed by the features and proceedings of existing antidumping systems. Then I give some basic descriptive statistics of Canadian antidumping activities. Next I describe the model used in this paper and present the regression results regarding the effects of previous filing experience. Finally, a summary of findings and concluding remarks are offered.

1.1 Brief review of the development of the Canadian antidumping system

The first antidumping statutory provisions were passed in 1904 in Canada as a part of the amendments to the 1897 Custom Tariff Act. The legislation was a response to competitive pressure from the US in an era of both globalization and

economic nationalism. The antidumping system was introduced by Sir William Fielding, who argued that a comprehensive system of remedial duties to be levied when goods were found to be dumped would be better than imposing the burden of an unnecessarily high tariff on Canadian consumers (Grey, 1973, p. 8). The content with significant historical meaning was section 19, in which a special duty was introduced, equal to the difference between the selling price in Canada and the price in the country of production. The duty was only applied to goods that competed with Canadian production. Goods with inadequate domestic supply in Canada were exempt from such duty. At inception of the policy, there was no mention of an injury test.

Before 1966, the Canadian antidumping system was governed by this amendment to the 1897 Custom Tariff Act. The system was criticized over the years for several reasons: first, there was no formal test of injury; second, the dumping margin was not properly calculated, and dumping sometimes was simply defined as different pricing in domestic and foreign countries; third, antidumping duties were applied "automatically", which was the result of practice of general rules of law.

There were negotiations during the Kennedy Round of the GATT to facilitate international coordination of antidumping practices and to form more comprehensive and applicable international antidumping laws. Under pressure from the US and Britain, Canada put its antidumping system into the negotiations, with the purpose of playing a real part in the Kennedy Round. On January 1, 1969, the Antidumping Act

of Canada came into force, conforming to the 1967 "Antidumping Code[1]" of GATT. An injury test was included in the Act, the decision of what constituted the dumping margin was stated more precisely in the law, and an independent Tribunal was established to examine injury on case-by-case enquires, rather than apply the previous employed general rule of laws.

After that, the Canadian antidumping system evolved with changes to the GATT antidumping code. The Special Import Measures Act (SIMA) replaced the Antidumping Code on December 1, 1984, conforming to the "1979 Code[2]" of GATT established in the Tokyo round. Further changes were made to SIMA in 1995 after the "1994 Antidumping Agreement[3]" of GATT came into effect in the Uruguay Round.

The Canadian antidumping system resembles the U.S antidumping system and

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[1] The 1967 "Antidumping Code" was established during the Kennedy Round. It provided detailed definitions for "dumping", "injury" and other important notions, prescribed series of procedural rules regarding the application of antidumping duties and required a member to keep other members informed of any changes of its antidumping law, and to report to the other members the administration of its laws on an annual basis.

[2] During the Tokyo Round of GATT (1973-1979), contracting parties developed a new Code on antidumping-the "1979 code". It broadened the concept of "less than fair value" from price discrimination to including price below cost. The demonstration that dumping was the principle cause of material injury in 1967 code was no longer necessary in 1979 code. Contracting parties were obliged to inform the Antidumping Practice Committee any changes in its laws and regulations and submit semiannual reports containing detailed information on any antidumping actions. There was also a new article concerning developing countries.

[3] The Agreement on Implementation of Article VI of the General Agreement on Tariffs and Trade or the "1994 antidumping agreement"(ADA) established in the Uruguay Round further elaborated upon the principles and procedures that governed the determination and application of antidumping actions. Specific provisions were added on the fair comparison between the export price and a "constructed" normal value. A clear causal relationship between dumping and injury to domestic firms was required by the Agreement. "Sunset" reviews stated that anti-dumping measures would expire five years after the date of imposition, unless a determination was made that, in the event of termination of the measures, dumping and injury would be likely to continue or recur. ADA also required administrating authorities to use all legitimate information provided by foreign firms, and put limits on the "facts-available" procedures.

contrasts with the EU and Australian system. A comprehensive comparison of antidumping laws and practices across countries is made by Jackson and Vermulst in their work "Antidumping Law and Practice—A Comparative Study" (1992). Here I list some key points of comparison: First, Canada and the U.S have independent agencies to determine dumping and injury while the EU and Australia have a unified system in which a single authority investigates both dumping and injury. Second, Canada and the U.S. allow interested parties to obtain certain confidential information submitted by other parties in the proceedings. In the EU and in Australia, only investigation authorities have access to the complete file. Third, in the EU and Australia, the authorities have a considerable amount of discretion. Thus, price undertakings[4], which need more discretion from the executive agencies, are used more in those two countries. On the other hand, the more quasi-judicial Canadian and the U.S. systems make the acceptance of price undertakings difficult, which "may reflect a legislative distrust of the executive agencies" (Vermulst, 1992, p. 432). Forth, in both Australia and the EU, a countervailing duty should be lower than the dumping margin[5] if such lower duty suffices to remove injury. There is no such "Lesser Duty Rule" in the Canadian and U.S. systems. Dumping duties equal to dumping margins are automatically imposed once injurious dumping is found. Again,

[4] Price undertakings: a foreign firm voluntarily offers to increase the price of the dumped goods in its export market to eliminate the dumping and injury to local producers, and to avoid the imposition of a duty on itself.

[5] Dumping margin: the difference between normal value (i.e. exporter's home-country price) and export price.

the absence of a lesser duty rule in the US and in Canada would seem to be "a consequence of legislative hesitancy to give discretion to the Executive" (Vermulst, 1992, p. 434).

1.2 Canada antidumping investigation process

The structure of the antidumping system in Canada right now is a two-track system, governed by the Special Import Measures Act (SIMA) of 1984. The Canadian Border and Service Agency (CBSA)[6] makes the decision whether dumping has taken place and the Canadian International Trade Tribunal (CITT) determines material injury.

A typical antidumping investigation begins with a written complaint filed by a Canadian producer or an association of producers to the CBSA, arguing that the import goods are dumped and this causes material injury to domestic industry. The President of CBSA will start a dumping investigation if there is sufficient support from Canadian industry (the complaint must be supported by producers representing at least 25 percent of Canadian production) and will make a preliminary decision within 90 days. Dumping is defined as the situation in which the selling price of an imported good in Canada is lower than its "normal value". The primary method to determine normal value by the President is the home-country price. The SIMA requires that the home market price covers the full cost. The authorities will not

[6] The Canadian Border and Service Agency (CBSA) was established on December 12, 2003. Before that, it was the Canadian Custom and Revenue Agency (CCRA) that had the responsibility of dumping investigation.

consider the home market price as the normal value if it does not cover full costs plus profit. Other ways to determine normal value are based on the prices of exports to a third market or on a constructed value (exporter's total cost plus a reasonable amount of profit) if there are insufficient sales in the exporter's country. At the same time, the Tribunal initiates an injury investigation and completes its inquiry within 60 days. If the Tribunal finds that the dumping caused injury or is threatening to cause injury, the President will continue the preliminary dumping investigation. If there is no indication of injury determined by the Tribunal, both the Tribunal and the President will terminate their investigations and the case will be closed.

