Antidumping, Social Quality of Goods and Smear Campaign

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Abstract

This article proposes to uncover another motivation behind the introduction of antidumping duties through the interaction between a Northern firm, a Southern one and an administering authority in charge of setting an antidumping procedure. The goods from the South are assumed to be ethically unsound while those from the North are ethically sound. Both firms compete on price in order to satisfy the demand of the North. We show that a smear campaign engaged by the domestic firm may influence the antidumping duty by reducing the credence of the consumers in the Southern good. Moreover it can discourage the foreign firm to actively cooperate in the antidumping investigation and this reaction of the Southern firm may increase the antidumping duty.

JEL Classifications: F1, F12, F13, F16

Keywords: Antidumping, Facts available, Social quality, Smear campaign, Ethics, Protectionism.

1 Introduction

Since the General Agreement on Tariffs and Trade (GATT) creation, the world trading system has benefited from multilateral trade liberalization. Tariffs, subsidies or quotas are from now on more controlled or even definitively prohibited by The World Trade Organization (WTO). Nevertheless trade liberalization under GATT/WTO is not without exceptions. Actually, article VI of GATT stipulates that antidumping duties are authorized: members are allowed to set up a duty on a foreign product that is imported at below-normal value and causes material injury to a domestic industry. This tariff is equal to the dumping margin. The cumulative number of antidumping, global

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safeguard, China-specific transitional safeguard and countervailing duties throughout the first three quarters of 2009 is 30.3% higher than the number of requests that took place in the first three quarters of 2008 (Bown 2009a).These policies seem to replace traditional trade policies (Blonigen and Prusa, 2003; Bown, 2009a, and Matschke and Schöttner, 2009). Among these policies, antidumping duty is the preferred trade remedy of choice. The main problem linked to this antidumping rise consists in a prominent risk of a new protectionism since it "allows considerable discretion over when and how to implement this policy" (Khatibi, 2009) and any studies show that article VI can often be used to find pricing below normal value (Blonigen, 2006).

In this context many articles stress that antidumping duties are used to pursue strategic trade policies (Cheng et al., 2001, Matschke and Schöttner, 2009, Staiger and Wolak, 1989 and Webb, 1992) given that they are most often applied in oligopolistic industries[1]. These industries (like steel industry, drugs sectors or textile industry) are well organized[2] and are influential lobbies. The dumping margin is calculated thanks to an investigation initiated by the home firm affected by this unfair behavior.This procedure seems to legitimate lobbies acts which tend to protect their sector. The ability of domestic firms to manipulate the antidumping process to their own advantage is not new in the literature and political economy aspect of antidumping is notably developed by Anderson (1994) and Moore and Suranovic (1992) or Rosendorff (1996)[3].

Another part of the antidumping literature deals with the decision to participate in the investigation. The firm which is suspected of dumping has to cooperate in the investigations nevertheless, this cooperation implies any costs (the compliance costs described by Moore, 2005[4]). First, it can lead into paradoxical position in which the suspected of dumping firm refuses to contribute to the investigations. This refusal could be expensive for it, because it leads to enforce the "facts available" rule. This rule allows the authority in charge of administrating the antidumping duty, to tax the incriminated good, considering only the informations provided by the home firm (Moore, 2005 and Tandé, 2005)[5][6]. Then firms may be taxed whereas there is no dumping or they can be excessively punished (Boltucck and Litan, 1991). Moore (2005) explains this non participation in negotiations. He even shows, it can make this choice without making dumping. Problems seem to be due to a lack of information on the foreign firm, a difficulty to evaluate the dumping margin and diverse costs linked to the informations revelation[7].

In the light of this literature on strategic trade policy and on political aspect of antidumping, this paper proposes to uncover another motivation behind the introduction of antidumping duties by linking North-South trade and the social element of goods from the South. We construct a North-South duopoly model, where the goods imported in the home (North) country from the foreign (South) country may be "ethically unsound" (Cassagnard and Cardebat, 2010). Code of ethics is difficult to observe since

the producer is alone in knowing its ethical level. Then goods ethically differentiated are bought on trust as the consumer is subjected to strongly asymmetric information (Darby and Karni, 1973). Like quality differentiation models (Mussa and Rosen, 1978), the demand side consists of a continuum of consumers with a specific sensitivity to ethical concerns. We show, it exists an optimal antidumping duty, which enforces tariffs all the more high as the uncertainty in its social quality of the good is high. The dumping margin lays on the sensitivity of the consumers to ethical concerns and on the uncertainty concerning the social quality of the imported good.

Moreover we assume that the firm in the home country can engage in a smear campaign[8] to influence the final level of the antidumping duty. By doing so the home firm may discourage the foreign one to participate in the antidumping investigation. Consequently, the Northern firm benefits from a new mean to affect the antidumping duty level. It is effectively able to affect in a negative way the consumers' credence via a negative campaign. This campaign reduces the consumers' trust on the Southern good and it increases the optimal antidumping duty. If the foreign firm does not actively cooperate with the investigating authority, the "facts available" provided by the domestic petitioning firm will be used to assess the dumping margin, which will then be higher than otherwise. The complaining firm will not be induced to completely destroy the image of the Southern firm. It would imply a collaboration of this firm to the investigation which would restore the truth and reduce a lot (or cancel) the antidumping margin.An optimal defamation level maximizes the Northern firm benefits and explains in a new way the non cooperation of the Southern firm in the antidumping procedure investigations. It gives another explanation of the high dumping margins described by Baldwin and Moore (1991). It also confirms that the antidumping procedure generates "directly unproductive profits" (Bhagwati,1982 and developed among others by Hillman, Katz and Rosenberg, 1987, Ethier and Fisher,1987, Leidy and Hoekman, 1990 and 1991).

