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Industrialists Hand in Hand with Environmentalists: How Eco-labeling Schemes Can Help Firms to Raise Rivals' Costs

Gilles Grolleau, Lisette Ibanez, Naoufel Mzoughi

Abstract: Industrialists may promote eco-labeling schemes in order to gain the support of environmentalists and ultimately gain market protection. Beyond the environmental effects of such coalitions, these schemes can provide industrialists a legitimate way to disadvantage rivals, frequently foreign rivals, by raising their costs. We consider a Stackelberg model that determines the conditions under which a domestic firm has incentive to impose an eco-label in order to raise the costs of its foreign rivals. The effects of eco-labeling on domestic social welfare are ambiguous. Policy recommendations are drawn. Notably, factors that may help policy makers to identify situations more vulnerable to undesirable outcomes from a welfare viewpoint are developed.

Key words: eco-labels; environmental protectionism; raising rivals' costs.

JEL Classification Numbers: L15; Q18; Q29.

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"National eco-labeling programs are strongly biased towards domestic industry standards, both intentionally and unintentionally."(Piotrowski and Kratz, 1999, p. 432)

1. Introduction

Eco-labeling schemes provide purchasers with easy-to-use information about the environmental impacts of production methods or materials. By providing useful environmental information, demand and hence supply of products produced by methods detrimental to the environment should decrease (Teisl and Roe, 1998). Because of their strong potential to improve environmental performances of manufacturers, credible eco-labeling schemes frequently benefit from the support of environmentalists (Körber, 1998; see also Yandle, 1983, 1999a, 1999b).

Most economic studies addressing eco-labeling schemes focus on producer-consumer relationships by analyzing the capacities of eco-labeling schemes to attenuate market failures due to informational asymmetry (*e.g.*, Teisl and Roe, 1998; Karl and Orwat, 1999; McCluskey, 2000) or consider eco-labeling as a form of quality differentiation (*e.g.*, Amacher *et al.*, 2004; Crespi and Marette, 2001). Apart from concerns expressed in the popular press or specialized literature (*e.g.*, West, 1995; Sasidharan *et al.*, 2002; Vitalis, 2002), the possible strategic manipulation of eco-labeling schemes remains largely ignored in the academic literature. For instance, brominated flame retardants manufacturers alleged that they were excluded from the Blue Angel eco-label criteria as follows:

> There is no equality of access to domestic and foreign producers in the consultation process. National industry may be invited to give its views, but the process may ignore the directly relevant input - even where this has been submitted, albeit unsolicited - of foreign producers. In the case of the recent amendment of the Blue Angel label for computers and printers, for example, Siemens was invited to present its views on the

> criteria under consideration. Yet Siemens has an interest in having brominated flame retardants excluded from eco-label criteria: it is investing heavily in the development of alternative flame retardant technologies, particularly for use in printed circuit boards, which is proving to be extremely difficult and extremely expensive. There are no German companies producing brominated flame retardants for use in electronic equipment who might be invited to present their views. Nevertheless, brominated flame retardant manufacturers did make submissions to the German authorities, but these were never formally accepted and there is no indication they were even read.[1]

For the foreign manufacturers of brominated flame retardants, the Blue Angel process was trade distorting and discriminatory. Indeed, the ecolabeling process gives, inadvertently or not, a natural advantage to the domestic company (*i.e.*, Siemens) by excluding foreign producers from the consultation stage. Given the interest of domestic firms in alternative technologies, brominated flame retardants were not taken into account in the ecolabel criteria setting. Several other examples (*e.g.*, the "dolphin safe" case analyzed by Körber (1998) or the ecolabeling of cut flowers on the German market reported in Appendix 1) illustrate how some industrialists and environmentalists[2] may join forces in order to promote ecolabeling schemes that may provide environmental benefits and harm competitors. Indeed, the convergence of interests can reinforce the position of each. Such coalitions working under the banner of "environmental protection" have already been stressed sparsely in the literature, notably in the "bootleggers and baptists" theory (Yandle, 1983, 1999a, 1999b).

While unspecified environmental policies have been considered in the literature[3], the political-economy analysis of the use of ecolabeling schemes for serving both environmentalists and industrialists' interests remains to be done. To fill this gap, we contend that the eco-labeling process can constitute a strategic mean to shape the future competitiveness of certain firms, regardless of its environmental considerations. Our analysis differs from many to date on three main aspects.

- ✓ First, it treats the eco-labeling process as a strategic variable that can be manipulated by some firms, neither to differentiate from rivals nor to inform consumers, but to disadvantage rivals

by raising their costs. Environmentalists are likely to support (maybe unwittingly) the firms' strategy.