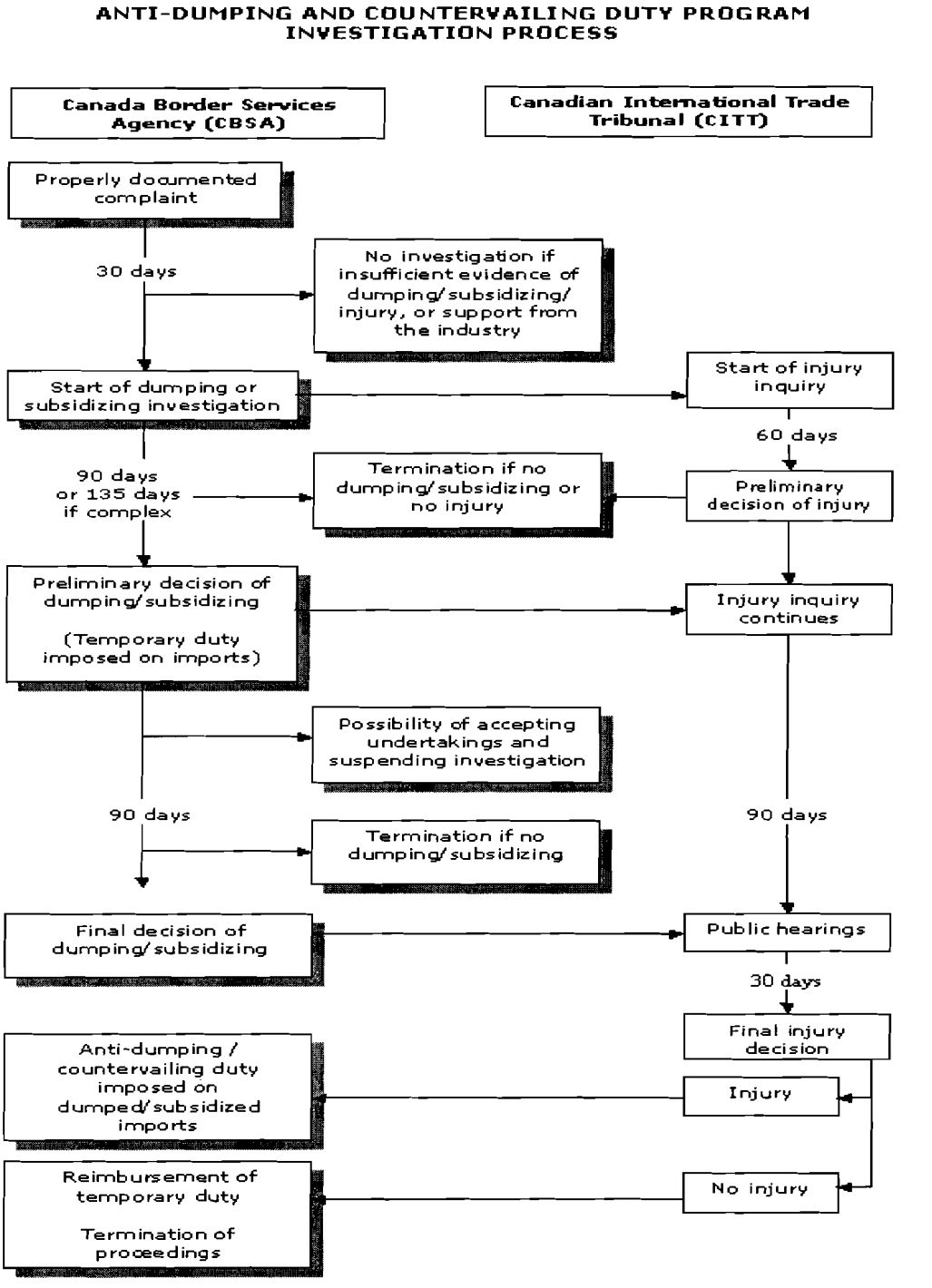
If the President makes a preliminary affirmative decision of dumping, a provisional duty will be levied on the dumped goods, the President will undertake an investigation to make a final determination of dumping within 90 days, and the Tribunal will carry out a final injury inquiry. If the domestic firm expects the likelihood of final affirmative outcome is small during this period, it will choose to accept the price undertaking proposed by importers. SIMA regulates detailed factors that the Tribunal needs to take into consideration when making an injury decision. Injury can be shown by: price suppression, decline in the market share, sales and profits of domestic firms or other difficulties. Given the critical role of the Tribunal's decision, extensive research is required for the determination of final injury within the 90 day period. Information is requested from both sides, questionnaires are sent to producers, importers and related parties, and a public hearing is held at the end of

90 days if the final decision of dumping of the President is affirmative. Within 30 days, the Tribunal issues its final decision of injury. An affirmative decision by the Tribunal leads to the imposition of an antidumping duty that lasts 5 years, and a negative decision terminates the proceeding. However, the Tribunal also has the right to examine the effects of an antidumping duty from the perspective of the public interest and can suggest an alternative level of duty.

No later than ten months before the expiry date of the case, a notice of expiry is published in the Canada Gazette and forwarded to all interested parties. An expiry review maintains the two-track system: the President determines the likelihood of resumed or continued dumping and the Tribunal determines the likelihood of injury. A negative determination by either the President or the Tribunal rescinds the case and the import goods are no longer subject to antidumping duties. Affirmative decisions of both lead to an extension of the antidumping duty for another 5 years.

The whole procedure of antidumping investigation is summarized in Figure 1.

Figure 1: Antidumping investigation process in Canada



From Canada Border and Service Agency (CBSA) Website:
http://www.cbsa-asfc.gc.ca/sima/brochure-e.html.

2 Basic statistics of Canadian antidumping activities

2.1 The use of antidumping policies

Table 1 and Figure 2 show the antidumping activities in Canada on an annual basis from 1948 to 2003. The data before 1984 are from Zanardi (Zanardi, 2006, pp. 596-598). The data since 1985 are from the website of Canadian Border Services Agency (CBSA) [7], which lists antidumping investigations since the implementation of SIMA in 1984. From the website, we can get the information about dumped goods, targeted countries, year and final disposition for each case. It is important to relate the use of antidumping measures to the volume of imports because it may give a false impression of the trend of antidumping use if we just compare the absolute number of antidumping initiations. Following Zanardi's method (Zanardi, 2006, p. 607), I calculated the intensity[8] of antidumping initiations for the period of 1985-2003 and normalized the value for the year 2000 to 100.

Table 1 (a)[9]: Antidumping activities in Canada, 1948-1984

Year	1948-1958	1959	1969	1970	1971	1972	1973	1974	1975
Initiations	.	.	9	4	12	9	10	7	7
Impositions	.	.	.	4	1	5	3	2	4
Year	1976	1977	1978	1979	1980	1981	1982	1983	1984
Initiations	15	20	19	13	26	29	64	34	26
Impositions	6	9	13	8	8	.	.	.	.

[7] http://www.cbsa-asfc.gc.ca/sima/historic-e.html.

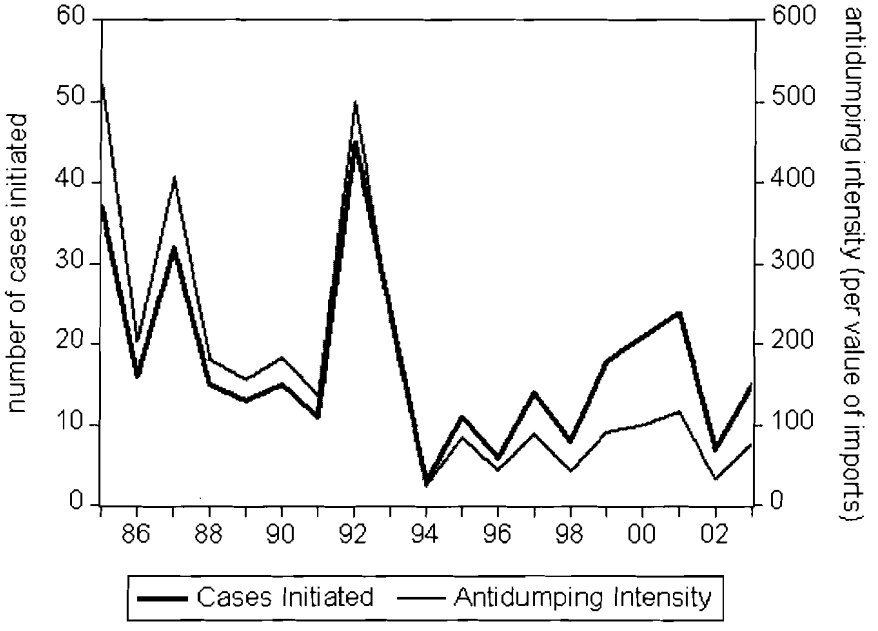
[8] Intensity of antidumping use in a specific year is equal to number of antidumping initiations in a given year divided by the annual real value of Canadian imports.

[9] According to Zanardi, (i) Before 1980, a single case could involve the imports of a product from several countries; after 1980, complaints against each country was counted as a separate case. (ii) A "year" refers to July 1st to June 30th in the following year. (iii) "."means no information available.

Table 1 (b)[10]: Antidumping activities in Canada, 1985-2003

Year	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
Initiations	37	16	32	15	13	15	11	45	24	3
Intensity	520	204	407	181	156	184	136	500	230	25
Year	1995	1996	1997	1998	1999	2000	2001	2002	2003	Total
Initiations	11	6	14	8	18	21	24	7	15	355
Intensity	84	45	88	43	91	100	117	33	77	

Figure 2: Antidumping initiations and intensities in Canada, 1985-2003



From Graph 1, we can see that there is an obvious coincidence between the number and intensity of antidumping initiations. Both had a decreasing trend before 1990, then an abrupt increase at the beginning of the 1990s, and then a return to the earlier value after 1994. Though there is a rebound in the absolute number of cases at the beginning of 21st century, the intensity is still lower than the level before 1990. The intensity of antidumping initiations in Canada has decreased relative to imports

[10] (i) A "year" refers to Jan 1st to Dec 31st. (ii) Data of antidumping cases from CBSA website. (iii) Nominal import value from CANSIM. Import unit price index from: http://www.ggdc.net/.

over time. In general, Canada has used antidumping policy less frequently recently.

2.2 Countries affected by Canadian use of antidumping policies

Table 2 and Figure 3 show that 52 countries were affected by antidumping petitions in Canada from 1985 to 2003. The top 2 countries were the US and China, with 62 cases and 42 cases, and shares of 19% and 13% of total number of cases respectively. I also calculated the intensities[11] for targeted countries and normalized the value for the US to 100. The ranking based on absolute number and the one based on intensity show a significant difference. Small countries like Macedonia, Moldova and Lativa, though the numbers of antidumping petitions against them are very low, given their small exports to Canada, their intensities head the list. The intensity of antidumping against US, in contrast, is the lowest due to its huge export value to Canada. The number of cases and the intensity ranking for most Western European countries, like Finland, Switzerland, Netherlands and Norway, are both very low.

[11] Intensity of antidumping use by Canada against a specific country is equal to the number of antidumping initiations against that country divided by the real Canadian import value from that country. The Canadian import values from targeted countries are from United Nations Comtrade Database: http://comtrade.un.org/db/dqBasicQuery.aspx.