The reminder of the paper is organized as follows. The next section presents the theoretical framework and resolves the game to find the equilibrium outcomes. In section 3, we introduce the smear campaign and we evaluate the effect of this tactic on the decision of the Southern firm to collaborate in the investigations.

2 Modelling Framework

Timing of the Game

I propose a three-stage game among an administering authority, a domestic firm, and a foreign firm:

- Firstly, the Northern firm propagates a smear campaign against the Southern good[9]. This campaign reduces the subjective probability that the good from the

South is ethical. This campaign also permits the domestic firm to positively impact the level of antidumping duty. It is the "facts available" tariff. This tariff is imposed on the foreign firm if the domestic firm wins the petition and if the foreign firm refuses to cooperate.

- Next, the Southern firm decides whether to cooperate to the antidumping petition or not.

- Thirdly, if the Southern firm cooperates, a compliance cost (K) is imposed by an administering authority with certainty and an antidumping duty (t_A) is imposed with some positive probability (γ). The compliance cost is associated with providing legal fees and various informations and the authority is assumed to care about both consumer welfare and domestic producer welfare. If the Southern firm refuses to cooperate, then the duty (t_F) is based on the domestic firm's allegation with some positive probability (μ). I assume (like Moore 2005) γ and μ are exogenous and that $\gamma \geqslant \mu$.[10]

Both firms compete on price in order to satisfy the demand in the North. Their outputs are imperfect substitutes in the domestic market and are produced using constant marginal cost production technologies. They are distinguished by their code of ethics in production, according to Armington (1969), by place of production. We assume that imperfect substitution comes from ethical differentiation and that consumers are distinguished by their degree of ethical consideration.

The model is solved by backward induction. Like Moore (2005), the foreign firm will cooperate if the expected profits under cooperation are greater than under non-cooperation.Thanks to a negative campaign, the Northern firm modifies the optimal antidumping duty (t_F), knowing the decision rule of the foreign firm. On the one hand, if t_F is too high, then the foreign firm will cooperate and the duty will be lower or perhaps equal to zero. On the other hand, if t_F is set up too low, then the foreign firm may prefer not to cooperate. The smear campaign permits the Northern firm to bias t_F, knowing the compliance cost and the consumer's credence in the foreign good. Figure 1 depicts this game by using its extensive form.

Consumers Behaviors

The following features of the model are standard in quality differentiation models. The demand side consists of a continuum of consumers $g \in]0,1[$. g represents the consumer's sensitivity to ethical concerns: a low value means a low level of sensitivity to ethics and inversely for high values of g. One and only one consumer exists for every value of g and each one buys at most one product.

Assume two levels of utility for the Northern consumers: the utility of consuming a good produced by the Northern firm (Un) and the utility of consuming a good produced

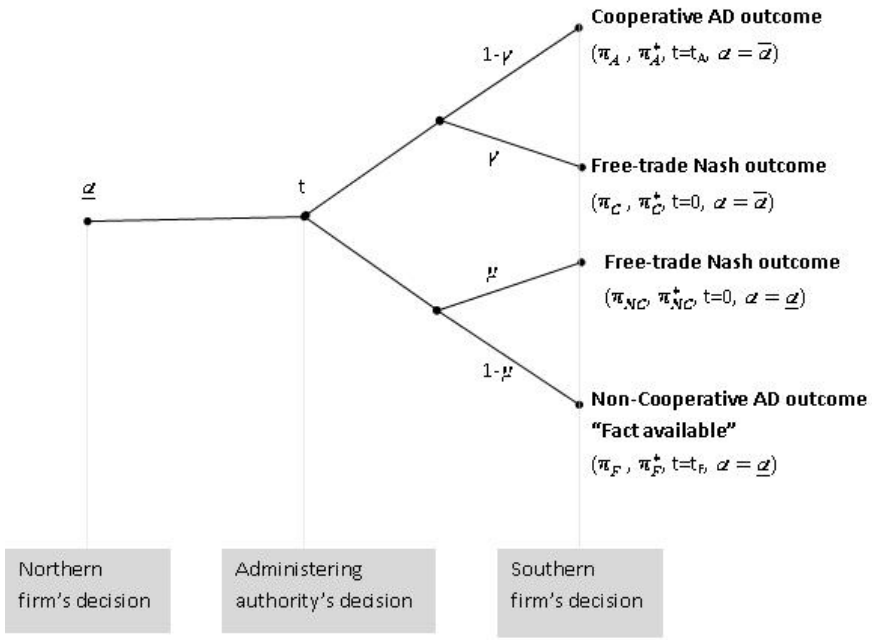

Figure 1: Extensive Form of the Game

by the Southern firm (Us).The utility of consuming the Southern good is positively related to g and $\alpha \in [0,1]$; α is the ethical differentiation parameter, it represents the consumer's credence in the Southern good. Then α can be interpreted as the subjective probability (from the consumer's point of view) the Southern good sounds ethically. Let us finally consider an exogeneous ethical level ($\varepsilon > 0$) which represents the social quality of the good. u is an exogenous positive constant.

P^* is the price of the Southern product and P is the price of the Northern product; these prices are such that $P > P^*$. Starred letters refer to Southern variables. Assume that the Northern good is systematically sound ethically whereas the Southern one is unsound ethically: as for the consumers, Southern goods are always less ethical than the Northern ones. The difference between the utilities and the price of the corresponding good gives two consumer surplus (CS^* and CS):

$$\begin{aligned} CS^* &= U^* - P^* = u + g\alpha\varepsilon - P^* \\ CS &= U - P = u + g\varepsilon - P \end{aligned} \tag{1}$$

$\widetilde{g}$ is the marginal consumer who is indifferent to consuming the Southern good and consuming the Northern one.

$$CS^* = CS \Leftrightarrow \widetilde{g} = \frac{P - P^*}{\varepsilon(1-\alpha)} \tag{2}$$

Then the following condition must be satisfied in order for the marginal consumer to fall in the feasible range $[0, 1]$.

