

ANTI-DUMPING AS STRATEGIC  
BEHAVIOR

by

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A thesis submitted in partial  
fulfillment of the requirements for the  
degree of

Master of Arts

National University of Kyiv-Mohyla  
Academy

2000

Approved by \_\_\_\_\_  
Chairperson of Supervisory Committee

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Program Authorized  
to Offer Degree \_\_\_\_\_

Date \_\_\_\_\_

The National University of  
"Kyiv-Mohyla Academy"

Abstract

ANTIDUMPING AS  
STRATEGIC BEHAVIOR

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This paper develops the game-theoretic representation of international trade. The game is formalized as intranational prisoner's dilemma with two countries and four players in each country: government, import-competing industries, exporters, and consumers. On the example of WTO, it is shown that international trade agreements facilitate the solution of the intranational prisoner's dilemma for free trade outcome. However with present GATT/WTO rules anti-dumping, which is argued to have a protectionist nature, becomes governments' dominant strategy. The anti-dumping Nash Equilibrium turns out to be second-best solution of the intranational prisoner's dilemma. The validity of the model is supported by empirical tests. On the basis of the model the conclusion is made that WTO is capable to diminish the spread of anti-dumping by substituting the anti-dumping legislation with antitrust principles.

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## LIST OF ABBREVIATIONS

AD – anti-dumping;

GATT – General Agreement on Tariffs and Trade;

OLS – ordinary least squares;

PD – prisoner's dilemma;

WTO – World Trade Organization

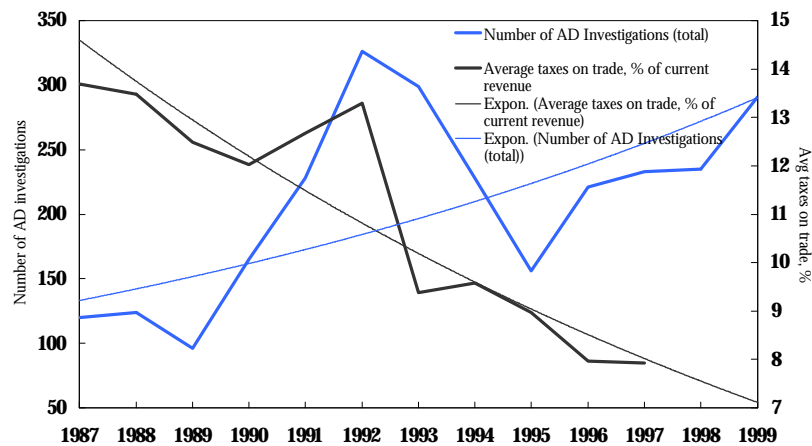
## ACKNOWLEDGMENTS

The author wishes to thank Prof. Gardner for his support and advice, Prof. Szyrmer, whose methodological recommendations can not be overestimated, Prof. Ellis for help at the start of the work and excellent literature on the topic. I am also grateful to Prof. Steele for providing an article, which inspired the theoretical development of this paper, Prof. Hemesath for his advice at the beginning of the work, and Prof. Lehmann for his help with empirical part of the research. I also thank Prof. Ellis, Prof. Feehan, Prof. Gardner, Prof. Szyrmer, Prof. Wendel, and fellow students Ivan Maryanchyck, Pavlo Prokopovych, Vitalii Repei, Alexander Scherbakov for their helpful comments.

INTRODUCTION

The outburst of anti-dumping (henceforth AD) actions during the last two decades has been one of the troublesome trends in world trade. The spread of AD increased from a few traditional users, such as Australia, Canada, the EC, New Zealand and the US to a growing number of new users, among which are Argentina, Brazil, India, Korea, Mexico, Turkey, South Africa, Ukraine. The most noticeable feature of the AD spread is that it has been paralleled by a decrease in worldwide protectionism inspired by GATT/WTO activity (see Figure 1).

Figure 1. Protectionism<sup>1</sup> and AD activity in 1987-1999



Source: World Bank World development indicators 1999; Miranda 1998 (for years 1987 - 1997); WTO. Reports of the Committee on Anti-Dumping Practices (for years 1997 - 1999)

<sup>1</sup> Taxes on international trade as a share of current revenue are used as an indicator of protectionism. Taxes on international trade include import duties, export duties, profits of export or import monopolies, exchange profits, and exchange taxes. Current revenue includes all revenue from taxes and nonrepayable receipts (other than grants) from the sale of land, intangible assets, government stocks, or fixed capital assets, or from capital transfers from nongovernmental sources

Among economists AD is often regarded as a form of protectionism and its damage is widely acknowledged:

“AD is inherently protectionist and should be thought of in the same way as other forms of protection - as just another device for assisting domestic industry against competition from imports” (Stegemann 1980)

“AD duties became the principal mechanism used by domestic industries to obtain protection from import competition” (Finger 1993)

At the same time the reasons why countries engage in AD activity so widely are less well understood:

“AD has become the trade policy of choice for both developed and developing economies. Unfortunately, it is not clear exactly why so many countries are embracing AD law” (Prusa 1999).

This paper is an attempt to provide an explanation for the increasing use of AD legislation. For this purpose it uses the game-theoretical concept of the ‘intranational prisoner’s dilemma’ described in Schuknecht 1990. It shows how the interaction of domestic pressure groups, among which are import-competitors, exporters and consumers, leads to accepting AD policy.

The validity of the model is supported by empirical results, which indicate that: (i) AD activity correlates negatively with the country’s level of protection, (ii) WTO members are less targeted by AD, and (iii) countries may use tit-for-tat strategies in implementing AD policy.

The rest of the paper is organized as follows. The second chapter provides an extensive review of literature on the topic with emphasis on the practical use of AD. This section creates a basis for the model presented in chapter three. The model is developed by the introduction and critique of the concept of the international prisoner’s dilemma, and presenting the intranational prisoner’s dilemma settings. I conclude the model by considering the role of WTO and AD in the game. Chapter four provides empirical support for the validity of

the model. Finally, chapter five contains conclusions and recommendations to international trade organizations as well as to their members' governments.

## Chapter 2

### AD IN THEORY AND PRACTICE (LITERATURE REVIEW)

The early definition of dumping is price discrimination between national markets (Viner 1923). Later this specification was extended significantly. The Art 2.1 of Agreement on Implementation of Article VI of the GATT 1994 defines dumping as follows:

“[A] product is to be considered to be dumped, i.e. introduced into the commerce of another country at less than its normal value, if the export price of the product exported from one country to another is less than the comparable price, in the ordinary course of trade, for the like product when destined for consumption in the exporting country”

By the GATT/WTO standards dumping is considered to be unfair trade policy and must be punished. Accordingly, AD duties can be levied if (i) imports are sold at less than fair value and (ii) these imports cause material injury to the domestic industry (GATT 1994).

Under these definitions AD became more widespread in last decades of 20<sup>th</sup> century. Over the period from 1987 to 1999 more than 2500 AD cases were filed worldwide<sup>2</sup>. The number of affected countries<sup>3</sup> increased from 31 in 1987 to 65 in 1999. Before the recent GATT Agreement was concluded in 1994, which allowed all the members to adopt AD legislation, only about 40 countries had AD measures in their laws. After the Uruguay Round, more than 120 countries adopted AD laws (McGee, Yoon 1998). This resulted in dramatic shift in use of AD from ‘traditional’<sup>4</sup> to new users (see Figure 2).

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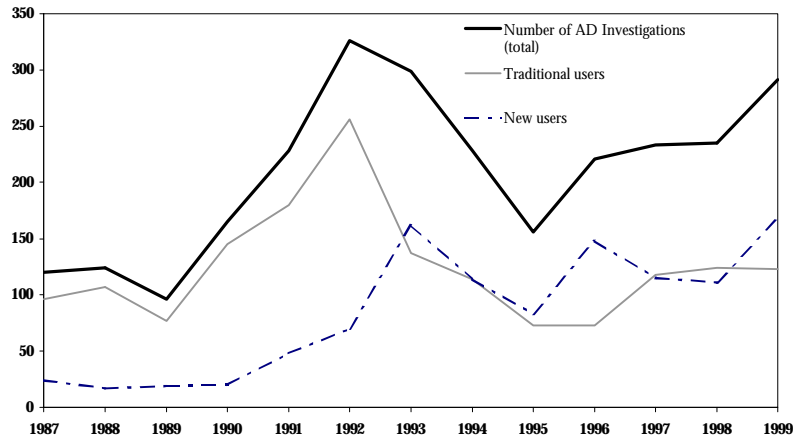
<sup>2</sup> Here and further, if not stated differently, the sources for the data are: Miranda 1998 (for years 1987 – 1997); authors calculations based on WTO Reports of the Committee on AD Practices (for years 1998 – 1999)

<sup>3</sup> Affected countries are those against which AD investigations are implemented

<sup>4</sup> ‘Traditional’ users are defined as those engaged in the conduct of AD investigations since at least 1970s. This category includes Australia, Canada, the EC, New Zealand, and the USA.

Over the past 10 years there has been an 8-fold increase in AD filings by new users.

Figure 2. AD use by 'traditional' and 'new' users in 1987 - 1999



Source: Miranda 1998 (for 1987 - 1997); WTO. Reports of the Committee on Anti-Dumping Practices (for 1997 - 1999)

A number of economists argue that AD law is biased against foreign firms (Boltuck and Litan, 1991; Kolev and Prusa, 1999; Banks 1990; Krugman 1987) and suggest that dumping occurrence as defined by law will be frequent (Krishna 1997). Many of them are even more straightforward:

“AD is a trouble-making diplomacy, stupid economics, and unprincipled law” (Finger 1993)

“AD is not being used in the spirit of the GATT rules. It is operating in practice as *de facto* protectionist device” (Hindley 1988)<sup>5</sup>

Such statements are based on a number of reasons. Below I provide the most important arguments, which support the above conclusions<sup>6</sup>.

<sup>5</sup> Dramatic increase of AD activity in early 1990s of world recession supports the protectionist nature of AD: in times of recessions competition in domestic markets increases and domestic industries lobby intensively for protectionism in all its forms

<sup>6</sup> I am grateful to Keith B. Anderson, Gary Banks, Wilfred J. Ethier, Michael J. Finger, F. H. Gruen, Wendy L. Hansen, B. Hindley, Raj Krishna, Robert W. McGee, Tokmas J. Prusa, Yeomin Yoon whose works were used to outline the arguments

What is most important from the economic viewpoint is that *AD is not targeted on maximizing a country's welfare*. Some authors agree that a country's overall economic interest is such that it is better to take the external trading environment as given<sup>7</sup>. It is beneficial for a country to accept cheap imports, even if they are dumped or subsidized (Gruen 1986, Banks 1990). Leaving aside this extreme judgement (other authors argue that in certain circumstances it is not the case) I still have to confirm that the AD procedures are focused solely on the question of injury to a particular industry. They exclude any detailed consideration of the effects of dumping on the broader community. The question whether the cost to the whole economy from imposition of AD measures might be greater than industry-specific benefits is not considered (Banks 1990). Krishna 1997 suggested that a cost-benefit analysis should validate the use of AD measures. The author himself however recognized that the implementation of such analysis into decision-making procedures would be too difficult and time-consuming even if possible.