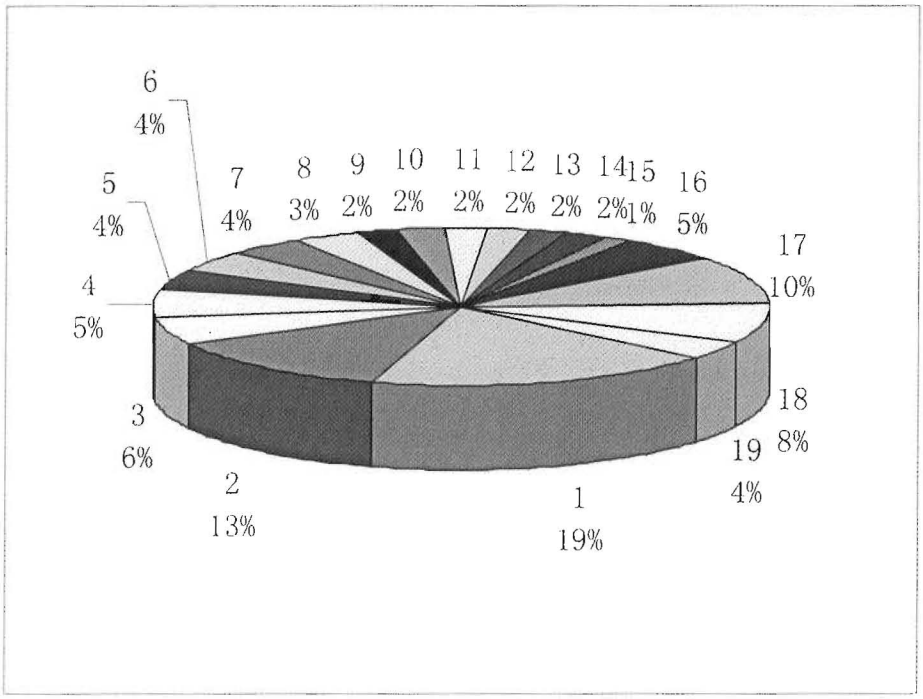
Table 2: Antidumping initiations against different countries, 1985-2003

Trade partner	number of cases initiated	intensity	ranking of intensity	Trade partner	number of cases initiated	intensity	ranking of intensity
United States	62	100	52	Malaysia	4	800	34
China[12]	42	1809	27	Denmark	3	1605	28
Republic of Korea	19	1497	29	Thailand	3	770	35
Germany[13]	18	802	33	Yugoslavia	2	14229	9
Japan	15	296	45	Bulgaria	2	13089	10
Brazil	14	2761	22	Viet Nam	2	4826	15
United Kingdom	14	505	41	Portugal	2	2480	23
France	11	743	36	Austria	2	903	32
Poland	8	12911	11	Singapore	2	544	39
India	8	3143	18	Slovenia	2	159	50
Italy	8	674	38	Moldova	1	97081	2
Romania	7	20734	6	Latvia	1	45462	3
Spain	7	2318	24	Serbia and Montenegro	1	16769	8
Belgium-Luxembourg	7	2016	26	Czechoslovakia	1	6996	13
Sweden	6	1141	30	USSR	1	4703	17
Slovakia	5	45031	4	Hungary	1	3014	19
Czech	5	17476	7	Cuba	1	1003	31
South Africa	5	12374	12	Chile	1	710	37
Indonesia	5	2210	25	Finland	1	510	40
Mexico	5	212	49	Saudi Arabia	1	457	42
Macedonia	4	362502	1	Philippines	1	428	43
Ukraine	4	33151	5	Venezuela	1	300	44
Turkey	4	5564	14	Switzerland	1	251	46
Argentina	4	4713	16	Netherlands	1	236	47
Russian Federation	4	2929	20	Australia	1	219	48
New Zealand	4	2881	21	Norway	1	115	51

[12] Including Taiwan, Hong Kong and Macao.

[13] Including West Germany and East Germany before 1989.

Figure 3: Share of antidumping initiations by countries or areas, 1985-2003



1 United States
2 China (including Taiwan, Hongkong and Macao)
3 Republic of Korea
4 Germany (include West and East Germany before 1989)
5 Japan
6 Brazil
7 United Kingdom
8 France
9 Poland
10 India
11 Italy
12 Romania
13 Spain
14 Belgium-Luxembourg
15 South Africa
16 Other Western European Countries
17 Eastern and Central European Countries
18 Other Asian Countries
19 Other Central and Southern American Countries

2.3 Frequent users of antidumping policies

Table 3 and Figure 4 show the frequency of antidumping activities of Canadian firms and industries. We can see that the most frequent users of antidumping filings are from iron and steel manufacturing industry, whose filings accounted for 51% of the cases. Sometimes, Canadian firms filed together against different countries for the same product. For example, Stelco Inc. filed 6 cases together with Algoma Steel Inc., and filed 18 cases together with Dofasco Inc. So the actual number of cases would be smaller than the sum of cases for individual firms.

Table 3: Number of cases initiated by Canadian firms, frequent users, 1993-2003

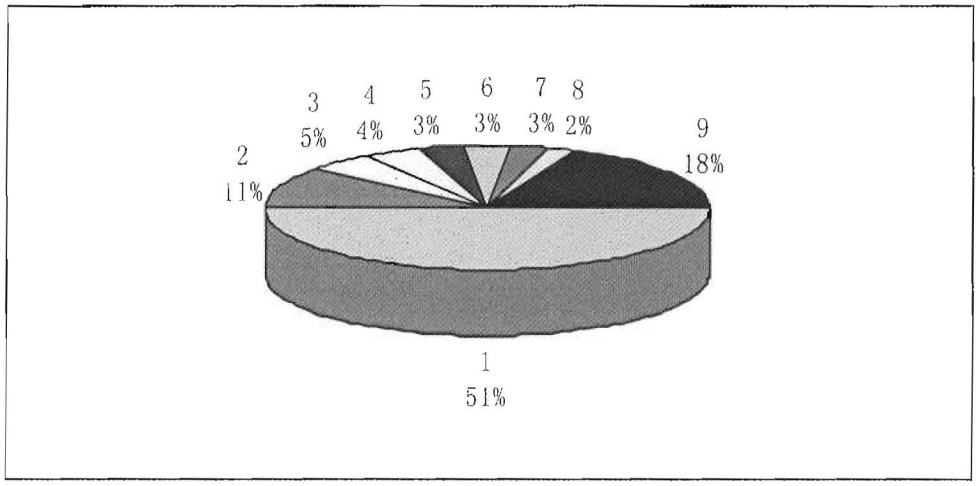
Company's name	Number[14]	6- Digit NAICS Industry[15]
Stelco Inc.	34	331110-Iron and Steel Mills and Ferro-Alloy Manufacturing
Dofasco Inc.	33	331110-Iron and Steel Mills and Ferro-Alloy Manufacturing
Algoma Steel Inc.	21	331110-Iron and Steel Mills and Ferro-Alloy Manufacturing

[14] Like Blonigen, I define a case as an initiation against a particular country on a particular good.

[15] One major difficulty is to transfer Harmonized System (HS) code for a particular import good provided by the website of CBSA to the North American Industry Classification System (NAICS) code through concordance. Since there is no direct concordance between the HS code and the NAICS code, I first transfer the 6-digit HS code to the 4-digit Standard Industrial Classification (SIC) code, then transfer the 4-digit SIC code to the 6-digit NAICS code. While there is one to one concordance between HS code and SIC code, it is very likely that one SIC code corresponds to several NAICS codes. I use two ways to solve this problem: first, Statistics Canada and website http://www.hscodes.com/ provide detailed descriptions of NAICS code, SIC code and HS code, which make comparison and selection possible. Second, the Global Antidumping Database (http://people.brandeis.edu/~cbown/global_ad/) collected by Chad P. Bown lists Canadian domestic company's name for each case. Then if we search the company on the website of Canadian Company Capabilities: (http://strategis.ic.gc.ca/app/ccc/search/cccSearch.do?language=eng&portal=1&tagid=), we can get detailed information about this company, including its main product and the 6-digit NAICS industry code it belongs to. The second way can check the validity of the results from the first way under the circumstances that more NAICS codes correspond to one SIC code.

Company's name	Number	6- Digit NAICS Industry
Atlas Steels Inc.	11	331110-Iron and Steel Mills and Ferro-Alloy Manufacturing
Ispat Sidbec Inc.	7	331221- Cold-Rolled Steel Shape Manufacturing
Sault Ste. Marie	6	331110 - Iron and Steel Mills and Ferro-Alloy Manufacturing
Canadian Sugar Institute	6	311310 - Sugar Manufacturing
Shoe Manufacturers' Association of Canada	5	316210 - Footwear Manufacturing
Central Wire Industries Limited	5	331222 - Steel Wire Drawing
Government initiated	4	331110 - Iron and Steel Mills and Ferro-Alloy Manufacturing
Atlas Tube Inc.	3	331210 - Iron and Steel Pipes and Tubes Manufacturing from Purchased Steel
Copperweld Corporation	3	331210 - Iron and Steel Pipes and Tubes Manufacturing from Purchased Steel
Welded Tube of Canada Ltd.	3	331210 - Iron and Steel Pipes and Tubes Manufacturing from Purchased Steel
Société d'expansion commerciale Libec Inc.	3	332999 - All Other Miscellaneous Fabricated Metal Product
Fanco Products Canada Ltd.	3	322230- Stationery Product Manufacturing
Co-Steel Inc.	3	331110-Iron and Steel Mills and Ferro-Alloy Manufacturing
Canvil (a Division of Mueller Canada Limited of Simcoe)	3	331210 - Iron and Steel Pipes and Tubes Manufacturing from Purchased Steel

Figure 4: Antidumping filing percentages by different industries, 1993-2003



1. 331110 - Iron and Steel Mills and Ferro-Alloy Manufacturing
2. 331221 - Cold-Rolled Steel Shape Manufacturing
3. 331210 - Iron and Steel Pipes and Tubes Manufacturing from Purchased Steel
4. 311310 - Sugar Manufacturing
5. 316210 - Footwear Manufacturing
6. 331222 - Steel Wire Drawing
7. 322230 - Stationery Product Manufacturing
8. 332999 - All Other Miscellaneous Fabricated Metal Product
9. Others.