Condition: $\widetilde{g} \in [0, 1] \Leftrightarrow P - P^* \leqslant \varepsilon\,(1 - \alpha)$

Then, we obtain the demands adressed to the firms. To simplify the model, we assume there is no marginal consumer who is indifferent between consuming the Southern good and no consuming this good: $D^* = \widetilde{g}$ and $D = 1 - \widetilde{g}$

Producers Behavior

What follows describes the profits of the Southern firm (π^*) and the Northern firm (π).

$$\begin{aligned} \pi^* &= (P^* - (c + t))D^* \\ \pi &= (P - 1)D \end{aligned} \tag{3}$$

We assume that $c < 1$, it is the marginal cost of production of the Southern firm. The marginal cost in the North is normalized to 1. t is the antidumping duty set by the administering authority. In the last stage, each firm chooses the prices in order to maximize its profit. Thus, Nash equilibrium prices with an antidumping duty and the non cooperation of the Southern firm in the antidumping investgations are:

$$P_F^* = \frac{1 + 2(c + t_F) + \varepsilon(1 - \underline{\alpha})}{3} \tag{4}$$

$$P_F = \frac{2 + c + t_F + 2\varepsilon(1 - \underline{\alpha})}{3} \tag{5}$$

In this case, the tariff t_F is the "facts available" duty implemented by the authority. We assume that the noncooperation induces a lower credence of the consumers ($\underline{\alpha} < \alpha$) because the Northern firm engages a smear campaign which reduces this credence to obtain the highest antidumping duty.

If the Southern firm accepts to cooperate then Nash equilibrium prices are

$$P_A^* = \frac{1 + 2(c + t_A) + \varepsilon(1 - \overline{\alpha})}{3} \tag{6}$$

$$P_A = \frac{2 + c + t_A + 2\varepsilon(1 - \overline{\alpha})}{3} \tag{7}$$

We assume that this cooperation increases the credence of the Northern consumer with respect to $\underline{\alpha}$. The antidumping duty t_A implemented in this case is calculated in the next subsection. In addition there are two price pairs under free trade. As before, the cooperation implies a higher credence ($\overline{\alpha} > \underline{\alpha}$) whereas the noncooperation implies a lower credence ($\underline{\alpha}$); Under cooperation the Nash equilibrium prices are

$$\begin{aligned} P_C^* &= \frac{1 + 2c + \varepsilon(1 - \overline{\alpha})}{3} \\ P_C &= \frac{2 + c + 2\varepsilon(1 - \overline{\alpha})}{3} \end{aligned} \tag{8}$$

And under noncooperation we have:

$$P^*_{NC} = \frac{1 + 2c + \varepsilon(1 - \underline{\alpha})}{3} \tag{9}$$
$$P_{NC} = \frac{2 + c + 2\varepsilon(1 - \underline{\alpha})}{3}$$

Higher differentiation decreases the Southern price and reduces the competition between the both firms. From these equilibrium prices we can easily calculate the other equilibrium values.

The market equilibrium

The cooperative demands with the antidumping duty t_A are

$$D^*_A = \frac{1}{3} + \frac{1 - (c + t_A)}{3\varepsilon\,(1 - \overline{\alpha})} = \frac{1 - (c + t_A) + \varepsilon\,(1 - \overline{\alpha})}{3\varepsilon\,(1 - \overline{\alpha})} \tag{10}$$
$$D_A = \frac{2}{3} - \frac{1 - (c + t_A)}{3\varepsilon\,(1 - \overline{\alpha})} = \frac{-1 + (c + t_A) + 2\varepsilon\,(1 - \overline{\alpha})}{3\varepsilon\,(1 - \overline{\alpha})} \tag{11}$$

Higher differentiation decreases the demand which is addressed to the Southern firm because higher differentiation implies lower credence of the consumers. t_A raises the import price good and decreases its demand. The demands under free trade and cooperation are:

$$D^*_C = \frac{1 - c + \varepsilon\,(1 - \overline{\alpha})}{3\varepsilon\,(1 - \overline{\alpha})} \tag{12}$$
$$D_C = \frac{-1 + c + 2\varepsilon\,(1 - \overline{\alpha})}{3\varepsilon\,(1 - \overline{\alpha})}. \tag{13}$$

The non-cooperative demands with the antidumping duty t_F are:

$$D^*_F = \frac{1 - (c + t_F) + \varepsilon\,(1 - \underline{\alpha})}{3\varepsilon\,(1 - \overline{\alpha})} \tag{14}$$
$$D_F = \frac{-1 + (c + t_F) + 2\varepsilon\,(1 - \underline{\alpha})}{3\varepsilon\,(1 - \underline{\alpha})}. \tag{15}$$

In this case but under free trade we have:

$$D^*_{NC} = \frac{1 - c + \varepsilon\,(1 - \underline{\alpha})}{3\varepsilon\,(1 - \overline{\alpha})} \tag{16}$$
$$D_{NC} = \frac{-1 + c + 2\varepsilon\,(1 - \underline{\alpha})}{3\varepsilon\,(1 - \underline{\alpha})}. \tag{17}$$