*AD also is not targeted on predatory pricing*. While the fear of monopolizing markets was one of the strongest arguments in favor of AD “very few cases of predatory pricing have ever been proven” (Ethier 1982). Predatory pricing requires the predator to incur substantial sure losses while the future gains from market power are uncertain and depend on the rival's moves<sup>8</sup> (Krishna 1997). Moreover “even where the appropriate conditions for successful predation exists, there would be other less costly strategies available to foreign firms than a drawn-out price war (such as collusion with, or acquisition of, the

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<sup>7</sup> Especially if these countries are small

<sup>8</sup> Despite the rareness of predatory pricing some cases are reported. For example, some argues that Japanese Kikkoman Soy Souce entered the US market, selling cheap to drive out competitors, and then rising prices. Similarly Japanese TV sets' producers succeeded for a while in stopping domestic US production. These cases, being rather exceptions than a rule, do not destroy the analysis. Usually AD investigations are set against producers who possess negligibly small share of the domestic market. For instance, Ukraine is punished by AD for export of heavy industry products, namely steel, steel pipes, steel reels, magnesium, and titanium sponge, which constitutes no more than 10% of domestic markets. (I am grateful to Prof. Wendel for this information)

local supplier)” (Banks 1990). The absence in AD laws of any requirement to prove or disprove predatory intent supports the view that predation is not seriously seen as a ground for anti-dumping action (Banks 1990).

An additional critique is one of Gruen, 1986. He remarked that *selling goods for price below cost is not treated as unfair behavior internally* and it should not be regarded as unfair in international trade. The different approach to domestic industry if compared with foreign producers clearly distorts the market mechanisms and negatively affects competition.

*The AD authorities often use ‘best information available’ and different techniques to determine the occurrence of dumping.* In reality, ‘best information available’ often means that authorities rely on data provided by domestic competitors (McGee, Yoon 1998). Moreover, comparisons are generally made with the export price to a third country or with the “cost of production in the country of origin plus a reasonable amount for administrative, selling and general costs (ASGC) and for profits (constructed value)” (GATT 1994). As the choice of techniques is extensive enough<sup>9</sup> and definition of constructed value is not strict it is often not difficult to find dumping occurrence even if it did not occur. This explains the relatively very high incidence of AD actions involving transition economies<sup>10</sup>. For these countries, domestic selling prices are not used to determine normal values. Instead, normal values are based on “export prices from market economies, the choice of which is obviously critical to the dumping assessment” (Banks 1990).

*AD is harmful.* AD laws are biased against importers, which cause foreign products to be routinely excluded from domestic markets. In US, for

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<sup>9</sup> In case involving some Brazilian companies, more than ten different methods were used to determine the cost of production (Bovard 1991 in McGee, Yoon 1998).

<sup>10</sup> It is worth mentioning that there are some positive externalities of AD use, such as pressure on nonmarket economies toward establishing market structure. Of course, this goal would be better targeted by other than AD tools

example, during 1990 and 1991, the average AD duty was 55.5% (Anderson 1993). Prusa 1999 using the US data estimated that when an AD dispute results in duties or is settled, on average import quantities fall by almost 70 percent and import prices rise by more than 30 percent. When the case is rejected imports fall by about 20 percent (Prusa 1999). The last finding is even more disturbing than the first. It implies that the very existence of AD procedures can lead to pre-emptive price increases, sometimes even in situations where AD action would not have occurred (Banks 1990). This conclusion is supported by Carmichael 1986: "... overseas suppliers are generally not prepared to offer their best export price for fear of ... being charged with dumping."

Once AD has been adopted, *countries often have difficulties in restraining its use* (Prusa 1999). The main reason for this is that under current rules both parts of the AD determination (export price less than fair value and injury to a domestic industry) are quite easy to satisfy. For example, since 1980 the US Department of Commerce has found dumping in 95% of its decisions (Hansen and Prusa 1995).

*Countries use Tit-for-Tat strategies in pursuing AD.* Countries adopt AD not only to protect against imports, but also to defend their exporters against abuse of the law abroad<sup>11</sup> (Prusa 1999). This leads to the conclusion that AD is forced not only, although primarily by import-competing industries, but also by exporters, which would wish to prevent AD spread but actually may facilitate it. Tit-for-Tat strategy's presence explains the fact that AD users are primarily the same countries who are subject to AD actions (Prusa 1999). AD therefore again serves not for diminishing monopoly power, but as protectionist device of in-country groups.

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<sup>11</sup> The supportive example is from Australia where the Government stated that "it was not prepared to provide industry with 'a lesser safeguard against unfair competition' than provided by the US, Canada and the EC" (Gruen 1986)

The above discussion leads us to the conclusion that whatever the reasons underlie the existence of AD legislation its use can definitely be regarded as a substitute for protectionist policy. This conclusion will be effectively used in the following game theoretic model, which is to determine the very reasons of AD use.

## Chapter 3

### THE MODEL<sup>12</sup>

The most important contributions to macroeconomics since Keynes have been the result of formulating macroeconomic problems as games and then solving those games

Robert Lucas<sup>13</sup>

### Game representation of international trade

It is widely acknowledged and supported by international trade theory that countries benefit from free trade without world market power. Conversely, countries that implement trade barriers incur significant welfare losses. The basic conclusion of this standard view is that it is in countries' best interest to refrain from protection.

Table 1. The international trade game<sup>14</sup>

		COUNTRY B	
		Free Trade	Protection
COUNTRY A	Free Trade	(4,4) *	(2,3)
	Protection	(3,2)	(1,1)

The solution to the international trade game should, then, be free trade as the 2x2 matrix in Table 1 illustrates for the two-country case<sup>15</sup>.

<sup>12</sup> The basics of Game theory are introduced in Appendix 1 so that somebody who is not knowledgeable in Game theory could follow the arguments

<sup>13</sup> In his *Models of Business Cycles* (Oxford: Basil Blackwell, 1987)

<sup>14</sup> Reproduced from Schuknecht 1990

<sup>15</sup> Here and further payoffs are hypothetical numbers, which reflects ordinal preferences (utilities) of players. The first number in the parentheses is the payoff of down-left corner player (Country A in Table 1), while the second number is the payoff of upper-right corner player (Country B). The payoffs are ordinal: one should not read the table as if Country A is twice as well off in 'free trade – free trade' case as in 'free trade – protection' case or Country A is four times as well off in 'free trade – free trade' case as in 'protection - protection' case. The table only shows that Country A prefers 'free trade – free trade' to 'protection – free trade' to 'free trade - protection' to 'protection - protection'. For simplicity the payoffs are set symmetrical for both countries

The payoffs indicate that free trade should be both countries' dominant strategy. The free trade Nash Equilibrium contrasts sharply with the observed reality of widespread protection. The standard international trade theory seems to contain a paradox: the free trade is beneficial, but countries are permanently tempted to engage in protection.

### International PD

The inconsistency of international trade theory with observed reality led economic thinking to the concept known as international PD<sup>16</sup>. An international PD setting is as follows: all countries would be better off under general free trade but individual countries trying to increase their welfare drive the world into a state of protection (Schuknecht 1990).

Matrix representation of International PD is described in Table 2. The payoffs imply that one country can increase its welfare at the expense of the

Table 2. International PD<sup>17</sup>

		COUNTRY B	
		Free Trade	Protection
COUNTRY A	Free Trade	(3,3)	(1,4)
	Protection	(4,1)	(2,2) *

other (Schuknecht 1990).

Therefore, the dominant strategy for both countries is protection.

This leads to the Nash Equilibrium where all

countries pursue protectionist policies. As a result they will all be worse off than under free trade.

The argument of international PD is based on optimum tariffs and strategic domestic protection (Stein 1982, Krugman 1987). And here the major critique lies: these arguments yield welfare gains only in very restrictive settings<sup>18</sup>

<sup>16</sup> The concept of international PD is described in Stein 1982, Goldstein and Krassner 1984, Kindleberger 1985, Krugman 1987, Schuknecht 1990

<sup>17</sup> Reproduced from Schuknecht 1990

<sup>18</sup> A country may find itself better off levying an optimal tariff if both of the following conditions are met: (i) the country is big enough to be able to affect the terms of trade on the world market; (ii) country's trading partners must have inelastic offer-curves paired with a lack of substitute suppliers,

(Schuknecht 1990). Moreover knowledge of foreign offer curves and potential substitute products is necessary in order to levy an effective optimum tariff. “In reality even the best informed of governments will not know this much” (Krugman 1987). Consequently, the model reflects reality but hardly explains widespread protection with existing economic theory.

Additionally the international PD argument clearly sticks to the assumption that countries basically act as unit actors and governments maximize the country’s welfare (Schuknecht 1990). This unit actor assumption neglects the diversity of interests within a country with different lobbies and pressure groups which are important to explain the nature of protection. The concept of intranational PD introduced below deals successfully with this problem.

### **Intranational PD**

As before I consider two-country game to simplify analysis. Each country is segregated on four players: the government, demanders for protection (mostly import competing industries), protection opponents (mostly exporters), and consumers.

Below is a description of the players:

**Governments** are decision-making units in the arena of international trade. They are authorized to determine the international trade policy. On the other hand governments are subject to other players’ influences. Government’s preferences are formed according to the following assumptions: (i) it is costly for the government to resist the pressure from other players. The higher the pressure it resists the lower payoff it gets; (ii) governments also are interested in providing sound external economic policy to gain the support of the voters on future elections.

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purchases or products. Strategic domestic protection may provide welfare improvement for a country through the economies of scale that may result in a natural monopoly in certain markets (Schuknecht 1990)

**Protection demanders** (import competing industries) benefit from protection and push (create incentives for) the government to impose import quotas and tariffs.

**Protection opponents** (exporters) suffer from protectionism. They want free trade but have significant obstacles in promoting their interests, because they have little power to influence other countries' decision-making authorities. Exporters 'invest' in (lobby for) free trade only to the extent that it prevents negative foreign response (Schuknecht 1990). By the same extent in other cases they invest in protection to respond on foreign governments' protection against them.

**Consumers** favor free trade but their benefits are generally not immediately visible. Additionally, they have lack of either coordination or knowledge to provide strong pressure on government for free trade. They also rarely form lobbying interest groups due to free-riding incentives<sup>19</sup> (Schuknecht 1990).

Import competitors, exporters and consumers compose 'pressure groups' while government is a decision-maker.

Given the players attitudes let me pass to normal form representation of the game. I will show the pressure groups' strategies first to derive the resulting government's policy.