2.4 Outcomes of Canadian antidumping activities

Table 4 lists the outcomes of antidumping investigations from 1985 to 2003. Most of the cases found affirmative dumping and made positive injury decisions. As to the antidumping measures, imposition of duties is the most frequently used method. Unlike the EU, which had provisions of price undertakings when it adopted its first antidumping laws in 1968, Canada did not have such provision until 1984, when SIMA replaced the old antidumping act. Compared with the EU, of which most antidumping cases were closed by acceptance of price undertaking, settlement

by price undertaking in Canada is mainly a way to save time and litigation cost for antidumping proceedings, particular for petitioners (Stegemann, 1991, p. 228), and is rarely used in practice.

Table 4: Antidumping outcomes, 1985-2003

Final dumping decisions	Affirmative	Negative	Terminated[16]	Others[17]	Not relevant[18]
Total Number 335	277	0	2	2	54
Final injury decisions	Affirmative	Negative	Terminated[19]	Partial injury	Not relevant[20]
Total Number 335	192	78	5	2	58
Antidumping measures	Antidumping duties	Price Undertakings	Duty if price falls under a given level		Not relevant[21]
Total Number 335	198	17	3		116

[16] Terminated prior to ruling by government agency.

[17] Price undertaking is accepted at this stage.

[18] A case never reached to that stage either because of termination or because of acceptance of price undertakings.

[19] Terminated prior to ruling by government agency.

[20] A case never reached to that stage either because of termination or because of acceptance of price undertakings.

[21] There were no antidumping measures either because of negative outcome of final injury decision, or because of termination before a case reached to that stage.

3 Empirical Study

3.1 Model: previous experience, filing behavior and investigation outcomes

Given the extreme complexity and ambiguity of the whole antidumping investigation process, we can imagine that a firm's previous experience with antidumping filings could have some impact on its filing behavior and outcomes of future cases. Blonigen (2006) took the first systematic research on how prior experience of US firms affects future antidumping filing activities and outcomes. Blonigen employs the following inequality in his paper (Blonigen, 2006, p. 717):

$$\phi_j^A(\mathrm{E}, \mathrm{Zj})\, \pi_j^A(\mathrm{DM}(\mathrm{E}, \mathrm{Zj}), \mathrm{Zj}) + \phi_j^S(\mathrm{E}, \mathrm{Xj})\pi_j^S(\mathrm{Xj}) + \psi(\mathrm{E}, \mathrm{Xj}, \mathrm{Zj}) > \mathrm{FC}(\mathrm{E}) \quad (1)$$

In (1), $\phi_j^A(.)$ and $\phi_j^S(.)$ refer to the probabilities of an affirmative and suspended[22] decision, while $\pi_j^A(.)$ and $\pi_j^S(.)$ are the discounted non-zero profit from such outcomes. $\psi(.)$ represents the expected discounted net benefit in future cases from filing this particular case because today's experience might be useful in the future. FC(.) is the cost of filing a case, for example, hiring a lawyer or a trade specialist, preparing for and attending inquires, doing market research and collecting information, and cooperating with other domestic firms. E refers to the prior experience, which is assumed to have impacts on outcomes and probabilities. Other variables, for example, firms' characteristics, industries' situations and macroeconomic conditions are also assumed to affect antidumping filing activities

[22] Blonigen classifies a suspension outcome only when a formal suspension arrangement between the petitioner and exporter was announced publicly. Other cases that were terminated earlier or had private agreements are defined by Blonigen as negative outcomes.

and outcomes, and are expressed as Zj and Xj for affirmative outcomes and suspended outcomes. So the left-hand side represents expected benefits from filing a case and the right-hand side represents the cost from filing a case. Only if the benefit is bigger than the cost will the firm file a case (p. 717).

Blonigen lists three scenarios. First, suppose prior experience only lowers filing cost, but does not affect antidumping outcomes and probabilities, then FC(.) will decrease while $\phi_j^A(.)$, $\phi_j^S(.)$, $\pi_j^A(.)$ and $\pi_j^S(.)$ will not change. The expected discounted net benefit term $\psi(.)$ will also increase through decreasing future filing cost. The right-hand side of (1) decreases while the left-hand side of (1) increases, so we would expect the number of filings to increase for firms with experience. But it is more difficult for a firm to get non-negative outcomes, i.e. affirmative decisions and suspension outcomes, because more and more weak cases may switch from being not filed to being filed. Second, he supposes that previous experience will increase non-negative decision probabilities ($\phi_j^A(.)$ and $\phi_j^S(.)$) with no effect on filing cost FC(.). On the one hand, filing more cases will incur more cost. On the other hand, filing more cases will bring more benefit with the increasing $\phi_j^A(.)$ and $\phi_j^S(.)$. If the expected benefits of filing more cases exceed the filing cost threshold, a probable result would be an increase in filing activities. Thirdly, suppose prior experience leads to both increase in non-negative decision probabilities ($\phi_j^A(.)$ and $\phi_j^S(.)$) and decrease in filing cost FC(.), the results are just the combination of the first two scenarios: we would expect increasing filing activities but ambiguous antidumping

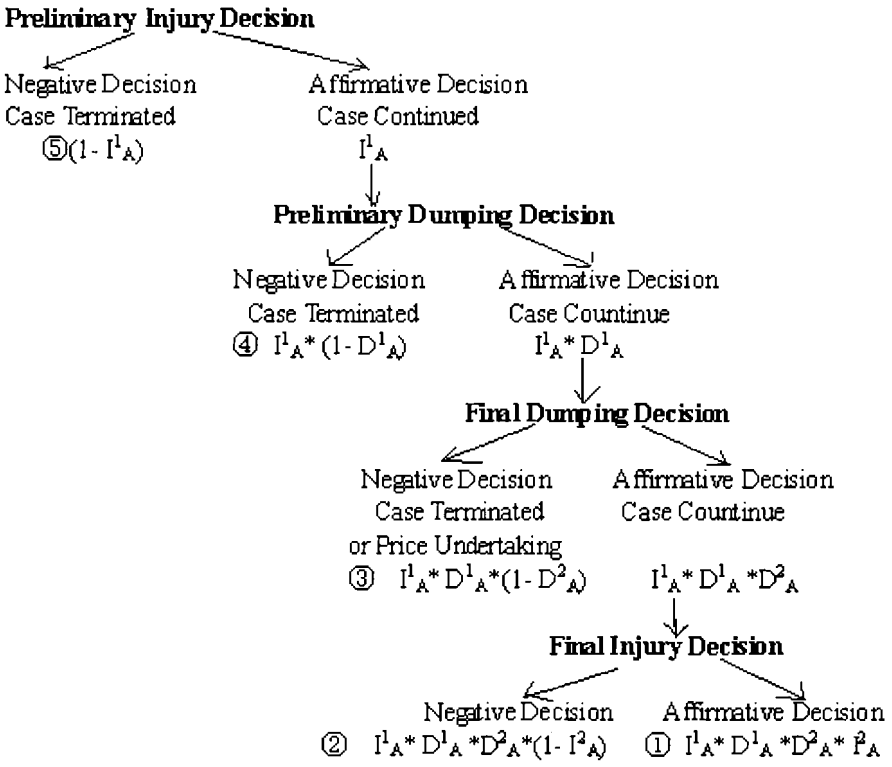
outcomes (p. 718).

Blonigen gives only a very general description of his model and he turns to the data to solve these theoretical ambiguities: even if the number of filings increases, the cases do not necessarily end up with positive outcomes. By analyzing antidumping data of US from 1982 to 1995, he found that prior antidumping filing experience leads to greater filing activities and increasing likelihood of affirmative decisions and suspension agreements (p. 715).

Inspired by Blonigen, I want to ask the same question about the relations between previous experience and Canadian firms' antidumping activities and outcomes. There are two issues about his model that I want to address. First, Blonigen assumes that the filing cost would be the same regardless of the outcome. This might not be a good assumption. Regardless of an affirmative or a negative final outcome, the case that reaches the final stage of investigation will incur a larger cost than the case that is terminated earlier--either because of finding of no injury or of no dumping, or because of an accepted price undertaking by both parties. For example, if one case survives the preliminary decision of dumping and injury, but can not pass the final investigation of dumping and is terminated by the government, then the firm which initiated this case does not have to pay the costs for the final injury investigation that would include preparing for the public hearing, time spent on attendance and waiting for the results, and so on. Second, the author assumes that sum of $\Psi_j^A(.)$, $\Psi_j^S(.)$ and the probability of negative outcome is one, and because the

benefit of negative outcome is zero, it is omitted from the benefit of filing on the left-hand side of (1). However, if one goes through the whole process of the antidumping investigation, the probabilities of outcomes would be more complicated. For example, Blonigen defines cases that were terminated earlier and cases that received negative final decisions as "negative outcomes", and he gives these two kinds of cases the same probability. From my point of view, the probability for the latter should be different from the former.