The following table brings together the consumer's surplus in each case

Table 1: Consumer's surplus at the equilibrium

	Outcome (Probability)	Domestic consumer's surplus	Foreign consumer's surplus
Foreign Firm Cooperation	Free Trade (γ)	$\frac{3\overline{\alpha}-2}{2}\varepsilon D_C^2-(u+\overline{\alpha}\varepsilon+3)D_C$	$(u-t_A)D_C^*+D_C^{*2}\varepsilon\frac{3\overline{\alpha}-2}{2}$
	antidumping (1-γ)	$\frac{3\overline{\alpha}-2}{2}\varepsilon D_A^2-(u+\overline{\alpha}\varepsilon+3)D_A$	$(u-t_A)D_A^*+D_A^{*2}\varepsilon\frac{3\overline{\alpha}-2}{2}$
Foreign Firm Non Cooperation	Free Trade (μ)	$\frac{3\underline{\alpha}-2}{2}\varepsilon D_{NC}^2-(u+\underline{\alpha}\varepsilon+3)D_{NC}$	$(u-t_{NC})D_{NC}^*+D_{NC}^{*2}\varepsilon\frac{3\underline{\alpha}-2}{2}$
	antidumping (1-μ)	$\frac{3\underline{\alpha}-2}{2}\varepsilon D_F^2-(u+\underline{\alpha}\varepsilon+3)D_F$	$(u-t_F)D_F^*+D_F^{*2}\varepsilon\frac{3\underline{\alpha}-2}{2}$

Global Welfare and Optimal Tariff

Like strategic trade policy literature, I assume that the trade authority cares about both consumer and domestic producer welfare (W):

$$W = CS + CS^* + \pi + t \cdot D^* \tag{18}$$

$$W = \frac{1}{6}\left[\frac{(1-c)^2-t^2}{\varepsilon(1-\alpha)} + \varepsilon\,(2+\alpha) + 6\,(u-1) + 2t\right]$$

$$\frac{\partial W}{\partial t} = 0 \Leftrightarrow \widehat{t_{F1}} = \varepsilon(1-\underline{\alpha}) \text{ or } \widehat{t_{A1}} = \varepsilon(1-\overline{\alpha})$$

$\widehat{t_F}$ and $\widehat{t_A}$ are the optimal antidumping duties if the authority also cares about the consumers[11]. They are positively related to ε and negatively related to α.

Proposition 1 *If the administering authority in charge of setting an antidumping procedure cares about both consumer and domestic producer welfare, then the optimal antidumping duty ($\widehat{t}$) is positively related to the level of ethics required in the North (ε) and negatively related to the consumer's credence (α) such as $\widehat{t} = \varepsilon(1-\alpha)$.*

3 "Facts Available" and Smear Campaign

The Southern firm's decision

Foreign cost of production and ethical considerations are privately held information of the exporter, consequently the Southern firm needs an incentive to cooperate in the investigation. Moore (2005) explains that this incentive depends on the potential use of the fact available method: the Northern firm will probably overstate the dumping margin thus the Southern one would face high duty if it refuses to cooperate and lower credence of the consumers. On the one hand, cooperation permits the Southern firm to improve the credence of the Northern consumers but it implies for the Southern firm an additional cost of cooperation. Like Moore (2005) we assume that if the Southern firm cooperates with the investigation, it incurs constant compliance costs (K). On the other hand, the "facts available" rule increases the dumping margin and reduces the credence of the consumers in the Southern good. The following table brings together the profits at the equilibrium[12]

Table 2: Profits at the equilibrium

	Outcome (Probability)	Domestic Profit	Foreign Profit
Foreign Firm Cooperation	Free Trade (γ)	$\pi_C = \frac{[2\varepsilon(1-\overline{\alpha})-1+c]^2}{9\varepsilon(1-\overline{\alpha})}$	$\pi_C^* = \frac{[\varepsilon(1-\overline{\alpha})+1-c]^2}{9\varepsilon(1-\overline{\alpha})} - K$
	antidumping (1-γ)	$\pi_A = \frac{[3\varepsilon(1-\overline{\alpha})-(1-c)]^2}{9\varepsilon(1-\overline{\alpha})}$	$\pi_A^* = \frac{(1-c)^2}{9\varepsilon(1-\overline{\alpha})} - K$
Foreign Firm Non Cooperation	Free Trade (μ)	$\pi_{NC} = \frac{[2\varepsilon(1-\underline{\alpha})-1+c]^2}{9\varepsilon(1-\underline{\alpha})}$	$\pi_{NC}^* = \frac{[\varepsilon(1-\underline{\alpha})+1-c]^2}{9\varepsilon(1-\underline{\alpha})}$
	antidumping (1-μ)	$\pi_F = \frac{[3\varepsilon(1-\underline{\alpha})-(1-c)]^2}{9\varepsilon(1-\underline{\alpha})}$	$\pi_F^* = \frac{(1-c)^2}{9\varepsilon(1-\underline{\alpha})}$

From theses profits we calculate the expected Southern profit under cooperation and under noncooperation:

$$E_\gamma(\pi^*_{coop}) = \gamma\frac{[\varepsilon\,(1-\overline{\alpha})+1-c]^2}{9\varepsilon\,(1-\overline{\alpha})} + (1-\gamma)\frac{(1-c)^2}{9\varepsilon\,(1-\overline{\alpha})} - K$$

$$E_\mu(\pi^*_{nc}) = \mu\frac{[\varepsilon\,(1-\underline{\alpha})+1-c]^2}{3\varepsilon\,(1-\underline{\alpha})} + (1-\mu)\frac{(1-c)^2}{9\varepsilon\,(1-\underline{\alpha})}$$

And it is easy to show that[13]

$$E_\mu(\pi^*_{nc}) < E_\gamma(\pi^*_{coop}) + K$$

Figure 2 depicts two numerical examples, with $\overline{\alpha} = 0.6$ and $\underline{\alpha} = 0.4, c = 0.4$ and $\varepsilon = 0.35$, to understand the foreign firm's decision. This graph permits us to see that without K the foreign firm will cooperate if $\underline{\alpha} < \overline{\alpha}$. In this example $\underline{\alpha} = 0.4$ if $\overline{\alpha} > 0.4$ the Southern firm prefers to cooperate. Introducing compliance costs, this threshold is modified and with $K = 0.1$ it is nearly equal to 0.6. Thanks to the second graph, with $\mu < \gamma$ the Southern firm prefers to cooperate with a lower $\overline{\alpha}$.