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<sup>19</sup> The benefit for an individual (Marginal Benefit) from lobbying is lower than his/her cost (Marginal Cost), which inevitably leads to free-riding

Table 3 represents the payoff matrix for domestic import competing

Table 3. Intranational PD: Industries' preferences<sup>20</sup>

		COUNTRY B INDUSTRY	
		Free Trade	Protection
COUNTRY A INDUSTRY	Free Trade	(2,2)	(2,4)
	Protection	(4,2)	(4,4)

industries. The industries prefer protection in its own country and are indifferent about foreign policy<sup>21</sup>. As a result industrial lobby will put

strong pressure onto the government for protectionist policy.

Exporters definitely want the other country's government to pursue free trade policy, because they care about easy access to foreign markets. Conversely

Table 4. Intranational PD: Exporters' preferences

		COUNTRY B EXPORTER	
		Free Trade	Protection
COUNTRY A EXPORTER	Free Trade	(4,4)	(2,4)
	Protection	(4,2)	(2,2)

they are indifferent about domestic trade policy (see Table 4) because it can not influence openness of the foreign markets<sup>22</sup>. As a result exporter's pressure on government

for free trade is negligibly small.

Consumers clearly lose from protection because of higher prices (see Table

Table 5. Intranational PD: Consumers' preferences

		COUNTRY B CONSUMERS	
		Free Trade	Protection
COUNTRY A CONSUMERS	Free Trade	(4,4)	(4,2)
	Protection	(2,4)	(2,2)

5). They benefit from free trade but as was mentioned before they are unable to form strong lobby. That is why consumers' efforts to provide pressure on

<sup>20</sup> Here and further, in the matrix notation, 'industry' is equivalent to 'import competing industry'

<sup>21</sup> An important assumption here is that import competitors do not sell their products abroad

<sup>22</sup> The extent to which exporters suffer from domestic protectionist policy due to response from abroad is not significant and hardly visible and therefore is neglected

government will be insignificant.

The main conclusion from the above description is that with strong pressure of import competitors from the one side and weak efforts of exporters and consumers from the other protectionist lobbying is likely to exceed free trade lobbying.

Now we can pass to description of decision-making process. The governments' payoffs are formed as follows: (i) the higher payoffs for the government from protectionism result from strong pressure of import competitors; (ii) the fact that openness of foreign markets implies successful external trade policy and better prospects in future elections explains that governments prefer free trade in other country<sup>23</sup>.

Matrix representation of Governments' preferences, shown in Table 6, demonstrates that the PD-relationship leads to the undesirable protectionist

Table 6. Intranational PD: Governments' preferences

		GOVERNMENT B	
		Free Trade	Protection
GOVERNMENT A	Free Trade	(2,2)	(1,4)
	Protection	(4,1)	(3,3) *

outcome. Even if game starts with free trade, protectionist pressure of import-competitors will trigger the collapse of the free trade game. This result is best explained as

a kind of principal – agent problem, where the voter, whose interest represents country's welfare, is a principal and government is an agent.

*Solution for the game*

International trade games are repeated games. Therefore politicians and pressure groups may anticipate the protectionist PD and realize that a free

<sup>23</sup> The pressure of import competitors includes support on future elections. That is why it is considered more important than soundness of external trade policy. The politicians might increase their election prospects by favoring protectionist legislation (Amacher, Tollison and Willet 1979)

trade agreement can increase their payoffs. Players then rationally agree on a obligatory free trade rule that solves the intranational PD by constraining domestic policy making (Schuknecht 1990). And as I show below using the example of the World Trade Organization (WTO) the introduction of international trade agreements helps to solve intranational PD.

I will not be very particular in describing all the features of WTO activity but only summarize the characteristics of WTO important for the purposes of this paper:

- WTO promotes free trade;
- WTO guarantees member countries important trade rights;
- WTO binds governments to keep their trade policies within agreed limits;
- WTO has procedures to punish violators of its rules;
- Large number of countries (136)<sup>24</sup> are members of WTO

The WTO features distinctly explain why it is beneficial for exporters if their country is WTO member. Once WTO is introduced they have a tool for protecting their interests in the arena of international trade. That is why

Table 7. WTO choice: Exporters' preferences

		COUNTRY B EXPORTER	
		WTO	No WTO
COUNTRY A EXPORTER	WTO	(4,4)	(3,1)
	No WTO	(1,3)	(2,2)

exporters welcome entering the WTO that is reflected in Table 7. This matrix also shows that exporters' benefits increase with the quantity of countries-members of

WTO, as the number of open markets grows. Under these conditions exporters will create significant pressure on *their* government to enter WTO.

<sup>24</sup> As of April 14, 2000. Source: WTO website (<http://www.wto.org/wto/about/organs6.htm>)

In contrast to exporters, import competing industries do not care about foreign government's decision but would enjoy their own country being out of WTO. Their reasons are clear: they suffer from free trade. Also if their country become WTO member import-competitors losses escalate as the number of WTO members increase<sup>25</sup>. Table 8 describes industries' preferences in matrix form.

		COUNTRY B INDUSTRY	
		WTO	No WTO
COUNTRY A INDUSTRY	WTO	(2,2)	(3,4)
	No WTO	(4,3)	(4,4)

foreign government's decision but would enjoy their own country being out of WTO. Their reasons are clear: they suffer from free trade. Also if their country

become WTO member import-competitors losses escalate as the number of WTO members increase<sup>25</sup>. Table 8 describes industries' preferences in matrix form.

The payoff matrix for consumers is the same as in Table 5, which reflects the fact that entering WTO is synonymous for them to choosing free trade policy.

Table 9. WTO choice: Consumers' preferences

		COUNTRY B CONSUMERS	
		WTO	No WTO
COUNTRY A CONSUMERS	WTO	(4,4)	(4,2)
	No WTO	(2,4)	(2,2)

fact that entering WTO is synonymous for them to choosing free trade policy.

In this context, with strong exporters' pressure the lobby for entering the WTO is likely to exceed the one against.

As a result government is better off entering the WTO rather than staying out (see Table 10).

Table 10. WTO choice: Governments' preferences

		GOVERNMENT B	
		WTO	No WTO
GOVERNMENT A	WTO	(4,4) *	(3,1)
	No WTO	(1,3)	(2,2)

As a result government is better off entering the WTO rather than staying out (see Table 10).

This interaction certainly leads to 'free trade - free trade' solution of the PD with mutual benefits for both countries. The decline in the level of worldwide protection through the last years, indicated in the

'free trade' solution of the PD with mutual benefits for both countries. The decline in the level of worldwide protection through the last years, indicated in the

<sup>25</sup> The reason for this is that WTO rules are designed such that it is easier to lobby for protection against non-member of WTO than against WTO member

Figure 1 (page 1), on the ground of increasing role of WTO supports this result.

The developed above representation leads to the conclusion that international agreements increase welfare gains by solving the intranational PD in more than one country with the maximum benefit to countries' welfare:

“Internationally, politicians buy ‘secure access to foreign markets’ by offering commitment for (their) ... own trade policy and, thereby, gain political support from exporters” (Hauser 1988)

*WTO Anti-dumping Agreement*

AD legislation is so called exception of the GATT/WTO trade principles and, as it was described in chapter two, is significantly biased against importers. Under these circumstances domestic industries and governments “may find it advantageous to interpret the GATT/WTO standards in such a way that a particular sector can be protected” (Prusa 1999).

Import-competing industries welcome AD since it allows them to seek

Table 11. Intranational PD with AD: Industries' preferences

		COUNTRY B INDUSTRY		
		Free Trade	AD	Protection
COUNTRY A INDUSTRY	Free Trade	(1,1)	(1,2)	(1,3)
	AD	(2,1)	(2,2)	(2,3)
	Protection	(3,1)	(3,2)	(3,3)

protection (Prusa 1999). Table 11 shows that industries prefer AD to free trade and protection to AD<sup>26</sup>. Accordingly they will

invest in the protectionist rent seeking to the extent they benefit from the particular policy. Initially they push for protection, but when protection is not reachable they switch their efforts to AD.

<sup>26</sup> AD is worse then protection for import competitors because it definitely restricts the ability for industry to be protected and increase the cost of lobbying

Table 12 presents exporters' payoff matrix. First of all, exporters object to protectionist policy of their governments because it would lead to punishment from WTO, which would be made by exporters' cost<sup>27</sup>. As a result exporters would be unable to protect their interests. This is the way in which the openness of the foreign markets is affected by protectionist policy inside the country. Second, exporters are indifferent between free trade and AD policies within the country since both do not influence their sales prospects<sup>28</sup>. Finally, exporters prefer the foreign government adopt free trade to AD and AD to protection.

		COUNTRY B EXPORTER		
		Free Trade	AD	Protection
COUNTRY A EXPORTER	Free Trade	(6,6)	(5,6)	(4,3)
	AD	(6,5)	(5,5)	(4,2)
	Protection	(3,4)	(2,4)	(1,1)

protectionist policy of their governments because it would lead to punishment from WTO, which would be made

by exporters' cost<sup>27</sup>. As a result exporters would be unable to protect their interests. This is the way in which the openness of the foreign markets is affected by protectionist policy inside the country. Second, exporters are indifferent between free trade and AD policies within the country since both do not influence their sales prospects<sup>28</sup>. Finally, exporters prefer the foreign government adopt free trade to AD and AD to protection.

Table 13. Intranational PD with AD: Consumers' preferences

		COUNTRY B CONSUMERS		
		Free Trade	AD	Protection
COUNTRY A CONSUMERS	Free Trade	(9,9)	(8,6)	(7,3)
	AD	(6,8)	(5,5)	(4,2)
	Protection	(3,7)	(2,4)	(1,1)

their countries. They prefer free trade policy of the government to AD and AD to protection. At the same time

<sup>27</sup> It should be noted here that WTO would not be so powerful mechanism without the US commitment to punish countries-violators of WTO rules, which is made mainly by imposing restrictions on its countries exporters: "America's commitment to enforcing WTO rules on other countries remains strong. The country began proceedings against Denmark, Brazil, Romania, India, Argentina and the Philippines for a variety of offences and promised action against others." (The Economist, Business This Week April 29th - May 5th 2000)

<sup>28</sup> It is true because AD is not punished by WTO rules

they are indifferent between foreign government policies<sup>29</sup>. Consumers' preferences are shown in Table 13.

The government's payoffs (see Table 14) result from the following: (i) The pressure of both exporters and consumers against protectionism leads to least benefits from protectionist policy; (ii) Free trade is more desirable for the government. To provide free trade it should resist only import-competitors' pressure; (iii) AD appears to be even more desirable. To provide AD government should resist only consumers' pressure since exporters are indifferent between AD and free trade and import competitors favor AD; (iv) The governments also benefit from freer external policy of other governments because it makes their own domestic policy sound the same way I described before.

The result is obvious: the highest net pressure a government face is a pressure

Table 14. Intranational PD with AD: Governments' preferences

		GOVERNMENT B		
		Free Trade	AD	Protection
GOVERNMENT A	Free Trade	(6,6)	(5,9)	(4,3)
	AD	(9,5)	(8,8)*	(7,2)
	Protection	(3,4)	(2,7)	(1,1)

for AD, and there is no way for government to avoid such pressure, since AD is allowed by WTO. AD therefore

becomes government's dominant strategy.