I assume that previous experience affects both filing cost and outcome probabilities, and that the investigation process takes two stages: preliminary decision of dumping and injury (stage 1) and final decision of dumping and injury (stage 2). I also define D^1_A, I^1_A, D^2_A, and I^2_A as the probabilities for affirmative preliminary dumping decision, affirmative preliminary injury decision, affirmative final dumping decision and affirmative final injury decision, respectively. Then we have the following flow chart of antidumping process:



Here we have five different results: Affirmative outcome (①) with the probability I^1_A* D^1_A *D^2_A* I^2_A; negative outcome (②) with the probability I^1_A* D^1_A *D^2_A*(1- I^2_A); and three terminated outcomes (③, ④ and ⑤) with the probabilities: I^1_A* D^1_A* (1- D^2_A), I^1_A* (1- D^1_A) and (1- I^1_A). The probabilities of three terminated outcomes sum to (1- I^1_A* D^1_A* D^2_A). The probabilities of those five outcomes sum to one. If we suppose previous experience can increase affirmative probability in every stage, that is, D^1_A, I^1_A, D^2_A, and I^2_A increase with experience, then affirmative probability I^1_A* D^1_A *D^2_A* I^2_A will increase, negative probability I^1_A* D^1_A *D^2_A*(1- I^2_A) is ambiguous, and terminated probability 1- I^1_A* D^1_A* D^2_A will decrease. So for a firm with prior experience, we would expect its affirmative outcome probability will increase compared to the terminated outcome probability.

Its affirmative outcome probability may also increase compared to the negative outcome probability, because if I^2_A increases, $(1- I^2_A)$ will definitely decrease, but the difference may not be obvious. We cannot decide which one is higher between negative probability and terminated probability because the change of negative probability is ambiguous.

What about the firm's filing activities? A firm makes its decision to file or not based on the expected benefits or potential disadvantages from those two choices.

E(Cost-Benefit) < D

The right-hand side D refers to the economic cost of the dumping if the domestic firm does not file a case. The left-hand side is the expected net cost of filing a case. It is equal to the filing costs less the potential benefit from the final outcome. Only if the left-hand side is smaller than the right-hand side will the firm choose to file a case. While the right-hand side is definitely positive, the left-hand side could be negative, which means filing a case could bring about a net benefit.

Suppose the cost imposed by the dumping, D, is a constant, the only thing left that deserves attention is E (Cost-Benefit). Right now we have five different outcomes with different probabilities and different costs. We denote B1, B2, B3, B4, B5, C1, C2, C3, C4, and C5 as the benefits and costs for those five results respectively. So the total expected value from filing a case would be:

$$\mathbf{(B1-C1)*(\ I^1_A*\ D^1_A\ *D^2_A*\ I^2_A) + (B2-C2)\ *\ (I^1_A*\ D^1_A\ *D^2_A*(1-\ I^2_A)) + (B3-C3)\ *(\ I^1_A*\ D^1_A*\ (1-\ D^2_A)) + (B4-C4)*(\ I^1_A*\ (1-\ D^1_A)) + (B5-C5)\ *(1-\ I^1_A)} \qquad \mathbf{(2)}$$

Five outcomes	Probability	Cost	Benefit
① Affirmative final injury decision and affirmative final dumping decision.	$I^1_A * D^1_A * D^2_A * I^2_A$	C1	B1>0
② Negative final injury decision, but affirmative final dumping decision.	$I^1_A * D^1_A * D^2_A * (1 - I^2_A)$	C2=C1	B2=0
③ Negative final dumping decision so case is terminated, but affirmative preliminary dumping and injury decision.	$I^1_A * D^1_A * (1 - D^2_A)$	C3	B3>0
④ Negative preliminary dumping decision so case is terminated, but affirmative preliminary injury decision.	$I^1_A * (1 - D^1_A)$	C4	B4=0
⑤ Negative preliminary injury decision so case is terminated.	$(1 - I^1_A)$	C5	B5=0

If the final decision is negative, then there is no benefit, so B2=0. The costs for the outcomes ① and ② are the same because they are both in the final stage. Thus, C1=C2. If a case is terminated during the first stage because of negative preliminary decision, there is also no benefit, so B4=B5=0. B3 is a little complicated. If a case is terminated because of negative dumping decision, then benefit would be 0. However, the domestic firm can also accept a price undertaking during the final dumping investigation and get some positive benefit from that. Thus, in total, B3>0. Arranging (2), we have:

$$\underset{(1)}{B1 * (I^1_A * D^1_A * D^2_A * I^2_A)} + \underset{(2)}{(-C1) * (I^1_A * D^1_A * D^2_A)}$$

$$+ \underset{(3)}{(B3-C3) * (I^1_A * D^1_A * (1 - D^2_A))} + \underset{(4)}{(-C4) * (I^1_A * (1 - D^1_A))} + \underset{(5)}{(-C5) * (1 - I^1_A)} \quad (3)$$

Again, we maintain the assumptions that previous experience of the firm will increase the affirmative probability (increases D^1_A, I^1_A, D^2_A, and I^2_A) at each stage and decrease filing cost (decrease C1, C2, C3, C4, and C5). But we add another assumption that previous experience will not affect B1, B2, B3, B4 and B5 (This

might not be a realistic assumption, but it will not change the result). In (3), term (1) will increase. Term (2) is ambiguous because though the cost C1 is decreasing with experience, the probability I^1_A* D^1_A *D^2_A increases. Terms (3) and (4) are also ambiguous because the probabilities for them could increase or decrease. Finally, term (5) will decrease. In sum, the effect of previous experience on the expected value of filing a case is ambiguous, which means the direction of change of E (Cost-Benefit), is also ambiguous and previous experience could lead a firm to increase or decrease its filing activities.

This is contrary to the conclusion of Blonigen, which predicts the increasing filing activities with prior experience. At first sight this also contradicts common sense. However, if we think experienced firms can survive the whole investigation process and persist to the end more easily, on the one hand, they have an increasing probabilities of both affirmative and negative outcomes, on the other hand, they would bear the substantial cost of the intimidating long process, then the results of our model do make sense. In sum, the previous filing experience of a firm has ambiguous effect on antidumping outcomes and filing activities.

In the next section we explore an empirical analysis of Canadian antidumping activities and outcomes.

3.2 Regressions and results

3.2.1 Canadian antidumping filing activities

First, I analyze whether a specific industry filing a case in a given year can be explained by its previous experience. The dependent variable is a dummy variable indicating whether a 6-digit NAICS industry initiates an antidumping case in a year. It takes a value of 1 when a case is filed, and 0 if no case is filed. The explanatory variable we focus our attention on is experience through a dummy variable indicating whether this industry has prior filing experience or not. Other researchers have already examined the influential factors of antidumping activities from political economic view, for example, Tharakan (1991), Tharakan and Waelbroeck (1994), Aggarwal (2004), Clark and Bruce (2006) and Crowley (2001). Following the method of Blonigen (2006), I also include other controlling variables that are found by previous researchers to have impacted industries' filing activities. First is the import penetration ratio of an industry, defined as imports divided by domestic market. An industry with a higher level of imports relative to domestic consumption may be more familiar with trade protection policies and more likely to file (Crowley, 2001, p. 15), so we expect a positive sign for the coefficient. Second is employment, representing the size of an industry. A larger industry may be better in bearing the heavy legal cost burden of a case (Crowley, 2001. p.15) and is likely to have more political power. So the expected sign for the coefficient should also be positive. Third is industry growth, indicating health of the industry. I use the growth rate of

real revenue as a rough proxy for it and expect a negative sign for the coefficient. The last variable is the exchange rate (Canadian value of the US dollar) and a negative sign is expected for the coefficient. If the exchange rate increases, which means that Canadian dollar depreciates, we would expect lower imports thus less antidumping initiations. I summarize the variables I use and the expected signs for them in Table 5.

Table 5: Explanatory variables and expected signs

Explanatory Variable	Expected Sign
Previous Experience of Filing a Case	?
Import Penetration Ratio for an Industry	+
Industry Employment	+
Industry Growth	-
Exchange Rate	-

All these explanatory variables except experience are lagged one year in the regression since firms and industries make their decisions of filing based on the situation previous to the cases. The historical list of antidumping cases is from the website of CBSA[23] and Global Antidumping Database collected by Brown (2006)[24]. The information on employment, revenue, average wage for a 6-digit NAICS industry is from the website of Canadian Industry Statistics[25]. The data of total imports, apparent domestic market, manufacturing shipments for a 6-digit NAICS

[23] http://www.cbsa-asfc.gc.ca/sima/historic-e.html.

[24] http://people.brandeis.edu/~cbown/global_ad/.

[25] http://strategis.ic.gc.ca/sc_ecnmy/sio/homepage.html. However, Canadian Industry Statistics database only contains data for principle establishments with sales of manufactured goods equal to or greater than $30,000. This is the limitation of our data collection.

industry are from the website of Strategis Canada: Trade Data Online[26]. Given the availability of data, the regression covers the period from 1993 to 2003. Only the industries that had filing activities during this period are selected and examined.