To generalize this example, we calculate this threshold by defining the level of $\overline{\alpha} = \widetilde{\alpha}$ such as $E_\gamma(\pi^*_{coop}) - E_\mu(\pi^*_{nc}) = 0$:

$$E_\gamma(\pi^*_{coop}) - E_\mu(\pi^*_{nc}) = 0$$

$$\Longleftrightarrow \widetilde{\alpha} = \frac{-9(E_\mu(\pi^*_{nc})+K) + 2\gamma(1-c+\varepsilon) + \sqrt{(9(E_\mu(\pi^*_{nc})+K) - 2\gamma(1-c))^2 - 4\gamma(1-c)^2}}{2\varepsilon\gamma}$$

$$\widetilde{\alpha} > 0 \Leftrightarrow \sqrt{(9(E_\mu(\pi^*_{nc})+K) - 2\gamma(1-c))^2 - 4\gamma(1-c)^2} > 9(E_\mu(\pi^*_{nc})+K) + 2\gamma(1-c+\varepsilon)$$

which is always verified.

Proposition 2 *Southern firm's decision*
If $\mu < \gamma$ and $K > 0$ there exist a threshold

$$\widetilde{\alpha} = \frac{-9(E_\mu(\pi^*_{nc})+K) + 2\gamma(1-c+\varepsilon) + \sqrt{(9(E_\mu(\pi^*_{nc})+K) - 2\gamma(1-c))^2 - 4\gamma(1-c)^2}}{2\varepsilon\gamma}$$

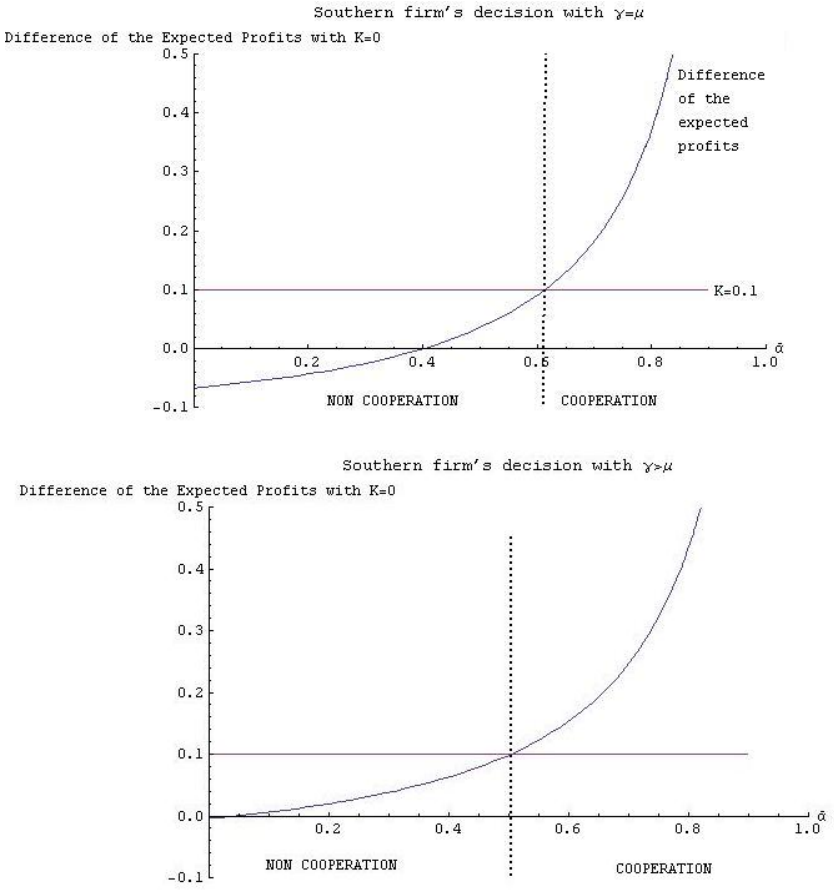

Figure 2: The Southern Firm Decision: Numerical Examples

- such as $E_\gamma(\pi^*_{coop}) - E_\mu(\pi^*_{nc}) = 0$
  - if $\overline{\alpha} < \widetilde{\alpha}$ then the Southern firm does not want to cooperate
  - if $\overline{\alpha} = \widetilde{\alpha}$ then the Southern firm is indifferent to cooperating or not to cooperating.
  - if $\overline{\alpha} > \widetilde{\alpha}$ the Southern firm accept to cooperate.
- A raise of the compliance costs induces a higher threshold $\widetilde{\alpha}$ and then a lower incentive to cooperate with the antidumping investigation[14].
- The smear campaign implies a decrease of the consumer's credence ($\underline{\alpha}$) which implies an increase of $\widetilde{\alpha}$. The smear campaign urges the Southern firm to cooperate[15].