Consequently, the creation of WTO is a solution to intranational prisoner's dilemma but the AD exception provides the possibility for interest groups to substitute traditional protectionism by anti-dumping. Resulting 'AD - AD' Nash Equilibrium is a second-best solution of intranational PD.

<sup>29</sup> It is important here to distinguish between consumers' and exporters' interests

The game representation developed here explains the expansion of AD on the ground of WTO activation and diminishing protectionism. It concludes that there is definitely a space for welfare improvement in the international trade policy and abandoning of AD legislation is a source for such improvement.

## Chapter 4

### EMPIRICAL TESTS AND THEIR INTERPRETATION<sup>30</sup>

Within this chapter I provide some empirical evidence on the validity of the model described in two previous chapters.

Generally I look to support the hypothesis that AD is used as a protectionist device and results from the pressure of in-country pressure groups. For these purposes I focus on two questions: (i) who actively use AD, (ii) who is hardly targeted by AD.

My intention is to test the core assumptions and results of the model: (i) AD is a substitute for protection, (ii) increase in import competitors' pressure in times of recessions leads to growth of AD activity, (iii) countries use tit-for-tat strategy, and (iv) AD is not caused by high government support of exporters in targeted countries. Additionally, I want to support the efficiency of WTO as important instrument in international trade policy.

To test these I run two OLS regressions. In first regression I posit AD activity within the country as a function of level of protectionism in this country to test their substitutive nature. I also include economy growth as explanatory variable to reflect the increased import-competing lobbying in times of recessions when competition increases. I include exposure of the country to AD to embody the tit-for-tat strategy countries may use<sup>31</sup>.

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<sup>30</sup> It may be said that this investigation is rather rough and uses simple method. Its main purpose is to set the direction of testing hypotheses of the model described in two previous chapters. The results therefore are preliminary and should be considered with precautions

<sup>31</sup> The significance of this parameter, that is the fact that more targeted by AD countries use AD more often, of course would not necessarily mean that countries use tit-for-tat strategy. We could only say then that we could not reject tit-for-tat strategy use. To make stronger conclusion more sophisticated techniques should be used

To test this empirically I utilize the number of investigations in the country as indicator of AD activity. Two variables, average duty on import in the country and level of government subsidies<sup>32</sup> are used as proxies for level of protectionism. The number of investigations against the country is used as an indicator of country's exposure by AD. GNP growth rate should reflect the economy growth.

The second regression checks whether WTO members are less targeted by AD investigations to validate the effectiveness of WTO in international trade. Number of investigations in the country is included to reflect the use of tit-for-tat strategy. By including government subsidies as explanatory variable I test whether countries with higher government support are targeted more often<sup>33</sup>.

The data sources for this investigation are: (i) the data on AD activity is taken from WTO Reports of the Committee on AD Practices, (ii) the dummy for WTO membership is obtained from WTO website (<http://www.wto.org/>), (iii) The rest of the data is taken from World Bank World Development Indicators 1999 and IMF Government Financial Statistics. The data covers 163 countries and three years: 1995 – 1997. Table 15 summarizes the coverage and organization of the data. Full data set can be found in Appendix 4.

### *Results*

Table 16 shows the OLS results. From the first specification we can see that taxes on international trade (TAXTRADE) and government subsidies (SUBS) negatively affect AD activity in a country (ADOF). I find this result as supportive to the basic assumption of the chapter three model that AD stand

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<sup>32</sup> The definition of government subsidies as well as of other parameters can be found in Appendix 2. Here government subsidies are used as a proxy for subsidies to industry due to lack of more full information

<sup>33</sup> There is a suspicion that firms which are subsidized by government are engaged in selling below cost and thus are subject to AD investigations

out as a substitute of protection. The use of tit-for-tat strategy can not be rejected – significant positive coefficient with ADAG.

Table 15. Data Set Description

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Years: 1995 – 1997

Countries: 163 countries

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Series	Description	Source
ADOF	Number of AD investigations in a country	WTO Reports of the Committee on AD Practices 1997 - 1999
ADAG	Number of AD investigations against a country	WTO Reports of the Committee on AD Practices 1997 - 1999
WTO	Dummy (1 – for WTO members, 0 – otherwise)	WTO
GNPGR	GNP growth (annual %)	World Bank World Development Indicators
TAXTRADE	Taxes on international trade (% of current revenue)	World Bank World Development Indicators
SUBS	Subsidies (% of GDP)	IMF: Government Financial Statistics

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The whole set of data is reported in Appendix 1

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The GNPGR coefficient has the correct sign but it is not significant at 5% and 10% significance levels. This may be due to the fact that national recession is not completely good proxy for decay of some particular industries that increase incentives for protectionist rent seeking. Anyway this specification provide little support to the link between recessions and AD.

The WTO members significantly less targeted by AD as second regression shows. I interpret this as follows: WTO members have influential mechanisms, which non-members of WTO lack, to protect their exporters.

Table 16. OLS results (t-statistics in parentheses)

Dependent variable	ADOF	ADAG	ADAG
Coefficient			
C	12.36 (4.01)***	5.66 (10.01)***	6.85 (3.90)***
TAXTRADE	-0.23 (-2.13)**	-	-
GNPGR	-0.46 (-1.55)	-	-
SUBS	-0.37 (-2.73)***	-	0.07 (0.22)
ADAG	0.34 (3.37)**	-	-
ADOF	-	0.19 (7.34)***	0.21 (3.48)***
WTO	-	-3.73 (-5.74)***	-5.14 (-2.61)**
Average	3.086	3.43	3.43
Adjusted R2	0.09	0.09	0.08
DW	2.16	1.93	2.91
F-statistics	4.94	43.01	5.48
The more complete statistics could be found in Appendix 3			
* Significant at 10% significance level			
** Significant at 5% significance level			
*** Significant at 1% significance level			

Inclusion of SUBS into second specification gives insignificant coefficient at this variable. This supports the intuition the intranational PD framework provided that the level of subsidies does not influence significantly the probability that the country will be targeted by AD.

The low explanatory powers of these specifications ( $R^2$  is less than 10%) is possibly due to neglecting some potentially influential differences between

countries, such as political regimes, institutional framework, level of economic development, etc.

To summarize the empirical results, the inferences of the tests are as follows:

- (i) AD activity negatively corresponds to protectionist spread;
- (ii) WTO plays important role as a tool for protecting exporters' interests;
- (iii) Government support is not found to play crucial role in probability of being affected by AD;
- (iv) Countries may use tit-for-tat strategy to some considerable extent

## CONCLUSIONS AND RECOMMENDATIONS

The alarming increase in the number of AD actions pursued by the developed and developing countries has caused considerable concern among economists and trade reformers. The reasons for adopting AD policy are of the most questionable in the last years. This paper demonstrates that anti-dumping as well as protectionist policy results from the interaction of domestic players of the economy: import competing industries, exporters, consumers, and government. It is concluded that international trade can be viewed as a game and the game can be described as intranational prisoner's dilemma, which leads to the undesirable protectionist outcome. As far as international trade games are repeated games, the introduction of international trade agreements helps to solve intranational PD for the free trade outcome. The creation of WTO is a solution of intranational prisoner's dilemma but the AD, being an exception of the GATT/WTO trade principles provides the possibility for interest groups to substitute traditional protectionism by anti-dumping. Resulting 'AD – AD' Nash Equilibrium appears to be a second-best solution of intranational PD.

Empirical tests support the validity of the model and underlying assumptions. They display that: (i) AD activity negatively corresponds to protectionist spread; (ii) WTO plays important role as a tool for protecting exporters' interests; (iii) Government support is not found to play crucial role in probability of being affected by AD; (iv) Countries may use tit-for-tat strategy to some considerable extent.

I conclude that weaknesses of AD are too obvious, the social cost is too high, and the welfare benefits are too ambiguous. Therefore there is substantial room for welfare improvement. The following measures which can resolve at

least partially the problem could be made by decision-making authorities: (i) restriction or limitation of AD use, (ii) implementation of welfare cost-benefit analysis into AD decision-making procedures, (iii) substitution of AD by antitrust principles in international trade, that is an explicit stress of attention not on the firms' price decisions but rather on their market power<sup>34</sup>. While the first two options are not easily implemented, the last one seems to be the best solution of the international trade prisoners' dilemma.

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<sup>34</sup> Although there is no need to adopt common antitrust provisions into WTO agreements, since most countries have their own antitrust laws, AD should be excluded from the provisions of governments policies and be regarded by WTO as protectionist device

## BIBLIOGRAPHY

- Amacher, Ryan C., Tollison, Robert D., Willett, Thomas D. 1979, *The Divergence between Theory and Practice, Tariffs, Quotas, and Trade: The Politics of Protectionism*, Institute for Contemporary Studies, San Francisco
- Anderson, Keith B. 1993, Antidumping laws in the United States: Use and welfare consequences, *Journal of World Trade*, 27
- Axelrod, Robert 1981, The Emergence of Cooperation among Egoists, *The American Political Science Review*, Volume 75, Issue 2
- Banks, Gary 1990, Australia's Antidumping Experience, *The World Bank Working Paper WPS 551*
- Bhagwati J. 1988, *Protectionism*, The Ohlin Lectures, MIT Press
- Boltuck, Richard and Litan, Robert E. 1991, *Down in the Dumps*, The Brookings Institute, Washington, DC
- Bovard, James 1991, *The Fair Trade Fraud*, New York, St. Martin's Press
- Burakovski, Igor 1996, *The Theory of International Trade*, Kyiv, Osnovy
- Carlton, Denis W., Perloff, Jeffrey M. 1999, *Modern Industrial Organization*, 3<sup>rd</sup> ed., Addison-Wesley Longman, Inc.
- Carmichael, W. B. 1986, *Review of the Custom Tariff (Anti-Dumping) Act: Submission by Chairman, Industries Assistance Commission, Canberra*
- The Economist Business This Week* April 29<sup>th</sup> – May 5<sup>th</sup> 2000
- Eichengreen, Barry J., Ven, Hans Van der 1985, *U.S. Antidumping Policies: The Case of Steel*, *NBER paper W1098*
- Ethier, Wilfred J. 1982, Dumping, *The Journal of Political Economy*, Volume 90, Issue 3
- Finger J. Michael 1993, *Antidumping: How It Works and Who Gets Hurt*, University of Michigan Press
- Finger J. Michael, The Origins and Evolution of Antidumping Regulation, *World Bank Working Paper WPS 783*
- Finger J. M. and Murray T. 1989, *Policing Unfair Imports: the United States Example*, Mimeo
- Fischer, Ronald D., Prusa, Tomas J. 1999, Contingent Protection as Better Insurance, *NBER Working Paper No. 6933*
- Gardner, Roy 1995, *Games for Business and Economics*, John Wiley & Sons, Inc.
- GATT 1994, Marrakech
- Goldstein, Judith L., Krasner, Stephen D. 1984, Unfair Trade Practices: The Case for a Differential Response, *The American Economic Review*, Volume 74, Issue 2
- Gruen F. H. 1986, *Review of the Customs Tariffs (Anti-Dumping) Act 1975: Report*, AGPS, Canberra