The regression method employed is logit regression via maximum likelihood:

$$\mathbf{Ln\ (p/1\text{-}p) = B_0 + B_1{*}X_1 + \beta{*}Y}$$

In the above equation, p is the probability of filing a case by an industry; (p/1-p) is the odds[27] of filing a case relative to not filing a case. X_1 is the dummy variable of previous experience. Y is a vector of the other controlling variables.

$$\mathbf{The\ old\ odds = (p/1\text{-}p)=exp\ (B_0 + B_1{*}X_1 + \beta{*}Y)=exp(B_0)exp(B_1{*}X_1)exp(\beta{*}Y)}$$

If we increase X_1 by one unit (for example, from no experience to having experience) while holding other controlling variables constant, the log-odds Ln (p/1-p) will increase by B_1, and we have:

$$\mathbf{The\ new\ odds\ (p`/1\text{-}\ p`) =exp(B_0 + B_1{*}(X_1{+}1){+}\beta{*}Y) = exp(B_0)exp(B_1{*}X_1)exp(B_1)exp(\beta{*}Y)}$$

We define the odds ratio as the ratio of the new odds and the old odds. If follows that:

$$\mathbf{The\ odds\ ratio = the\ new\ odds/the\ old\ odds= (p`/1\text{-}\ p`)\ /\ (p/1\text{-}\ p) = exp\ (B_1)}$$

In another word, the odds ratio is simply equal to the exponential log-odds coefficient.

Table 6 shows the coefficients and standard errors from a logit regression. All of the independent variables have the expected signs except the one for the exchange

[26] http://strategis.ic.gc.ca/sc_mrkti/tdst/engdoc/tr_homep.html.

[27] The odds (p/1-p) of an event is defined as the ratio of the probability that an event occurs to the probability that it fails to occur. The log-odds Ln (p/1-p) is the natural logarithm of the odds. If the probability of something increases, the odds and log-odds increase too.

rate. Antidumping initiations increase with the import penetration ratio, but at a decreasing rate as the sign for the squared import penetration ratio is negative. However, they are not statistically significant. Industry employment, which according to Clark and Bruce (2005) is the symbol of industry size and political power, has a positive and significant effect on antidumping filing activities. The coefficient for it is 0.0000348, which means every increasing 1000 employees will increase the log-odds of the filing activities by 0.0348, and the odds ratio is 1.035 (= exp(0.0348)). Thus the odds that a bigger industry (with 1000 more employees) files a case increases 3.5% compared with a smaller industry. The average employment of my data used in this regression is 9279.91, with the highest employment of 63548 for the "other printing industry" and the lowest employment of 549 for the "cold-roll steel sheet industry". This means, holding other things constant, the log-odds of the filing activities for the "other printing industry" is 2.19 higher (= 63000*0.0000348) than that for the "cold roll steel sheet industry", and the odds ratio is 8.94(= exp (2.19)). Thus the odds that the "other printing industry" files a case increases roughly eight times (=8.94-1) compared with the "cold-roll steel sheet industry". The industry growth has a negative effect on industry's filing activities, and it is statistically significant. If the industrial growth rate increases by 1%, then the log-odds will decrease by 0.0349 (=0.01* 3.488) and the odds ratio is 0.97 (= exp (-0.0349)). Thus the odds that a faster-growing industry (growth rate increases by 1%) files a case decreases 3%. The sign for the coefficient for the exchange rate is

contrary to expectations. However, just as Blonigen pointed out in his paper, other researchers found the exchange rate has an ambiguous effect on the probability of successful antidumping outcomes, and thus on the filing activities (Blonigen, 2006, p.724). In addition, the coefficient for the exchange rate in our regression is not statistically significant. Finally, previous antidumping filing experience has negative and significant impact on antidumping filing activities. For an industry with filing experience, we expect a 1.023 decrease in the log-odds of the filing activities, holding all other independent variables constant, and the odds ratio is 0.36 (= exp (-1.023)). So (p`/1- p`) / (p/1- p) = 0.36, which means the odds that an experienced industry files a case decreases 64% compared with industries without filing experience.

Table 6 also shows the results from a random effect logit regression. The reasons to do the random regression are as follows: We have a panel data of 30 industries over 10 years. There might be some within-industry correlations: firms in one industry are more likely to file than firms in another industry. This is not because they have or do not have experience, but because of some industrial characteristics we do not control in our regression. We do not focus on those unobserved characteristics (we are more interested in the effect of experience), but it might be better if those characteristics are adjusted for in the regression. Besides, the data of firms we use in the regression may represent only a random sample from an industry. If we want to make inferences from this sample on an entire industry, we should use

a random regression. The results from random regression show that the signs for all the coefficients do not change. Employment changes from statistically significant to statistically insignificant. The effect of previous experience becomes bigger: for an industry with filing experience, we expect a 2.165 decrease in the log-odds of the filing activities, and the odds ratio is 0.11. Thus the odds that an experienced industry files a case decreases 89% compared with industries without filing experience. This is a huge impact on filing activities. If two regressions are compared with each other, the normal logit regression is better fit. The overall Likelihood Ratio (LR) Chi-Square test for it is 15.56 and it is statistically significant at the 5% level. The LR Chi-Square test for the random effects logit regression is 11.54 and it is not statistically significant. So we prefer the results from the normal logit regression.

Table 6:
Previous experience and antidumping initiations by Canadian 6-digits NAICS industries, 1993-2003

	Logit regression	Random effects logit regression
	Dependent variable: "1" if initiation; "0" if not	
Previous experience	-1.023*** (0.407)	-2.165*** (0.840)
Import Penetration Ratio	2.249 (2.540)	1.942 (3.212)
Import Penetration Ratio Squared	-1.810 (2.036)	-1.509 (2.416)
Industry Employment	3.48e-05** (1.64e-05)	3.95e-05 (2.5e-05)
Industry Growth	-3.488** (1.546)	-3.232* (1.728)
Exchange rate	1.107 (2.448)	2.704 (2.804)
Constant	-3.351 (3.543)	-5.054 (3.944)
Number of Observations	265	265
LR chi2 statistics	15.56**	11.54

Standard errors are in parentheses.

***, **, and * denotes two-tailed test of statistical significance at the 1%, 5% and 10% level.

3.2.2 Previous experience and antidumping outcomes

Next, I examine the role of prior experience for individual firms on the final antidumping outcomes by using the multinomial logit regression. The purpose of this regression is to see whether a firm with filing experience is more likely to get affirmative outcomes, just as my model predicts before. The dependent variable is the outcome of antidumping case: 1 if affirmative, 2 if negative, and 3 if terminated or a price undertaking is accepted by both parties. The key explanatory variable is still experience, a dummy variable equal to 1 if an individual firm has had previous antidumping filing experience. Because there is no import penetration ratio for an individual firm, I use the import value at 6-digit HS code level[28] for the goods under antidumping investigations. I also include country and area dummies in the regression because there might be some biases in antidumping authorities' decisions regarding different countries, or because different methods might be employed in antidumping investigations against different countries. For example, if a dumping country is considered to be a "non-market economy", a surrogate market economy is used to calculate the normal value of the dumped goods. Another example is that there are separate articles of SIMA respecting goods from a NAFTA country and U.S. A bi-national panel can be established according to 1989 Canada-US Free Trade Agreement (CUSFTA) and 1994 North American Free Trade Agreement (NAFTA), for the purpose of appealing affirmative rulings. Such mechanism may discipline the

[28] Data from Strategis Canada: Trade Data Online: http://strategis.ic.gc.ca/sc_mrkti/tdst/engdoc/tr_homep.html.

abuse of trade remedies and modify antidumping authorities' behaviors. The categories of country dummies are as follows: 1 USA, 2 China, 3 Korea, 4 India, 5 Taiwan, 6 other Asian countries, 7 European Union countries, 8 other Latin American countries, 9 Russia, Eastern European countries or former USSR members, 10 other European countries, 11 South Africa. All controlling variables except dummy variables are lagged one year in the regression since the antidumping authorities will base their decisions on the information and data prior to initiation of a case.