The Northern firm's decision

What follows describes the optimal smear campaign of the Northern firm. As expected the Northern firm will always prefer the non cooperation case because the probability to be protected by an antidumping duty is higher and because it allows the case to proceed "facts available" which means higher antidumping duty. Then the Northern firm's program is $\underset{\underline{\alpha}}{Max} E_\mu(\pi_{nc})$

$$E_\gamma(\pi_{coop}) = \gamma \frac{\left[2\varepsilon\left(1-\overline{\alpha}\right)-1+c\right]^2}{9\varepsilon\left(1-\overline{\alpha}\right)} + (1-\gamma)\frac{\left[3\varepsilon\left(1-\overline{\alpha}\right)-(1-c)\right]^2}{9\varepsilon\left(1-\overline{\alpha}\right)}$$

$$E_\mu(\pi_{nc}) = \mu \frac{\left[2\varepsilon\left(1-\underline{\alpha}\right)-1+c\right]^2}{9\varepsilon\left(1-\underline{\alpha}\right)} + (1-\mu)\frac{\left[3\varepsilon\left(1-\underline{\alpha}\right)-(1-c)\right]^2}{9\varepsilon\left(1-\underline{\alpha}\right)}$$

$$E_\mu(\pi_{nc}) > E_\gamma(\pi_{coop})$$

Then knowing the threshold $\widetilde{\alpha}$ is enough to solve the Northern firm's program.

Proposition 3 *If $\underline{\alpha} < \alpha$ and $\mu < \gamma$ then for a given $\overline{\alpha} \geqslant \alpha$ the Northern firm will always prefer the non cooperative case (the lowest α because $\frac{\partial E_\gamma(\pi)}{\partial \alpha} < 0$[16] and the lowest γ because $\frac{\partial E_\gamma(\pi)}{\partial \gamma} < 0$[17]). Consequently the Northern firm will choose the lowest $\underline{\alpha}$ which insure the non cooperation of the Southern firm.*

Finally the program of the Northern firm will be very simple since it will engage a smear campaign to set $\underline{\alpha}$ which maximize its profits. Now we know that this firm always prefers the lowest $\underline{\alpha}$ nevertheless if $\underline{\alpha}$ is too low the Northern firm will prefer to cooperate with the antidumping investigations. Consequently, the solution of this

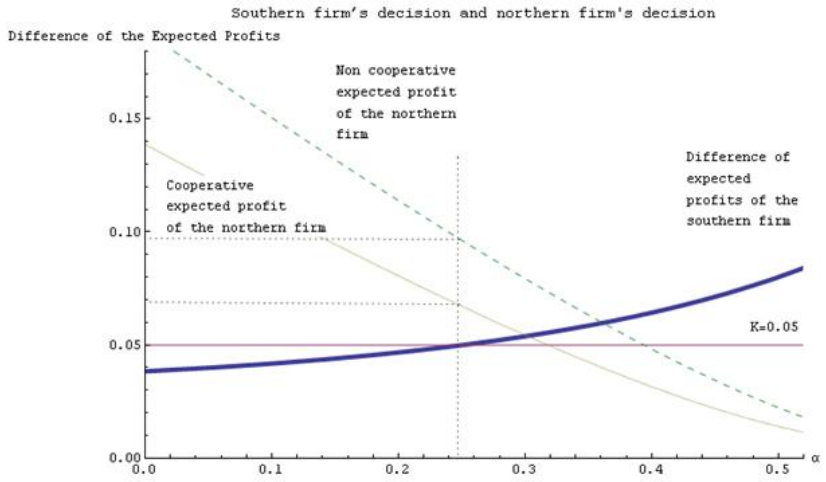

Figure 3: Decisions of the Northern Firm and the Southern One: Numerical Example

program is easy to find: the Northern firm will reduce consumer's credence in the Southern good. This reduction implies an increase of $\widetilde{\alpha}$. So knowing $\overline{\alpha}$ the Northern firm must set the lowest $\underline{\alpha}$ which insure the non cooperation of its rival.

Figure 3 depicts a numerical application with $c = 0.5$, $\varepsilon = 0.5$, $\gamma = 0.5$, $\mu = 0.2$, $\underline{\alpha}$= 0.2 which presents the decisions of the both firms. In this example, the threshold is equal to $\widetilde{\alpha} = 0.25$. Knowing $\overline{\alpha} = 0.24$, the Northern firm can engage a negative campaigning so as to decrease α from $\overline{\alpha}$=0.24 to $\underline{\alpha} = 0.2$. This campaign modifies the Southern firm's behaviour because it prefers from now not to cooperate. Without cooperation, the profit of the Northern firm increases from 0.07 to nearly 0.1.

4 Conclusion

The aim of this article is to uncover another explanation of the introduction of antidumping duties and to explain differently the non cooperation of some firms in the investigations. With a new theoretical framework where the goods imported in the North may be ethically unsound, we show that the dumping margin calculus may rest on the subjective probability (from the consumer's point of view) the Southern good unsounds ethically. In this case, the Northern firm can engage in a smear campaign to influence the final level of the antidumping duty and this negative campaign can discourage the foreign firm to actively cooperate in the antidumping investigation. This reaction of the foreign firm will probably increase the final antidumping duty.

Thanks to this article we are obliged to deepen more these antidumping procedures, particularly in an economic context, where protectionism pressures become strong. Protectionism is regularly presented in political debates to palliate environmental considerations divergences (environmental dumping) or denounce the "poor" "social quality"

of importing goods (social dumping) and developed countries' antidumping measures are essentially directed to developing countries. A new thought is thus opened about trade policies menus apt to reveal the hidden information by the firm from the South and to incite the Northern firm to divulge also the true information.