- Gujarati, Damodar N. 1995, *Basic Econometrics*, 3<sup>rd</sup> ed., McGraw-Hill, Inc.
- Haberler, Gottfried Von 1937, *The Theory of International Trade with Its Applications to Commercial Policy*, New York: Macmillan
- Hansen, Wendy L. and Prusa, T.J. 1995, The road most taken: The rise of Title VII protection, *The World Economy*, 18(2)
- Hillman, Arye L., Ursprung, Heinrich W. 1998, Domestic Politics, Foreign Interest, and International Trade Policy, *The American Economic Review*, Volume 78, Issue 4
- Hindley B. 1988, Dumping and the Far East Trade of the European Community, *The World Economy*
- Irwin, Douglas A. 1994, Antidumping: How It Works and Who Gets Hurt, Review, *Journal of Economic Literature*, Volume 32, Issue 3
- Kindleberger, Charles P. 1986, International Public Goods without International Government, *The American Economic Review*, Volume 76
- Kolev, Durbin R., Prusa, Thomas J. 1999, Dumping and Double Crossing: the (In)Effectiveness of Cost-Based Trade Policy under Incomplete Information, *NBER Working Paper* No. 6986
- Krishna, Raj 1997, Antidumping in law and practice, *The World Bank Working Paper* WPS 1823
- Krugman, Paul R. 1987, Is Free Trade Passe? *Economic Perspectives*, Volume 1
- Krugman, Paul R., Obsfeld, Maurice 1997, *International Economics*, 3<sup>rd</sup> ed., Addison-Wesley Longman, Inc.
- Krupp, Corinne 1994, Antidumping in the US Chemical Industry: A Panel Data Approach, *Journal of Industrial Economics*, Volume 42, Issue 3
- Lloyd, Peter J., Anti-dumping Actions and the GATT System, *Thames Essay* No. 9, London: Trade Policy Research Centre
- Lucas, Robert 1987, *Models of Business Cycles*, Oxford: Basil Blackwell
- McGee, Robert W., Yoon, Yeomin 1998, Antidumping and the People's Republic of China: Five Case Studies, *The Dumont Institute for Public Policy Research*, Working Paper 98.2
- Miranda, Jorge, Torres, Raul A. and Ruiz, Mario 1998, The International Use of Antidumping: 1987-1997, *Journal of World Trade* 32(5)
- OECD 1989, *Predatory Pricing*, Report
- OECD 1984, *Competition and Trade Policies. Their Interaction*, Report
- Prusa, Thomas J. 1999, On the Spread and Impact of Antidumping, *NBER Working Paper* No. 7404
- Prusa, Thomas J. 1996, The Trade Effects of U.S. Antidumping Actions, *NBER paper* W5440
- Schuknecht, Ludger 1990, Protectionism – an Intra-

- National Prisoner's Dilemma,  
*Aussenwirtschaft*, 45
- Staiger, Robert W., Wolak, Frank A.  
1989, Strategic Use of  
Antidumping Law to Enforce  
Tacit International Collusion,  
*NBER Working Paper* No. 3016
- Stegemann, Klaus 1980, The  
Efficiency Rationale of Anti-  
dumping Policy and Order  
Measures of Contingency  
Protection, *Institute for  
Economic Research*, Queens  
University, Canada,  
Discussion Paper No. 387
- Stein, Arthur A. 1982,  
Coordination and  
Collaboration: Regimes in an  
Anarchic World, *International  
Organization*, Volume 36
- Swales, John M. and Feak,  
Christine B. 1994, *Academic  
Writing for Graduate Students*,  
University of Michigan
- Varian, Hall R. 1996, *Intermediate  
Microeconomics*, 4<sup>th</sup> ed., W.  
W. Norton & Company, New  
York, London
- Viner, Jacob 1923, *Dumping: a  
Problem in International Trade*,  
Chicago: University Chicago  
Press
- Wares, William A., *The Theory of  
Dumping and American  
Commercial Policy*,  
Lexington, Mass.: Heath

APPENDIX 1

**Basics of Game Theory<sup>35</sup>**

Game theory is a tool for analyzing any interaction of players: individuals, firms, organizations, countries, etc. It has a number of techniques for the analysis. It is based on the assumption of rational behavior. This paper uses only one, although the most popular, technique for its purpose – normal form representation, which is very useful in two-player case. The normal form representation for two players with two strategies is a 2x2 table, with two numbers in each cell: first number is first player payoff, 2<sup>nd</sup> – second's. Payoffs can express a measure of wealth, income, money, satisfaction, but in this paper it measures welfare (utility) of players.

Table A

		PLAYER B	
		Str 1	Str 2
PLAYER A	Str 1	(a1,b1)	(a2,b2)
	Str 2	(a3,b3)	(a4,b4)

To explain the theory explicitly let me use an example with two players (A and B) and two possible strategies

(Str 1 and Str 2). The payoffs are:

Strategy of A	Strategy of B	Payoff for A	Payoff for B
Str 1	Str 1	a1	b1
Str 1	Str 2	a2	b2
Str 2	Str 1	a3	b3
Str 2	Str 2	a4	b4

<sup>35</sup> This part of the paper was inspired by Roy Gardner's "Games for Business and Economics"

If payoffs for player A are higher with strategy 1 unconditionally on strategy played by player B (that is  $A1 > A3$  and  $A2 > A4$ ) it is said that this strategy

strictly dominates Str 2 and is called strictly dominant strategy for player A.

Table B

		PLAYER B	
		Str 1	Str 2
PLAYER A	Str 1	(4,4)	(4,2)
	Str 2	(2,4)	(2,2)

For example in Table B player A and player B's dominant strategy is Str

1 which is shown by corresponding arrows. If a player has the same payoffs for both strategies it is said that this player is indifferent between the two, as it

is shown in Table C for player A.

Table C

		PLAYER B	
		Str 1	Str 2
PLAYER A	Str 1	(4,4)	(2,3)
	Str 2	(4,2)	(2,1)

### *Nash Equilibrium*

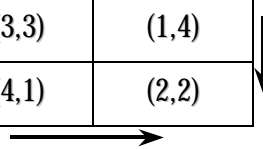
One more concept one should understand reading this paper is the notion of Nash Equilibrium: an outcome where none of the players can improve his/her payoff holding all other players' strategies constant.

*Prisoner's Dilemma*

Maybe the most well known class of game-theoretic problems is Prisoner's

Table D

		PLAYER B	
		Str 1	Str 2
PLAYER A	Str 1	(3,3)	(1,4)
	Str 2	(4,1)	(2,2)



Dilemma. Prisoner's Dilemma is a game where Equilibrium occurs in outcome where each player is worse off than in other, non-Equilibrium outcome.

An example of Prisoner's Dilemma is shown in Table D. Both player A and player B's dominant strategy is Str 2 which leads to 'Str 2 – Str 2' Nash Equilibrium. This result is inefficient since 'Str 1 – Str 1' solution make both players better off.

## APPENDIX 2

### Data description

Series	Definition
ADOF	Number of AD investigations in a country
ADAG	Number of AD investigations against a country
SUBS	Subsidies and other current transfers include all unrequited, nonrepayable transfers on current account to private and public enterprises, and the cost of covering the cash operating deficits of departmental enterprise sales to the public. Data are shown for central government only
GNPGR	Annual growth rate of GNP at market prices based on constant local currency. Aggregates are based on constant 1995 U.S. dollars. GNP is the sum of gross value added by all resident producers plus any taxes (less subsidies) that are not included in the valuation of output plus net receipts of primary income (employee compensation and property income) from nonresident sources
TAXTRADE	Taxes on international trade, % of current revenue. Taxes on international trade include import duties, export duties, profits of export or import monopolies, exchange profits, and exchange taxes. Current revenue includes all revenue from taxes and nonrepayable receipts (other than grants) from the sale of land, intangible assets, government stocks, or fixed capital assets, or from capital transfers from nongovernmental sources. It also includes fines, fees, recoveries, inheritance taxes, and nonrecurrent levies on capital. Data are for central government only
WTO	Dummy (1 – for WTO members, 0 – otherwise)

APPENDIX 3

**E-views estimation output for the first regression**

---

LS // Dependent Variable is ADOF  
 Date: 05/17/00 Time: 20:18  
 Sample (adjusted): 2 493  
 Included observations: 160  
 Excluded observations: 332 after adjusting endpoints

---

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6.447155	3.848821	1.675099	0.0959
GNPGR	-0.573580	0.296933	-1.931682	0.0552
SUBS	-0.370702	0.134912	-2.747729	0.0067
TAXTRADE	-0.239382	0.104787	-2.284454	0.0237
ADAG	0.404629	0.102544	3.945923	0.0001
WTO	7.432002	2.981708	2.492532	0.0137
R-squared	0.147431	Mean dependent var		4.812500
Adjusted R-squared	0.119750	S.D. dependent var		14.56807
S.E. of regression	13.66800	Akaike info criterion		5.266894
Sum squared resid	28769.41	Schwarz criterion		5.382213
Log likelihood	-642.3817	F-statistic		5.326110
Durbin-Watson stat	2.212690	Prob(F-statistic)		0.000152

---

### E-views estimation output for the second regression

---

LS // Dependent Variable is ADAG  
Date: 04/07/00 Time: 19:21  
Sample: 1 827  
Included observations: 813  
Excluded observations: 14

---

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	5.657630	0.565125	10.01128	0.0000
ADOF	0.186253	0.025391	7.335497	0.0000
WTO	-3.729288	0.649951	-5.737795	0.0000
R-squared	0.096003	Mean dependent var		3.432964
Adjusted R-squared	0.093770	S.D. dependent var		8.493956
S.E. of regression	8.085914	Akaike info criterion		4.183930
Sum squared resid	52959.42	Schwarz criterion		4.201276
Log likelihood	-2851.365	F-statistic		43.01009
Durbin-Watson stat	1.926911	Prob(F-statistic)		0.000000

---

### E-views estimation output for the third regression

---

LS // Dependent Variable is ADAG  
Date: 04/07/00 Time: 19:22  
Sample(adjusted): 2 639  
Included observations: 155  
Excluded observations: 483 after adjusting endpoints

---

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6.848986	1.752479	3.908171	0.0001
ADOF	0.208196	0.059878	3.477009	0.0007
WTO	-5.144613	1.971802	-2.609092	0.0100
SUBS	0.075267	0.336286	0.223820	0.8232
R-squared	0.098213	Mean dependent var		4.148387
Adjusted R-squared	0.080297	S.D. dependent var		11.30957
S.E. of regression	10.84601	Akaike info criterion		4.793062
Sum squared resid	17763.03	Schwarz criterion		4.871602
Log likelihood	-587.3978	F-statistic		5.481774
Durbin-Watson stat	2.910729	Prob(F-statistic)		0.001331