Similar to the logit model, multinomial logit model is as follows:

$$\mathbf{Ln\ (Pi/P_0) = B_0 + B_1 * X_1 + \beta * Y}$$

Pi denotes the probability for the affirmative (P_A) or negative (P_N) outcome. P_0 denotes the probability of our benchmark - terminated outcome. Pi/P_0 is referred as odds (sometimes is referred as relative risk). It is the ratio of the probability for one outcome over the probability for the reference outcome. For one unit change in the independent variable X_1, the log-odds of affirmative/negative outcome relative to the terminated outcome will change by B_1. For example, if a firm has previous filing experience, then its log-odds of an affirmative outcome relative to a terminated outcome Ln ($P_A`/P_0`$) will increase by B_1. The exponentiated coefficient, exp (B_1), is usually interpreted as relative risk ratio (RRR):

$$\mathbf{RRR} = \frac{\mathbf{(Pi`/P_0`)}}{\mathbf{(Pi/P_0)}} = \frac{\mathbf{exp(B_0)exp(B_1*X_1)exp(B_1)exp(\beta*Y)}}{\mathbf{exp(B_0)exp(B_1*X_1)exp(\beta*Y)}} = \mathbf{exp\ (B_1)}$$

Table 7:

Previous experience and antidumping outcomes for individual firms, 1993-2003

	Dependent variable: 1 if affirmative, 2 if negative, 3 if terminated or price undertaking accepted	
Affirmative outcomes		
Previous experience	3.83**	(1.72)
Import value of targeted good	4.85e-09	(3.23e-09)
Industry employment	-6.06e-05	(4.83e-05)
Industry growth	41.75***	(11.98)
Exchange rate	-26.26**	(12.948)
Country or area dummies	Included	
Constant	40.47	(20.17)
Negative outcomes		
Previous experience	3.21*	(1.84)
Import value of targeted good	7.34e-09**	(3.32e-09)
Industry employment	-13.41e-05**	(5.49e-05)
Industry growth	37.31***	(12.19)
Exchange rate	-38.24***	(13.50)
Country or area dummies	Included	
Constant	55.10	(20.80)
Number of observations	121	
LR chi2 statistics	89.89***	

Dependent variable =3 (terminated or price undertaking accepted) as a base category.
Standard errors are in parentheses.
***, **, and * denotes two-tailed test of statistical significance at the 1%, 5% and 10% level.

Table 7 shows the results from multinomial logit regression. First, we see that previous experience has a positive and significant effect on the probabilities of affirmative and negative outcomes. Previous experience can increase the log-odds of an affirmative outcome relative to a terminated outcome for a firm by 3.83, given all the other variables are held constant. The RRR is 46 (=exp (3.83)). Thus the odds that an experienced firm gets an affirmative outcome relative to a terminated

outcome increases by 45 times. This is a considerable effect on outcomes. Similarly, experience will increase multinomial log-odds for a negative outcome relative to a terminated outcome by 3.21, and the RRR is 25 (=exp (3.21)). Thus the odds that an experienced firm gets a negative outcome relative to a terminated outcome increases 24 times. These results indicate that firms with antidumping filing experience can more easily persist during the long process of investigation, pass the preliminary investigations and survive to the final decisions. And the coefficient for an affirmative outcome is bigger (3.83) and more statistically significant than the one for a negative outcome (3.21), just as we expect from our model: The probability for an affirmative outcome P_A ($=I^1_A * D^1_A * D^2_A * I^2_A$) will increase and the probability for a terminated outcome P_0 ($=1- I^1_A * D^1_A * D^2_A$) will decrease with experience. So the odds ($=P_A/P_0$) of getting an affirmative outcome relative to a terminated outcome will increase with experience. The effect of experience on the probability for a negative outcome P_N ($=I^1_A * D^1_A * D^2_A * (1- I^2_A)$) is ambiguous so we can not decide whether negative or terminated probability would be higher just from the model. Here the results from the data show that the odds ($=P_N / P_0$) of a negative outcome relative to a terminated outcome for a firm will increase with experience. The import value of targeted goods also has positive effect on the multinomial log-odds and the coefficient for the negative outcome is statistically significant. Although its coefficient is very small, considering the variation of import value is usually in thousands or millions dollars, the impact of import value can not be neglected.

Industry employment shows a negative sign here, which is contrary to the result of Table 6. A possible explanation would be that while an industry with more employment has stronger political power and support to initiate a case, the government takes into account employment factor associated with dumping and injury. Increasing employment might be a sign of healthy industry while decreasing employment is an indication of injury suffered by domestic industry and will lead to increasing likelihood of affirmative decisions by the government. We get the expected sign for the exchange rate and it is statistically significant. If the exchange rate increases by 0.01, the log-odds of affirmative outcome relative to terminated outcome will decrease by 0.26 (=0.01*26.26), and the log-odds of negative outcome relative to terminated outcome will fall by 0.38 (=0.01*38.24). One thing we should worry about is the wrong sign of the coefficient for the industry growth, and it is statistically significant.

Not all the coefficients for country dummies are statistically significant (see Appendix 3). So I ran another regression without country dummies. The results in Table 8 show a lot of differences from Table 7. The impact of experience decreases a lot and it is no longer statistically significant for the log-odds of negative outcome relative to terminated outcome. To compare these two regressions, I test whether these country dummies are jointly statistically significant. The null hypothesis is that this group of country dummies has no effect on antidumping investigation outcomes. The Chi-Square test is 2394.94, which is big enough to reject the null hypothesis. So

we prefer the results of Table 7 and believe that there are differences in the way that antidumping authorities make decisions regarding different countries.

Table 8:
Previous experience and antidumping outcomes for individual firms, 1993-2003

	Dependent variable: 1 if affirmative, 2 if negative, 3 if terminated or price undertaking accepted	
Affirmative outcomes		
Previous experience	1.57*	(0.94)
Import value of targeted good	1.75e-09	(1.68e-09)
Industry employment	-2.19e-05	(3.21e-05)
Industry growth	23.74***	(7.09)
Exchange rate	-0.76	(5.64)
Country or area dummies	Not included	
Constant	2.71	(8.24)
Negative outcomes		
Previous experience	1.28	(1.09)
Import value of targeted good	3.44e-09*	(1.77e-09)
Industry employment	-7.71e-05**	(3.92e-05)
Industry growth	17.57**	(7.25)
Exchange rate	-6.15	(6.29)
Country or area dummies	Not included	
Constant	9.83	(9.11)
Number of observations	121	
LR chi2 statistics	44.62***	

Dependent variable =3 (terminated or price undertaking accepted) as a base category.
Standard errors are in parentheses.
***, **, and * denotes two-tailed test of statistical significance at the 1%, 5% and 10% level.

One difficult point of the regression is to classify a case ending with a price undertaking. My model only discusses the probabilities for affirmative, negative and terminated outcomes. A price undertaking is a more complicated result relating to the interactions and strategic behaviors between petitioners and defendants. Here I

classify a price undertaking as a terminated outcome because I assume that if a petitioner expects the probability of getting final affirmative outcome is very low, it will accept a price undertaking during the investigation process to save cost and time. However, it might be argued that affirmative outcome and price undertakings have the similar result if one thinks from the perspective of trade-restricting effect instead of probability. So I also ran a regression with price undertakings classified as affirmative outcomes. Results under this assumption are reported in Table 9. We can see that though experience still has positive effect on the probabilities for affirmative and negative outcomes, the coefficients become smaller and not statistically significant. Magnitudes and statistical significance for other independent variables also change a lot. These results suggest that cases with affirmative and negative outcomes should be separated from terminated outcomes as in Table 8. Indeed the results show that firms with experience are more willing to bring a case to a decision by the court than to end it up through for instance price undertaking.

Table 9:
Previous experience and antidumping outcomes for individual firms, 1993-2003

	Dependent variable: 1 if affirmative or price undertaking accepted, 2 if negative, 3 if terminated	
Affirmative outcomes		
Previous experience	1.80	(1.79)
Import value of targeted good	3.39e-09	(2.77e-09)
Industry employment	8.44e-06	(6.18e-05)
Industry growth	27.65***	(9.93)
Exchange rate	-21.74**	(12.34)
Country or area dummies	Included	
Constant	53.10	(7.17)

Negative outcomes		
Previous experience	1.29	(1.88)
Import value of targeted good	5.91e-09**	(2.88e-09)
Industry employment	-6.68e-05	(6.59e-05)
Industry growth	24.03**	(10.21)
Exchange rate	-33.76**	(12.89)
Country or area dummies	Included	
Constant	67.74	(.)
Number of observations	121	
LR chi2 statistics	80.81***	

Dependent variable =3 (terminated outcome) as a base category.

Standard errors are in parentheses.

***, **, and * denotes two-tailed test of statistical significance at the 1%, 5% and 10% level.

4 Conclusions

This paper describes the process of the Canadian antidumping system and discusses how firms' and industries' learning experience will affect their future filing activities and outcomes. Given the complexity and ambiguity in the Canadian antidumping law and practices, previous experience may affect both filing costs and outcome probabilities. The statistical analysis based on logit regressions of Canadian antidumping data from 1993 to 2003 suggests that the previous experience of Canadian industries and firms is positively correlated with the likelihood of final affirmative and negative outcomes, and negatively correlated with the likelihood of terminated outcomes. This may be because prior experience increases petitioners' effectiveness in arguing their cases so that they can survive the whole investigation process and stick it through to the end more easily. However, future filing activities fall with experience, which may due to the increasing likelihood of final negative outcomes and the substantial cost incurred with the long process of investigation.

The second result is quite surprising. Apparently Canadian firms' experience of working with antidumping authorities and going through the system has an intimidating impact on their future filing activities. It is quite possible because the antidumping process takes more than 210 days, and it is complicated, burdensome and costly. If this is really the case, then it may point to a need for some improvement of the existing antidumping system, if the policy goal is to eliminate the injury from dumping and to ensure that small and medium-sized firms have

equal access to protection. An alternative explanation for the second result is that if a firm filed a case and it was successful, then foreign firms can not and dare not dump again so that there is no need for filings in the near future. A possible way to test this hypothesis is to collect data over a longer period in which the effect of previous successful filings on foreign firms has disappeared. However, this is beyond the scope of this paper.