5 Appendixes

Appendix 1

Table 3: Prices and Tariffs at the equilibrium

	Outcome (Probability)	Tariff	Domestic Price	Foreign Price
Foreign Firm Cooperation	Free Trade (γ)	$t=0$	$P_C=\frac{2+c+2\varepsilon(1-\overline{\alpha})}{3}$	$P_C^*=\frac{1+2c+\varepsilon(1-\overline{\alpha})}{3}$
	antidumping (1-γ)	$\widehat{t_A}=\varepsilon(1-\overline{\alpha})$	$P_A=\frac{2+c+3\varepsilon(1-\alpha)}{3}$	$P_A^*=\frac{2+c+3\varepsilon(1-\overline{\alpha})}{3}$
Foreign Firm Non Cooperation	Free Trade (μ)	$t=0$	$P_{NC}=\frac{2+c+2\varepsilon(1-\underline{\alpha})}{3}$	$P_{NC}^*=\frac{1+2c+\varepsilon(1-\underline{\alpha})}{3}$
	antidumping (1-μ)	$\widehat{t_F}=\varepsilon(1-\underline{\alpha})$	$P_F=\frac{2+c+3\varepsilon(1-\underline{\alpha})}{3}$	$P_F^*=\frac{2+c+3\varepsilon(1-\underline{\alpha})}{3}$

Table 4: Demands at the equilibrium

	Outcome (Probability)	Domestic Demand	Foreign Demand
Foreign Firm Cooperation	Free Trade (γ)	$D_C=\frac{2\varepsilon(1-\overline{\alpha})-(1-c)}{3\varepsilon(1-\overline{\alpha})}$	$D_C^*=\frac{\varepsilon(1-\overline{\alpha})+1-c}{3\varepsilon(1-\overline{\alpha})}$
	antidumping (1-γ)	$D_A=\frac{3\varepsilon(1-\overline{\alpha})-(1-c)}{3\varepsilon(1-\overline{\alpha})}$	$D_A^*=\frac{1-c}{3\varepsilon(1-\overline{\alpha})}$
Foreign Firm Non Cooperation	Free Trade (μ)	$D_{NC}=\frac{2\varepsilon(1-\underline{\alpha})-1+c}{3\varepsilon(1-\underline{\alpha})}$	$D_{NC}^*=\frac{\varepsilon(1-\underline{\alpha})+1-c}{3\varepsilon(1-\underline{\alpha})}$
	antidumping (1-μ)	$D_F=\frac{3\varepsilon(1-\underline{\alpha})-(1-c)}{3\varepsilon(1-\underline{\alpha})}$	$D_F^*=\frac{1-c}{3\varepsilon(1-\underline{\alpha})}$

Appendix 2

$$\frac{\partial E_\gamma(\pi^*_{coop})}{\partial\overline{\alpha}}=\varepsilon\left(\frac{1-c}{3\varepsilon\left(1-\overline{\alpha}\right)}\right)^2-\frac{\gamma\varepsilon}{9}>0$$
$$\Leftrightarrow\left(\frac{1-c}{\varepsilon\left(1-\overline{\alpha}\right)}\right)^2>\gamma$$
$$\Leftrightarrow\left(\frac{1-c}{t_A}\right)^2>\gamma\Leftrightarrow 1-c-t_A\sqrt{\gamma}>0$$
$$\frac{\partial E_\gamma(\pi^*_{coop})}{\partial\gamma}=\frac{\varepsilon\left(1-\overline{\alpha}\right)+2\left(1-c\right)}{9}>0$$

$E_\gamma(\pi^*_{coop})$ is increasing in $\overline{\alpha}$ and γ. So, the non cooperation of the firm implies a lower α and a lower probability μ and consequently a lower expected profit if we do not consider K.

Appendix 3

Sign of $\frac{\partial \widetilde{\alpha}}{\partial K}$.

$$\frac{\partial \widetilde{\alpha}}{\partial K} = \frac{-9 + \frac{9[9(E_\mu(\pi^*_{nc})+K)-2\gamma(1-c)]}{\sqrt{(9(E_\mu(\pi^*_{nc})+K)-2\gamma(1-c))^2-4\gamma(1-c)^2}}}{2\varepsilon\gamma} > 0$$

$$\Leftrightarrow -9 + \frac{9[9(E_\mu(\pi^*_{nc}) + K) - 2\gamma(1-c)]}{\sqrt{(9(E_\mu(\pi^*_{nc}) + K) - 2\gamma(1-c))^2 - 4\gamma(1-c)^2}} > 0$$

$$\Leftrightarrow \frac{9(E_\mu(\pi^*_{nc}) + K) - 2\gamma(1-c)}{\sqrt{(9(E_\mu(\pi^*_{nc}) + K) - 2\gamma(1-c))^2 - 4\gamma(1-c)^2}} > 1 \text{ it is always verified}$$

Appendix 4

Sign of $\frac{\partial \widetilde{\alpha}}{\partial \underline{\alpha}} < 0$

$$E_\gamma(\pi^*_{coop}) - E_\mu(\pi^*_{nc}) = 0$$

$$\Longleftrightarrow \widetilde{\alpha} = \frac{-9(E_\mu(\pi^*_{nc}) + K) + 2\gamma(1-c+\varepsilon) + \sqrt{(9(E_\mu(\pi^*_{nc}) + K) - 2\gamma(1-c))^2 - 4\gamma(1-c)^2}}{2\varepsilon\gamma}$$

$$\widetilde{\alpha} > 0 \Leftrightarrow \sqrt{(9(E_\mu(\pi^*_{nc}) + K) - 2\gamma(1-c))^2 - 4\gamma(1-c)^2} > 9(E_\mu(\pi^*_{nc}) + K) + 2\gamma(1-c+\varepsilon)$$