---

**E-views correlation matrix**

	ADOF	GNPGR	SUBSPLUS	TAXTRADE	ADAG	WTO
ADOF	1.0000	-0.0773	-0.0940	-0.1014	0.2366	0.1005
GNPGR	-0.0773	1.0000	-0.1830	0.1462	0.0985	0.1355
SUBS	-0.0940	-0.1830	1.0000	-0.5306	0.1139	-0.0986
TAXTRADE	-0.1014	0.1462	-0.5306	1.0000	-0.0937	0.1083
ADAG	0.2366	0.0985	0.1139	-0.0937	1.0000	-0.2464
WTO	0.1005	0.1355	-0.0986	0.1083	-0.2464	1.0000

APPENDIX 4

Data set

COUNTRY	CODE	NUMBER OF INVESTIGATIONS IN A COUNTRY			NUMBER OF INVESTIGATIONS AGAINST A COUNTRY			GNP GROWTH (ANNUAL %)			TAXES ON TRADE			SUBSIDIES			WTO		
		1995	1996	1997	1995	1996	1997	1995	1996	1997	1995	1996	1997	1995	1996	1997	1995	1996	1997
UNITED ARAB EMIRATES	ARE	0	0	0	4	0	0	0,90	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1	1	1
ARGENTINA	ARG	6	42	18	3	1	0	-4,53	4,62	8,11	5,22	6,54	7,57	8,73	8,32	8,01	1	1	1
ARMENIA	ARM	0	42	18	1	1	0	7,23	9,03	8,60	N/A	N/A	N/A	N/A	N/A	N/A	0	0	0
ANTIGUA AND BARBUDA	ATG	0	0	0	0	0	0	-4,20	5,00	1,89	N/A	N/A	N/A	N/A	N/A	N/A	1	1	1
AUSTRALIA	AUS	6	8	22	0	0	0	3,92	2,88	0,64	3,11	2,49	2,44	15,77	16,06	16,02	1	1	1
AUSTRIA	AUT	0	0	0	1	0	2	2,10	1,65	0,85	0,38	0,22	N/A	24,66	24,51	24,94	1	1	1
AZERBAIJAN	AZE	0	0	0	1	0	2	-13,46	-0,36	3,09	N/A	N/A	N/A	N/A	N/A	N/A	0	0	0
BELGIUM	BEL	0	0	0	0	1	1	2,41	1,63	2,45	0,00	N/A	N/A	28,35	N/A	N/A	1	1	1
BENIN	BEN	0	0	0	0	0	0	4,67	6,48	5,65	N/A	N/A	N/A	N/A	N/A	N/A	1	1	1

Data set (continued)

COUNTRY	CODE	NUMBER OF INVESTIGATIONS IN A COUNTRY			NUMBER OF INVESTIGATIONS AGAINST A COUNTRY			GNP GROWTH (ANNUAL %)			TAXES ON TRADE			SUBSIDIES			WTO		
		1995	1996	1997	1995	1996	1997	1995	1996	1997	1995	1996	1997	1995	1996	1997	1995	1996	1997
BURKINA FASO	BFA	0	0	0	0	0	0	4,25	6,05	5,71	N/A	N/A	N/A	N/A	N/A	N/A	1	1	1
BANGLADESH	BGD	0	0	0	0	0	0	5,48	4,86	6,30	N/A	N/A	N/A	N/A	N/A	N/A	1	1	1
BULGARIA	BGR	0	0	0	0	0	3	1,60	-10,79	-6,49	8,15	6,70	6,54	15,11	17,30	12,27	0	0	0
BAHRAIN	BHR	0	0	0	0	0	0	8,05	1,97	N/A	9,04	7,72	8,77	3,26	2,30	2,83	1	1	1
BAHAMAS	BHS	0	0	0	1	0	2	-0,30	N/A	N/A	N/A	N/A	N/A	1,89	2,20	2,12	0	0	0
BOSNIA-HERZEGOVINA	BIH	0	0	0	1	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	0	0
BELARUS	BLR	0	0	0	2	0	0	-10,55	2,99	11,11	5,78	5,37	N/A	16,05	18,36	18,67	0	0	0
BELIZE	BLZ	0	0	0	0	0	0	3,48	1,01	1,61	N/A	N/A	N/A	N/A	N/A	N/A	1	1	1
BERMUDA	BMU	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	0	0
BOLIVIA	BOL	0	0	0	1	0	0	4,49	5,17	3,74	6,66	5,76	6,66	2,78	7,53	8,72	1	1	1
BRAZIL	BRA	12	1	19	5	3	5	4,44	3,21	3,30	N/A	N/A	N/A	N/A	N/A	N/A	1	1	1

Data set (continued)

COUNTRY	CODE	NUMBER OF INVESTIGATIONS IN A COUNTRY			NUMBER OF INVESTIGATIONS AGAINST A COUNTRY			GNP GROWTH (ANNUAL %)			TAXES ON TRADE			SUBSIDIES			WTO		
		1995	1996	1997	1995	1996	1997	1995	1996	1997	1995	1996	1997	1995	1996	1997	1995	1996	1997
BARBADOS	BRB	0	0	0	0	0	0	0,50	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1	1	1
BRUNEI DARUSSALAM	BRN	0	0	0	0	0	0	-0,40	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1	1	1
BURUNDI	BUR	0	0	0	0	0	0	6,50	4,66	5,70	2,20	1,43	1,99	3,00	1,01	0,93	1	1	1
BOTSWANA	BWA	0	0	0	0	0	0	8,18	5,55	5,51	15,43	12,36	N/A	N/A	N/A	N/A	1	1	1
CENTRAL AFRICAN REPUBLIC	CAF	0	0	0	0	0	0	6,62	-1,52	5,58	N/A	N/A	N/A	N/A	N/A	N/A	1	1	1
CANADA	CAN	9	6	8	1	1	3	2,27	1,39	4,00	N/A	N/A	N/A	15,40	N/A	N/A	1	1	1
SWITZERLAND	CHE	0	0	0	0	0	0	1,38	-0,03	2,70	0,90	0,88	N/A	16,71	17,44	N/A	1	1	1
CHILE	CHL	2	4	2	0	3	2	10,79	7,54	7,17	9,31	9,30	8,21	10,27	10,82	10,80	1	1	1
CHINESE TAIPEI	CHT	0	0	0	5	3	11	9,01	9,75	8,47	8,83	8,09	N/A	N/A	N/A	N/A	0	0	0
COTE D'IVOIRE	CIV	0	0	0	0	0	0	8,07	7,48	6,76	N/A	N/A	N/A	N/A	N/A	N/A	1	1	1

Data set (continued)

COUNTRY	CODE	NUMBER OF INVESTIGATIONS IN A COUNTRY			NUMBER OF INVESTIGATIONS AGAINST A COUNTRY			GNP GROWTH (ANNUAL %)			TAXES ON TRADE			SUBSIDIES			WTO		
		1995	1996	1997	1995	1996	1997	1995	1996	1997	1995	1996	1997	1995	1996	1997	1995	1996	1997
CAMEROON	CMR	0	0	0	0	0	0	3,72	5,13	4,58	27,58	N/A	N/A	1,64	N/A	N/A	1	1	1
CONGO, REPUBLIC	COG	1	5	0	0	0	0	-1,01	-0,26	0,05	N/A	N/A	N/A	3,09	2,61	2,05	1	1	1
COLOMBIA	COL	1	5	0	0	0	0	5,67	1,58	3,15	N/A	N/A	N/A	N/A	N/A	N/A	1	1	1
COSTA RICA	CRI	0	0	0	0	0	0	1,08	0,16	3,00	14,89	8,42	N/A	7,15	7,13	N/A	1	1	1
CUBA	CUB	0	0	0	0	0	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1	1	1
CYPRUS	CYP	0	0	0	0	0	0	N/A	N/A	N/A	8,00	N/A	N/A	10,83	12,12	12,44	1	1	1
CZECH REPUBLIC	CZE	0	0	0	0	1	1	6,18	2,61	1,05	3,58	3,67	2,66	25,73	25,72	26,50	1	1	1
DEMOCRATIC REPUBLIC OF THE CONGO	DCR	0	0	0	0	0	0	6,18	2,61	1,05	3,58	3,67	2,66	25,73	25,72	26,50	0	0	0
GERMANY	DEU	0	0	0	4	7	13	1,57	1,02	1,89	0,00	0,00	N/A	19,76	19,63	19,21	1	1	1
DJIBOUTI	DJI	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1	1	1

Data set (continued)

COUNTRY	CODE	NUMBER OF INVESTIGATIONS IN A COUNTRY			NUMBER OF INVESTIGATIONS AGAINST A COUNTRY			GNP GROWTH (ANNUAL %)			TAXES ON TRADE			SUBSIDIES			WTO		
		1995	1996	1997	1995	1996	1997	1995	1996	1997	1995	1996	1997	1995	1996	1997	1995	1996	1997
DOMINICA	DMA	0	0	0	0	0	0	0,74	0,63	3,03	N/A	N/A	N/A	N/A	N/A	N/A	1	1	1
DENMARK	DNK	0	0	0	1	0	1	3,64	3,40	4,07	0,05	N/A	N/A	26,55	N/A	N/A	1	1	1
DOMINICAN REPUBLIC	DOM	0	0	0	0	0	0	4,66	7,39	8,35	36,49	36,44	N/A	1,92	2,72	N/A	1	1	1
ALGERIA	DZA	0	0	0	0	0	0	2,46	3,99	1,69	18,47	15,49	N/A	N/A	N/A	N/A	0	0	0
ECUADOR	ECU	0	0	0	0	0	0	1,24	3,36	6,02	N/A	N/A	N/A	N/A	N/A	N/A	0	0	0
EUROPEAN COMMUNITY	EEC	0	16	26	0	0	2	1,24	3,36	6,02	N/A	N/A	N/A	N/A	N/A	N/A	0	0	0
EGYPT	EGY	0	0	0	0	2	1	6,14	5,98	6,44	9,98	N/A	N/A	8,72	N/A	N/A	1	1	1
SPAIN	ESP	0	0	0	2	3	4	3,76	1,89	2,98	0,00	N/A	N/A	24,33	N/A	N/A	1	1	1
ESTONIA	EST	0	0	0	0	0	0	5,68	3,94	7,96	0,41	0,00	0,00	15,18	15,54	14,96	0	0	0
FINLAND	FIN	0	0	0	1	0	0	5,84	3,58	6,18	0,15	0,03	N/A	28,41	26,13	N/A	1	1	1
FIJI	FJI	0	0	0	0	0	0	0,98	3,40	-1,80	22,73	21,37	N/A	N/A	N/A	N/A	1	1	1

Data set (continued)