Our result is also contrary to Blonigen's finding that US firms with prior experience increased their filing activities. There are several possible explanations for this. First, Blonigen and I use data from different periods, which could influence the estimate of probabilities for filing activities. Second, the Canadian antidumping system is more rigorous than, yet not as trade-restrictive as the US antidumping system. Though both systems have preliminary and final investigations, a negative preliminary dumping decision will end a case in Canada while in US a case may continue to a final decision even with a negative preliminary dumping decision. Also Canadian system uses a prospective method of duty assessment. Following a preliminary affirmative determination, a provisional duty is imposed, which is based on the estimated margin of dumping. Goods imported into Canada from the date of the preliminary decision to the date of final injury decision are subject to this duty. Once the final determination of antidumping duty is set, provisional duties paid in excess of the final duty are refunded. But if the provisional duty is less than final duty, no additional duty is collected. This prospective method provides predictability

to foreign exporters and Canadian importers. They can be aware of duty liability ahead of time and adjust their price and import volumes. In the US a retrospective method is used. A US importer could still import goods after the affirmative preliminary decision, but has to pay a cash deposit equal to the estimated dumping margin. The final duty is determined in a review process later. If the final duty is more than the cash deposit, the importer has to pay the additional amount plus interest. And more importantly, before the 1994 Uruguay Round, there was no time limit for the review process. The final duty could be determined 10 years later and be much higher than the cash deposit. Such a retrospective system creates uncertainty for foreign exporters and US importers and is more trade-restrictive than the Canadian system. The above two differences make the Canadian antidumping system more costly but less biased toward domestic firms than the US system. This may explain why Canadian firms decrease their filing activities after they have experience working with the system. However, these explanations are only tentative. It would be interesting to choose the same period and make comparisons between those two antidumping systems, for example, in terms of legislation, practices, and domestic markets and firms. There is ample room for more elaborate research in the future.

Appendices

Appendix 1:

Summary Statistics – Mean and Standard Deviations for Table 6

Variables		
Initiations (=1 if filing a case)	0.1454545	(0.3530939)
Experience (=1 if having experience)	0.7545455	(0.4310099)
Import Penetration Ratio	0.5194283	(0.3301417)
Import Penetration Ratio Squared	0.378436	(0.7353753)
Industry Employment	9279.91	(11069.52)
Industry Growth	0.0431603	(0.1231206)
Exchange Rate	1.435186	(0.0873938)

Summary Statistics – Mean and Standard Deviations for Table 7

Variables		
Antidumping Investigation Outcomes	1.438356	(0.6945363)
Experience (=1 if having experience)	0.662069	(0.4746445)
Import Value of Targeted Goods	4.57e+08	(9.27e+08)
Industry Employment	16576.98	(13217.5)
Industry Growth	-0.0180146	(0.0902074)
Exchange Rate	1.420213	(0.1144678)
Country Dummy	5.80137	(2.873469)

Appendix 2: Complete results for Table 7
Previous experience and antidumping outcomes for individual firms: 1993-2003

Multinomial logistic regression — Number of obs =121
LR chi2(30) = 89.89
Prob > chi2 = 0.0000
Log likelihood = -60.143554 — Pseudo R2 = 0.4277

	Dependent variable: 1 if affirmative, 2 if negative, 3 if terminated or price undertaking accepted					
Affirmative	**Coef.**	**Std. Err.**	**z**	**P>|z|**	**[95% Conf.**	**Interval]**
Experience	3.833521	1.720921	2.23	0.026	0.460578	7.206464
Import value of targeted good	4.85e-09	3.23e-09	1.50	0.133	-1.47e-09	1.12e-08
Industry employment	-0.0000606	0.0000483	-1.26	0.209	-0.0001553	0.000034
Industry growth	41.754	11.97596	3.49	0.000	18.28156	65.22645
Exchange rate	-26.26196	12.94477	-2.03	0.042	-51.63324	-.8906857
Country2	25.29207	1.552527	16.29	0.000	22.24917	28.33497
Country3	20.43806	1.677218	12.19	0.000	17.15077	23.72535
Country4	-3.408374	2.997294	-1.14	0.255	-9.282962	2.466215
Country5	-1.711424	2.6836	-0.64	0.524	-6.971183	3.548335
Country6	0.1835536	2.586777	0.07	0.943	-4.886436	5.253544
Country7	-3.57455	2.999872	-1.19	0.233	-9.454191	2.30509
Country8	21.17718	1.597958	13.25	0.000	18.04524	24.30912
Country9	-2.436239	2.671863	-0.91	0.362	-7.672993	2.800516
Country10	6.759707	46.16686	0.15	0.884	-83.72568	97.24509
Country11	19.55349	.	.	.	.	.
Constant	40.46599	20.16999	2.01	0.045	0.9335281	79.99845
Negative	**Coef.**	**Std. Err.**	**z**	**P>|z|**	**[95% Conf.**	**Interval]**
Experience	3.211361	1.844302	1.74	0.082	-0.4034047	6.826126
Import value of targeted good	7.34e-09	3.32e-09	2.21	0.027	8.28e-10	1.39e-08
Industry employment	-0.0001341	0.0000549	-2.44	0.015	-0.0002418	-0.0000264
Industry growth	37.31206	12.19493	3.06	0.002	13.41044	61.21368
Exchange rate	-38.23591	13.50418	-2.83	0.005	-64.70361	-11.7682
Country2	27.61241	.	.	.	.	.
Country3	23.61276	.	.	.	.	.
Country4	-0.4029453	3.47366	-0.12	0.908	-7.211193	6.405302
Country5	1.809094	3.068012	0.59	0.555	-4.204099	7.822288

Country6	3.663365	2.958051	1.24	0.216	-2.134309	9.461038
Country7	-2.171045	3.266521	-0.66	0.506	-8.573309	4.231219
Country8	23.88039	.	.	.	.	.
Coiuntry9	-1.808041	3.147762	-0.57	0.566	-7.977541	4.36146
Country10	-20.84956	9682000	-0.00	1.000	-1.90e+07	1.90e+07
Country11	22.59429	1.814196	12.45	0.000	19.03853	26.15005
Constant	55.09658	20.79502	2.65	0.008	14.33909	95.85407

Appendix 3: Complete results for Table 9
Previous experience and antidumping outcomes for individual firms: 1993-2003

Multinomial logistic regression — Number of obs =121
LR chi2(30) = 80.81
Prob > chi2 = 0.0000
Log likelihood = -60.91232 — Pseudo R2 = 0.3988

	Dependent variable: 1 if affirmative or price undertaking accepted, 2 if negative, 3 if terminated					
Affirmative	**Coef.**	**Std. Err.**	**z**	**P>|z|**	**[95% Conf. Interval]**	
Experience	1.802309	1.786782	1.01	0.313	-1.699721	5.304338
Import value of targeted good	3.39e-09	2.77e-09	1.22	0.221	-2.04e-09	8.82e-09
Industry employment	8.44e-06	0.0000618	0.14	0.891	-0.0001126	0.0001295
Industry growth	27.64737	9.92905	2.78	0.005	8.186787	47.10795
Exchange rate	-21.74254	12.34238	-1.76	0.078	-45.93315	2.44807
Country2	3.489402	1.551945	2.25	0.025	0.4476452	6.531158
Country3	0.946241	1.674455	0.57	0.572	-2.33563	4.228112
Country4	-22.21051	19.33958	-1.15	0.251	-60.11538	15.69437
Country5	-20.83382	19.40273	-1.07	0.283	-58.86248	17.19484
Country6	-19.501	19.5583	-1.00	0.319	-57.83457	18.83256
Country7	-21.9286	18.20043	-1.20	0.228	-57.6008	13.74359
Country8	1.460784	1.598683	0.91	0.361	-1.672577	4.594144
Country9	-21.36233	19.13121	-1.12	0.264	-58.85881	16.13416
Country10	-15.31499	22.73129	-0.67	0.500	-59.86751	29.23752
Country11	0.4996152	1.810226	0.28	0.783	-3.048363	4.047594
Constant	53.10386	7.172485	7.40	0.000	39.04605	67.16167
Negative	**Coef.**	**Std. Err.**	**z**	**P>|z|**	**[95% Conf. Interval]**	
Experience	1.292005	1.883614	0.69	0.493	-2.39981	4.98382
Import value of targeted good	5.91e-09	2.88e-09	2.05	0.040	2.70e-10	1.16e-08
Industry employment	-0.0000668	0.0000659	-1.01	0.311	-0.000196	0.0000623
Industry growth	24.03485	10.21289	2.35	0.019	4.017946	44.05175
Exchange rate	-33.75887	12.8895	-2.62	0.009	-59.02183	-8.495919
Country2	5.862374	.	.	.	.	.
Country3	4.134726	.	.	.	.	.
Country4	-19.2157	19.47327	-0.99	0.324	-57.3826	18.9512
Country5	-17.31102	19.4499	-0.89	0.373	-55.43211	20.81008

Country6	-16.01686	19.67917	-0.81	0.416	-54.58732	22.5536
Country7	-20.67243	18.19289	-1.14	0.256	-56.32984	14.98498
Country8	4.176629	.	.	.	.	.
Coiuntry9	-20.75408	19.20273	-1.08	0.280	-58.39074	16.88259
Country10	-46.09697	4.63e+07	-0.00	1.000	-9.08e+07	9.08e+07
Country11	3.541874	.	.	.	.	.
Constant	67.74238	.	.	.	.	.

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