$$\frac{\partial \widetilde{\alpha}}{\partial \underline{\alpha}} = \frac{-9\frac{\partial E_\mu(\pi^*_{nc})}{\partial \underline{\alpha}} + \frac{9\frac{\partial E_\mu(\pi^*_{nc})}{\partial \underline{\alpha}}}{2\sqrt{(9(E_\mu(\pi^*_{nc})+K)-2\gamma(1-c))^2-4\gamma(1-c)^2}}}{2\varepsilon\gamma}$$

$$\frac{\partial \widetilde{\alpha}}{\partial \underline{\alpha}} = \frac{9}{2\varepsilon\gamma}\frac{\partial E_\mu(\pi^*_{nc})}{\partial \underline{\alpha}}\left[-1 + \frac{1}{2\sqrt{(9(E_\mu(\pi^*_{nc}) + K) - 2\gamma(1-c))^2 - 4\gamma(1-c)^2}}\right] < 0$$

$$\text{because} \frac{\partial E_\mu(\pi^*_{nc})}{\partial \underline{\alpha}} > 0$$

Appendix 5

- Sign of $\frac{\partial E_\gamma(\pi)}{\partial \alpha}$

$$\frac{\partial E_\gamma(\pi)}{\partial \alpha} = \frac{(1-c)^2 - \varepsilon^2(1-\alpha)^2(9-5\gamma)}{9\varepsilon(1-\alpha)^2} < 0 \Leftrightarrow (1-c)^2 < \varepsilon^2(1-\alpha)^2(9-5\gamma)$$

$$\Leftrightarrow (1-c) < \varepsilon(1-\alpha)(9-5\gamma)^{1/2} \text{ satisfied with the previous condition.}$$

$$\Leftrightarrow \left(\frac{1-c}{\varepsilon\,(1-\overline{\alpha})}\right)^2 > \gamma \Leftrightarrow \left(\frac{1-c}{t_A}\right)^2 > \gamma \Leftrightarrow 1 - c - t_A\sqrt{\gamma} > 0$$

- Sign of $\frac{\partial E_\gamma(\pi)}{\partial \gamma}$

$$\frac{\partial E_\gamma(\pi)}{\partial \gamma} = \frac{2\,(1-c) - 5\varepsilon(1-\alpha)}{9} < 0 \Leftrightarrow 1 - c < \frac{5}{2}\varepsilon(1-\alpha)$$

It is satisfied with the previous condition.

6 References

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Notes

[1]WTO reports that during the second half of 2008 the goods affected by the AD procedure were in the base metals sector (43 initiations), the chemicals sector (22 initiations), textiles sector (19 initiations) and plastic and rubber sector (14 initiations)(Source http://www.wto.org).

[2]Antidumping initiation implies that at least 50% of the domestic industry is not oppose the petition.

[3]More generally, tariffs determined by lobbying is quite ordinary in trade policy litterature (see for example Mayer (1984), Rodrik (1986 and 1995), Grossman and Helpman (1994), Goldberg and Maggi (1999), Mitra and Panagariya (2004) or Bandyopadhyay and *al.* (2008).

[4]For example, US Department of Commerce set high compliance costs described by Murray (1991), Palmeter (1991) and Finger and Artis (1993): 200-page questionnaires, tight and inflexible deadlines, specific style to report data. Moreover if the foreign firms is partially cooperative then all the informations provided will not be used.

[5]Bandyopadhyay (2008) gives more details on the american antidumping procedure.

[6]During the period 1980-1990, the American Department of Trade's use of "facts available" leads to dumping margins that are 38% higher than the average 29% margin. (Baldwin and Moore, 1991)

[7]Hansen and Prusa (1996) and Gupta and Panagariya (2006) propose another explanation: the presence of many exporters increases the free-rider problem and then it urges the firms to invest less

on defense.Consequently, injury finding is positively related to the number of defendants.

[8]China's products were the most frequent subject to new antidumping measures in 2008 (41% of the 120 new measures) (Bown, 2009b). In addition, negative campaigns have underlined serious problems concerning chinese products: defective chineses tires, tainted pet food, toothpaste manufactured with a toxic chemical and toys coated with lead paint...

[9]To simplify we assume that this campaign is not costly for the Northern firm and there is no uncertainty concerning the success of this campaign.

[10]Like Moore (2005), we assume that if the Southern firm accept to cooperate in the investigations then the administering authority will less severe. By withholding informations, the southern firm decreases the probability of winning the petition compared with the cooperative case. Even if this assumption seems to be obvious, Murray (1991), Palmeter (1991) and Lindsey (1999) argue it is probably not consistent with the US department of commerce procedure. Nonetheless, Blonigen (2003) claims it is not a "serious criticism" of Moore's model.

[11]Consumers' interests are not mentioned in the WTO Antidumping Code. Considering the case where the government only cares about producer welfare, we have $W2 = \pi + t \cdot D^*$ and then $\frac{\partial W2}{\partial t} = 0 \Leftrightarrow \widehat{t_{F2}} = \frac{1}{4}[1 - c + 7\varepsilon(1 - \underline{\alpha})]$ or $\widehat{t_{A2}} = \frac{1}{4}[1 - c + 7\varepsilon(1 - \overline{\alpha})]$. Unsurprisingly, the optimal tariff without considering consumers'intersests will be higher. In this case, the sensibility of the anti-dumping duty to ε and to α is also higher and the following conclusions will not change.

[12]The prices and the demands at the equilibrium are in the appendix of this paper.

[13]Proof in appendix 2.

[14]Proof in appendix 3.

[15]Proof in appendix 4.

[16]Proof in appendix 5.

[17]Proof in appendix 5.