COUNTRY	CODE	NUMBER OF INVESTIGATIONS IN A COUNTRY			NUMBER OF INVESTIGATIONS AGAINST A COUNTRY			GNP GROWTH (ANNUAL %)			TAXES ON TRADE			SUBSIDIES			WTO		
		1995	1996	1997	1995	1996	1997	1995	1996	1997	1995	1996	1997	1995	1996	1997	1995	1996	1997
FRANCE	FRA	0	0	0	0	2	1	2,42	1,52	3,60	0,01	0,00	0,00	29,97	30,31	30,52	1	1	1
FORMER YUGOSLAV REP OF MACEDONIA	FYR	0	0	0	0	0	0	1,03	0,68	-3,99	N/A	N/A	N/A	N/A	N/A	N/A	0	0	0
GABON	GAB	0	0	0	0	0	0	3,91	2,27	5,89	N/A	N/A	N/A	N/A	N/A	N/A	1	1	1
UNITED KINGDOM	GBR	0	0	0	1	6	4	2,74	2,43	4,03	0,06	N/A	N/A	23,54	N/A	N/A	1	1	1
GEORGIA	GEO	0	0	0	1	0	0	1,85	12,37	13,23	N/A	N/A	12,57	N/A	N/A	N/A	0	0	0
GHANA	GHA	0	0	0	0	0	0	4,06	4,59	4,33	N/A	N/A	N/A	N/A	N/A	N/A	1	1	1
GUINEA, REP. OF	GIN	0	0	0	0	0	0	2,92	4,60	4,33	N/A	N/A	N/A	N/A	N/A	N/A	1	1	1
GAMBIA	GMB	0	0	0	0	0	0	1,00	1,88	5,17	N/A	N/A	N/A	N/A	N/A	N/A	1	1	1
GUINEA-BISSAU	GNB	0	0	0	0	0	0	3,55	4,72	6,75	N/A	N/A	N/A	N/A	N/A	N/A	1	1	1
GREECE	GRC	0	0	0	0	0	1	1,81	2,18	1,11	0,07	0,06	0,07	6,73	7,10	N/A	1	1	1

Data set (continued)

COUNTRY	CODE	NUMBER OF INVESTIGATIONS IN A COUNTRY			NUMBER OF INVESTIGATIONS AGAINST A COUNTRY			GNP GROWTH (ANNUAL %)			TAXES ON TRADE			SUBSIDIES			WTO		
		1995	1996	1997	1995	1996	1997	1995	1996	1997	1995	1996	1997	1995	1996	1997	1995	1996	1997
GRENADA	GRD	0	0	0	0	0	0	0,90	5,52	5,09	16,77	N/A	N/A	N/A	N/A	N/A	1	1	1
GUATEMALA	GTM	0	1	0	0	0	0	4,87	2,85	4,56	N/A	N/A	N/A	N/A	N/A	N/A	1	1	1
GUYANA	GUY	0	0	0	0	0	0	7,43	15,85	4,93	N/A	N/A	N/A	N/A	N/A	N/A	1	1	1
HONG KONG, CHINA	HKG	0	0	0	4	1	1	3,89	5,01	5,16	N/A	N/A	N/A	N/A	N/A	N/A	1	1	1
HONDURAS	HND	0	0	0	0	0	0	3,56	2,92	6,44	N/A	N/A	N/A	N/A	N/A	N/A	1	1	1
CROATIA	HRV	0	0	0	1	0	0	3,02	4,59	3,70	9,26	8,31	8,83	14,01	15,73	N/A	0	0	0
HAITI	HTI	0	0	0	0	0	0	4,50	2,86	1,03	N/A	N/A	N/A	N/A	N/A	N/A	1	1	1
HUNGARY	HUN	0	0	0	0	2	1	0,78	2,20	4,70	10,56	9,05	5,03	29,50	25,80	23,41	1	1	1
INDONESIA	IDN	0	0	9	8	4	5	7,42	9,35	4,32	4,00	3,19	N/A	2,34	3,06	6,56	1	1	1
INDIA	IND	9	5	20	3	4	9	7,59	7,55	6,10	24,02	25,18	25,48	5,54	5,65	6,26	1	1	1
IRELAND	IRL	0	0	0	0	0	0	10,35	7,37	8,20	0,00	N/A	N/A	22,65	N/A	N/A	1	1	1

Data set (continued)

COUNTRY	CODE	NUMBER OF INVESTIGATIONS IN A COUNTRY			NUMBER OF INVESTIGATIONS AGAINST A COUNTRY			GNP GROWTH (ANNUAL %)			TAXES ON TRADE			SUBSIDIES			WTO		
		1995	1996	1997	1995	1996	1997	1995	1996	1997	1995	1996	1997	1995	1996	1997	1995	1996	1997
IRAN	IRN	0	0	9	8	4	5	2,78	5,02	3,20	2,81	5,76	6,69	3,52	N/A	N/A	0	0	0
IRAQ	IRQ	0	0	9	8	4	5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	0	0
ICELAND	ISL	0	0	0	0	0	0	1,34	5,84	N/A	1,32	1,20	N/A	9,67	9,84	9,17	1	1	1
ISRAEL	ISR	0	4	7	0	0	2	6,42	4,35	1,90	0,47	0,43	0,43	21,32	22,15	23,40	1	1	1
ITALY	ITA	0	0	0	6	2	5	3,14	0,88	1,63	0,00	0,00	0,19	27,46	27,37	27,23	1	1	1
JAMAICA	JAM	0	0	0	0	0	0	-0,52	1,96	-2,29	N/A	N/A	N/A	N/A	N/A	N/A	1	1	1
JORDAN	JOR	0	0	0	7	6	6	7,35	1,16	0,94	25,24	25,97	N/A	N/A	N/A	N/A	0	0	0
JAPAN	JPN	0	0	0	7	6	6	1,48	4,20	1,80	N/A	N/A	N/A	N/A	N/A	N/A	1	1	1
KAZAKHSTAN	KAZ	0	0	0	4	1	0	-8,48	0,50	1,67	N/A	N/A	N/A	N/A	N/A	N/A	0	0	0
KENYA	KEN	0	0	0	0	0	0	6,87	5,40	2,90	15,40	14,80	N/A	N/A	N/A	N/A	1	1	1
KYRGYZSTAN	KGZ	0	0	0	1	0	0	-5,10	6,18	8,57	N/A	N/A	N/A	N/A	N/A	N/A	0	0	0

Data set (continued)

COUNTRY	CODE	NUMBER OF INVESTIGATIONS IN A COUNTRY			NUMBER OF INVESTIGATIONS AGAINST A COUNTRY			GNP GROWTH (ANNUAL %)			TAXES ON TRADE			SUBSIDIES			WTO		
		1995	1996	1997	1995	1996	1997	1995	1996	1997	1995	1996	1997	1995	1996	1997	1995	1996	1997
SAINT KITTS & NEVIS	KNA	0	0	0	6	0	0	4,48	5,81	5,95	N/A	N/A	N/A	N/A	N/A	N/A	1	1	1
KOREA	KOR	3	6	18	10	9	8	8,68	6,83	4,92	6,43	6,30	6,30	8,65	8,94	9,14	0	0	0
KUWAIT	KWT	0	0	0	0	0	0	6,08	N/A	N/A	N/A	N/A	N/A	11,60	11,57	8,41	1	1	1
LEBANON	LBN	0	0	0	1	0	0	N/A	N/A	N/A	43,53	46,18	N/A	5,87	4,74	4,95	0	0	0
SAINT LUCIA	LCA	0	0	0	0	0	0	5,00	2,00	3,50	N/A	N/A	N/A	N/A	N/A	N/A	1	1	1
LIECHTENSTEIN	LIE	0	0	0	0	0	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	0	0
SRI LANKA	LKA	0	0	0	0	0	0	5,87	3,35	7,33	17,89	17,41	16,15	6,06	6,02	5,13	1	1	1
LESOTHO	LSO	0	0	0	0	0	0	6,95	12,21	4,46	53,79	49,44	53,26	5,40	6,49	4,59	1	1	1
LITHUANIA	LTU	0	0	0	1	0	0	2,86	4,43	4,04	3,31	3,01	2,66	11,87	11,50	11,37	0	0	0
LUXEMBOURG	LUX	0	0	0	1	0	0	2,55	2,94	N/A	0,00	0,00	N/A	27,80	28,94	N/A	1	1	1
LATVIA	LVA	0	0	0	1	0	0	-0,67	3,78	6,59	2,67	2,21	2,02	17,43	16,93	19,46	0	0	0

Data set (continued)

COUNTRY	CODE	NUMBER OF INVESTIGATIONS IN A COUNTRY			NUMBER OF INVESTIGATIONS AGAINST A COUNTRY			GNP GROWTH (ANNUAL %)			TAXES ON TRADE			SUBSIDIES			WTO		
		1995	1996	1997	1995	1996	1997	1995	1996	1997	1995	1996	1997	1995	1996	1997	1995	1996	1997
MACAU	MAC	0	0	0	1	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1	1	1
MOROCCO	MAR	0	0	0	0	0	0	-7,81	12,99	-2,25	14,44	N/A	N/A	3,92	N/A	N/A	1	1	1
MOLDOVA, REP. OF	MDA	0	3	5	1	5	1	-2,46	-8,69	-0,28	N/A	N/A	N/A	N/A	N/A	N/A	0	0	0
MADAGASCAR	MDG	0	0	0	1	0	0	1,45	3,36	4,68	55,13	53,32	N/A	1,14	1,31	N/A	1	1	1
MALDIVES	MDV	0	0	0	0	0	0	8,60	6,20	6,00	34,01	34,02	34,73	0,43	0,82	0,64	1	1	1
MEXICO	MEX	18	3	5	5	5	1	-7,61	5,63	8,15	3,99	3,88	N/A	6,89	6,73	N/A	1	1	1
MALI	MLI	0	0	0	0	0	0	6,30	4,29	6,57	N/A	N/A	N/A	N/A	N/A	N/A	1	1	1
MALTA	MLT	0	0	0	0	0	0	6,42	2,73	4,28	4,29	4,30	4,10	13,38	16,82	17,29	1	1	1
MONGOLIA	MNG	0	3	0	1	5	0	9,13	2,01	3,30	8,85	10,65	N/A	8,64	8,30	N/A	0	0	0
MOZAMBIQUE	MOZ	0	0	0	0	0	0	6,05	9,80	13,26	N/A	N/A	N/A	N/A	N/A	N/A	1	1	1
MAURITANIA	MRT	0	0	0	0	0	0	4,85	4,48	4,96	N/A	N/A	N/A	N/A	N/A	N/A	1	1	1

Data set (continued)