- ✓ Second, it applies the raising rivals' costs (RRC) theory in a new context. Indeed, since the seminal contributions of Salop and Scheffman (1983, 1987), most research using the RRC theory has focused on how a firm raises its rivals' costs by developing exclusive relationships with downstream or upstream firms.
- ✓ Third, it stresses the interactions of different interest groups, their influence on the outcome that may diverge from the social optimum that a perfect and benevolent planner would choose.

In the narrower eco-labeling literature, it is argued that eco-labels may serve protectionist purposes. Ecolabels can restrict market access to foreign products by requiring environmental criteria that are more difficult to satisfy for foreign firms than for domestic ones. If we assume that domestic and foreign goods are differentiated on the degree of environmental friendliness and that domestic consumers prefer environmentally friendly products, domestic ecolabels may be promoted to increase the market power of domestic firms and harm foreign rivals. Tian (2003) argues that a regulatory increase in the minimum required level of environmental friendliness of imported goods not always benefits the domestic firm but might result in an increase of the foreign firm's market share. This means that firms in developed countries should not necessarily exert pressure on their governments to impose a certain level of friendliness for imported goods. Greaker (2006) shows that it may be optimal to introduce a voluntary ecolabel instead of setting a minimum standard only if the willingness to pay for green products is sufficient. The resulting market outcome will be less distorted. In both cases, eco-labeling is used to differentiate products but is not considered to modify production costs as we argue in this article.

The RRC literature originates in the contributions of Director and Levi (1956), Nelson (1957), and Williamson (1968). Williamson explicitly focused through the Pennington case on the use of uniform wage rates to induce labor-intensive producers to exit a particular industry. According to Scheffman and Higgins (2003), the RRC approach was developed to analyze several monopolization cases faced

by the Federal Trade Commission (FTC), such as Dupont De Nemours (allegations of predatory capacity expansion), Kellogg (allegations of predatory product proliferation), and the most famous case in the history of antitrust, the Standard Oil case (Scheffman and Higgins, 2003; Granitz and Klein, 1996). The premise of the RRC theory is that firms can interfere in input or upstream markets in ways that reduce the profits of rivals. In most of the studied cases, the predatory firm attempts to raise its rivals' costs by developing an exclusive relationship with strategic suppliers. This relationship encompasses a wide range of contracts, from input overbuying to "naked exclusion" where the supplier is committed contractually or tacitly not to sell inputs to the rival firms[4].

Although other potential applications, such as influencing product standards, were clearly suggested in Salop and Scheffman's (1983, p. 267) seminal contribution, they have attracted relatively little attention[5]. Inspired by the general framework of Salop and Scheffman, Depken and Ford (1999) choose a Stackelberg leader-follower duopoly to analyze the interest for firms to comply to costly standards. The advantage of complying with NAFTA (North American Free Trade Agreement) rules is the reduced tariff rates. Numerical simulations put to the fore the role of the cost structure advantage for firms to comply or not to the NAFTA filing regulations but no welfare implications are considered. Sartzetakis (1997) in a Cournot duopoly context studies the effect of emission permits' price manipulations on market equilibrium outcomes. His analysis shows an ambiguous welfare effect of RRC strategies. As far as we know, Körber (1998) is the only academic study which refers to RRC theory in analyzing eco-labeling schemes, but his analysis remains rather limited. It emphasizes how the interest groups have shaped the overall political outcome and its business consequences. Our paper extends his analysis by focusing quasi exclusively on eco-labeling schemes. Indeed, in analyzing the U.S. dolphin-safe laws, Körber just mentions that the support of some producers to the introduction of a dolphin friendly eco-seal could be interpreted as a RRC strategy.

Our article proposes a theoretical framework placed in a Stackelberg duopoly context. It explicitly considers transaction costs associated with the implementation of a RRC strategy (fixed cost incurred by a domestic firm) and discusses ambiguous welfare implications when the eco-labeling is partly due

to anti-competitive behavior (marginal production cost increase due to technology change is higher for the foreign firm than the domestic one), but it also has genuine environmental benefits (pollution reduction related to the technology change).

The RRC theory has been the subject of several criticisms –e.g., Boudreaux, 1990; Lopatka and Godek, 1992; Coate and Kleit, 1994 – which in general assert that the RRC theory lacks empirical evidence, does not consider alternative explanations (and consequently adds close to nothing), ignores rivals' counterstrategies and underestimates the difficulty to design and implement such a strategy. A recent review of criticisms and responses by RRC theory advocates is provided in Scheffman and Higgins (2003). Our goal is to change this by providing evidence in a persuasive way.