COUNTRY	CODE	NUMBER OF INVESTIGATIONS IN A COUNTRY			NUMBER OF INVESTIGATIONS AGAINST A COUNTRY			GNP GROWTH (ANNUAL %)			TAXES ON TRADE			SUBSIDIES			WTO		
		1995	1996	1997	1995	1996	1997	1995	1996	1997	1995	1996	1997	1995	1996	1997	1995	1996	1997
MAURITIUS	MUS	0	0	0	0	0	0	4,93	4,97	5,16	34,58	33,86	30,47	5,31	5,77	6,55	1	1	1
MALAWI	MWI	0	0	0	0	0	0	15,20	12,41	5,17	N/A	N/A	N/A	N/A	N/A	N/A	1	1	1
MALAYSIA	MYS	0	0	2	3	2	4	9,30	8,40	7,48	12,26	11,79	12,63	4,64	5,31	4,74	1	1	1
NAMIBIA	NAM	0	0	0	1	6	2	4,92	1,59	1,16	N/A	N/A	N/A	N/A	N/A	N/A	1	1	1
NIGER	NER	0	0	0	0	0	0	1,89	4,69	3,46	N/A	N/A	N/A	N/A	N/A	N/A	1	1	1
NIGERIA	NGA	0	0	0	0	0	0	4,66	3,40	5,10	N/A	N/A	N/A	N/A	N/A	N/A	1	1	1
NICARAGUA	NIC	0	0	0	0	0	0	17,24	8,82	13,51	20,56	N/A	N/A	8,31	N/A	N/A	1	1	1
NETHERLANDS	NLD	0	0	0	1	6	2	2,06	3,95	3,39	0,00	0,00	0,00	35,69	34,19	34,30	1	1	1
NORWAY	NOR	0	0	0	0	0	1	4,34	5,80	3,39	0,71	0,58	N/A	26,94	25,47	N/A	1	1	1
NEW ZEALAND	NZL	9	9	1	0	1	0	2,97	0,96	0,87	2,34	2,45	2,73	N/A	N/A	N/A	1	1	1
OMAN	OMN	0	0	0	0	0	1	3,20	N/A	N/A	3,04	2,97	2,35	N/A	N/A	N/A	0	0	0
PAKISTAN	PAK	0	0	0	1	1	0	4,71	5,54	-0,01	24,17	24,00	22,40	2,83	3,62	1,93	1	1	1

Data set (continued)

COUNTRY	CODE	NUMBER OF INVESTIGATIONS IN A COUNTRY			NUMBER OF INVESTIGATIONS AGAINST A COUNTRY			GNP GROWTH (ANNUAL %)			TAXES ON TRADE			SUBSIDIES			WTO		
		1995	1996	1997	1995	1996	1997	1995	1996	1997	1995	1996	1997	1995	1996	1997	1995	1996	1997
PANAMA	PAN	0	0	0	1	1	0	1,73	3,20	4,25	N/A	N/A	N/A	6,65	6,73	7,28	0	0	0
PERU	PER	4	4	3	1	1	0	7,50	2,62	7,26	10,04	9,08	8,59	5,38	5,43	5,60	1	1	1
PHILIPPINES	PHL	0	0	2	2	1	0	4,88	7,24	5,30	27,19	25,58	20,25	N/A	N/A	N/A	1	1	1
PAPUA NEW GUINEA	PNG	0	0	0	1	0	0	0,44	1,58	-13,99	N/A	N/A	N/A	N/A	N/A	N/A	1	1	1
POLAND	POL	0	0	2	2	1	0	8,35	6,45	6,83	7,69	6,53	4,08	25,45	25,81	25,48	1	1	1
CHINA, P.R.	PRC	0	0	0	27	30	31	8,35	6,45	6,83	7,69	6,53	4,08	25,45	25,81	25,48	0	0	0
PUERTO RICO	PRI	0	0	0	0	0	2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	0	0
PORTUGAL	PRT	0	0	0	0	0	2	2,43	3,19	4,45	0,00	0,00	N/A	15,35	15,32	15,34	1	1	1
PARAGUAY	PRY	0	0	0	0	0	1	4,47	1,12	10,18	N/A	N/A	N/A	N/A	N/A	N/A	1	1	1
QATAR	QUT	0	0	0	0	0	0	-2,10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1	1	1
ROMANIA	ROM	0	0	0	1	0	2	6,74	3,71	-6,71	5,58	6,13	N/A	15,51	15,91	15,98	1	1	1

Data set (continued)

COUNTRY	CODE	NUMBER OF INVESTIGATIONS IN A COUNTRY			NUMBER OF INVESTIGATIONS AGAINST A COUNTRY			GNP GROWTH (ANNUAL %)			TAXES ON TRADE			SUBSIDIES			WTO		
		1995	1996	1997	1995	1996	1997	1995	1996	1997	1995	1996	1997	1995	1996	1997	1995	1996	1997
RUSSIAN FEDERATION	RUS	0	0	0	6	0	8	-4,51	-3,84	0,29	8,74	N/A	N/A	N/A	N/A	N/A	0	0	0
RWANDA	RWA	0	0	0	6	0	0	38,09	10,72	10,85	N/A	N/A	N/A	N/A	N/A	N/A	1	1	1
SAUDI ARABIA	SAU	0	0	0	0	0	0	1,09	1,54	1,90	N/A	N/A	N/A	N/A	N/A	N/A	0	0	0
SUDAN	SDN	0	0	0	0	0	0	17,56	5,97	6,41	N/A	N/A	N/A	N/A	N/A	N/A	0	0	0
SENEGAL	SEN	0	0	0	0	0	0	5,42	6,47	5,35	N/A	N/A	N/A	N/A	N/A	N/A	1	1	1
SINGAPORE	SGP	2	0	0	1	0	1	8,77	7,76	8,80	0,91	0,91	0,83	1,83	4,47	1,36	1	1	1
SIERRA LEONE	SLE	0	0	0	0	0	0	-4,35	8,36	-18,57	42,24	49,67	46,48	N/A	N/A	N/A	1	1	1
EL SALVADOR	SLV	0	0	0	0	0	0	6,54	1,92	4,12	N/A	N/A	N/A	N/A	N/A	N/A	1	1	1
SURINAME	SUR	0	0	0	0	0	0	6,37	3,02	5,60	N/A	N/A	N/A	N/A	N/A	N/A	1	1	1
SLOVAK REPUBLIC	SVK	0	0	0	0	0	1	7,77	6,38	6,10	N/A	N/A	N/A	N/A	N/A	N/A	1	1	1
SLOVENIA	SVN	0	0	0	0	0	0	4,04	2,80	3,58	N/A	N/A	N/A	N/A	N/A	N/A	1	1	1

Data set (continued)

COUNTRY	CODE	NUMBER OF INVESTIGATIONS IN A COUNTRY			NUMBER OF INVESTIGATIONS AGAINST A COUNTRY			GNP GROWTH (ANNUAL %)			TAXES ON TRADE			SUBSIDIES			WTO		
		1995	1996	1997	1995	1996	1997	1995	1996	1997	1995	1996	1997	1995	1996	1997	1995	1996	1997
SWEDEN	SWE	0	0	0	0	0	0	3,72	0,96	1,39	0,69	0,45	0,48	34,42	32,70	31,28	1	1	1
SEYCHELLES	SYC	0	0	0	0	0	0	-2,00	5,59	5,15	42,10	N/A	N/A	10,34	14,54	13,50	0	0	0
CHAD	TCD	0	0	0	0	0	0	0,92	3,69	6,71	N/A	N/A	N/A	N/A	N/A	N/A	1	1	1
TOGO	TGO	0	0	0	0	0	0	8,67	10,35	4,79	N/A	N/A	N/A	N/A	N/A	N/A	1	1	1
THAILAND	THA	0	0	1	7	4	8	8,85	5,02	-1,10	16,44	14,63	12,09	1,03	1,17	1,24	1	1	1
TAJIKISTAN	TJK	0	0	0	1	0	0	-12,50	-4,40	2,20	N/A	N/A	N/A	N/A	N/A	N/A	0	0	0
TURKMENISTAN	TKM	0	0	5	1	3	0	-8,89	-8,54	-24,00	N/A	N/A	N/A	N/A	N/A	N/A	0	0	0
TRINIDAD & TOBAGO	TTO	0	0	0	0	0	0	3,26	3,13	7,87	5,58	N/A	N/A	6,01	N/A	N/A	1	1	1
TUNISIA	TUN	0	0	0	0	0	0	3,20	1,68	10,82	27,87	25,57	N/A	10,07	9,37	N/A	1	1	1
TURKEY	TUR	2	0	5	2	3	0	8,16	6,89	8,55	3,70	2,32	N/A	9,29	12,56	N/A	1	1	1
TANZANIA	TZA	0	0	0	0	0	0	8,15	4,54	3,93	N/A	N/A	N/A	N/A	N/A	N/A	1	1	1

Data set (continued)

COUNTRY	CODE	NUMBER OF INVESTIGATIONS IN A COUNTRY			NUMBER OF INVESTIGATIONS AGAINST A COUNTRY			GNP GROWTH (ANNUAL %)			TAXES ON TRADE			SUBSIDIES			WTO		
		1995	1996	1997	1995	1996	1997	1995	1996	1997	1995	1996	1997	1995	1996	1997	1995	1996	1997
UGANDA	UGA	0	0	0	0	0	0	11,73	9,83	6,04	N/A	N/A	N/A	N/A	N/A	N/A	1	1	1
UKRAINE	UKR	0	0	0	4	0	4	-12,79	-9,92	-3,23	N/A	N/A	N/A	N/A	N/A	N/A	0	0	0
URUGUAY	URY	0	0	0	0	0	0	-1,71	6,10	4,98	3,53	3,48	3,75	18,66	19,19	19,28	1	1	1
UNITED STATES	USA	30	16	20	7	14	19	2,53	3,52	3,77	1,37	1,25	1,10	13,36	13,17	12,94	1	1	1
UZBEKISTAN	UZB	0	0	0	3	0	0	-1,92	1,17	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	0	0
SAINT VINCENT & GRENADINES	VCT	0	0	0	0	0	0	7,96	0,24	3,73	41,70	39,35	40,63	N/A	N/A	N/A	1	1	1
VENEZUELA	VEN	1	5	0	0	0	2	4,32	-1,61	7,42	9,16	6,90	6,79	6,02	7,40	10,00	1	1	1
VIET NAM	VNM	0	0	0	1	0	0	9,54	9,34	5,62	N/A	N/A	N/A	N/A	N/A	N/A	0	0	0
VANUATU	VUT	0	0	0	3	0	0	5,62	3,75	3,67	N/A	N/A	N/A	N/A	N/A	N/A	0	0	0
YUGOSLAVIA	YUG	0	0	0	1	0	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1	1	1

Data set (continued)

COUNTRY	CODE	NUMBER OF INVESTIGATIONS IN A COUNTRY			NUMBER OF INVESTIGATIONS AGAINST A COUNTRY			GNP GROWTH (ANNUAL %)			TAXES ON TRADE			SUBSIDIES			WTO		
		1995	1996	1997	1995	1996	1997	1995	1996	1997	1995	1996	1997	1995	1996	1997	1995	1996	1997
SOUTH AFRICA	ZAF	9	14	11	2	6	2	2,79	3,66	1,28	1,83	1,67	0,26	17,44	18,04	16,16	1	1	1
ZAMBIA	ZMB	0	0	0	0	0	0	-2,31	7,55	4,37	11,83	11,64	N/A	4,37	3,31	N/A	1	1	1
ZIMBABWE	ZWE	0	1	0	0	0	0	0,00	0,00	0,00	0,00	0,00	0,00	N/A	N/A	N/A	1	1	1