Our article is structured as follows. Section 2 sets out the different strategies related to raising rivals' costs. In section 3, a Stackelberg model is developed. We consider a three-stage game that allows determining the conditions under which a national firm has an incentive to impose a private eco-label in order to raise the costs of its foreign rivals. Eco-labeling is initiated by the domestic firm trying to convince consumers of the importance of a technology change that reduces the pollution impact on the environment. We assume that eco-labeling schemes have the properties of minimum quality standards (MQS), *i.e.*, there is no market segmentation. In other words, satisfying the eco-labeling criteria becomes *de facto* a condition for doing business. This assumption is realistic because in certain markets non eco-labeled products may become to some extent unmarketable because of wide consumer boycott, *e.g.*, the dolphin unfriendly tuna in U.S. (Reinhardt, 2000), a threat of reputational spillovers, *e.g.*, the Latin American cut-flower industry, or a use of eco-label requirements in regulatory MQS, *e.g.*, detergents without phosphates in several European countries (Barrett, 1992; see also the endnote 16 for anecdotal evidence). We show that equilibrium outcomes and national objectives may diverge. Section 4 draws policy recommendations. Section 5 concludes.

2. In the name of the environment: Raising rivals' costs through the eco-labeling process

A *conceptual* eco-labeling scheme[6] includes at least four stages: (1) selecting those product categories for which eco-labels would make the most significant improvement to the environment[7], (2) defining environmental product criteria using an objective and scientific evaluation, (3) evaluating products according to the previously defined criteria, and (4) signaling the environmental attributes. We argue that raising rivals' costs can occur at these different stages. If the environmental criteria proposed by industrialists correspond to environmentalists' objectives, a coalition is possible. In the economic theory of regulation (Stigler, 1971; Peltzman, 1976), the political arena (*e.g.*, standard setting bodies) is a marketplace where favours are bought and sold to the interest groups offering the highest bidders. When coalition between industrialists and environmentalists emerges, such a coalition makes it easier for politicians to favour both groups. In other words, the environmentalists lower the costs of favour-seeking for the industrialists. While environmentalists advocate publicly in the name of the environment, industrialists are more discrete and do not expose publicly their day-to-day tactics to reach their market protection objectives. So, in the following, we rather emphasize the means by which industrialists may attempt to disadvantage their rivals.

Defining distinct product categories to prevent competitors from differentiating their products

Defining a product category and its boundaries is a difficult process and "somewhat arbitrary" and is "likely to be the subject of much politicking" (Morris and Scarlett, 1996). According to West (1995) industry leaders have actively sought to narrow and manipulate the categories of products that are assessed, emphasizing that products in a given category should be functionally equivalent. In the case of light bulbs, for example, European light bulb manufacturers have fought hard to keep compact fluorescent light bulbs from being included into the same eco-labeling category as standard incandescent light bulbs –on the grounds that they do not perform the same functions. Compact fluorescent light bulbs are estimated to be six times as energy efficient as standard incandescent bulbs, yet standard incandescent bulbs account for over 90 % of the European market. Creating two separate categories of eco-labels, *i.e.*, one for compact fluorescent light bulbs and one for incandescent bulbs, results in two markets. Consequently, producers of the environmentally friendlier product may be harmed because many consumers will be unable to compare the products. Thus, by narrowing product

categories, dominant producers can both prevent producers of the most environmentally friendly product from differentiating their products with the eco-label and consumers from choosing the environmentally friendlier item[8].

Defining eco-label criteria to increase competitors' costs

Dominant enterprises can attempt to establish criteria that will favor their products and disadvantage their competitors. As in the model developed by Williamson (1968), they can attempt to establish criteria, which focus on those inputs more intensively used by competitors, bringing them in a disadvantageous position. The transportation input for producers located at various distances from the consumption marketplace seems an ideal candidate for such a strategy. This argument has been widely used in the debate surrounding the ecolabeling of cut flowers in the German market, allowing European producers to threaten the comparative advantages of South American producers. Foreign country producers generally consider these transportation related criteria to be unfair, as they negate any climatic advantage they would otherwise enjoy (Verbruggen *et al.*, 1995). Körber (1998, see also Reinhardt, 2000) provides evidence on the key role played by environmental activists in the RRC outcome of the "dolphin safe" policies. The Earth Island Institute, the main environmental NGO involved in the debate, which played (and still play) a major role in the tuna debate is frequently presented in media as being financially supported by the U.S. canneries[9] (Körber, 1998, p. 503; Marquez, 2005).

In some plausible circumstances, a firm may attempt to promote a less stringent minimum standard for the eco-label that will increase rivals' costs. For instance, Pablo and Fisher (2000, p. 377) "examine the behavior of a country that imposes a minimum standard (MS) on a good produced by a domestic firm and a foreign competitor. Depending on the size of the foreign market and the fixed setup cost, the domestic firm will lobby for the lowest MS that excludes the foreign firm or for no standard at all". Notice finally that a firm can also disadvantage rivals by delaying the official eco-labeling process. This allows the firm to impose its private standard on the market place, restricting the "room" for the future consensual standard (Besen and Farrell, 1994).

Defining monitoring procedures to raise rivals' costs

A firm that dominates the process of defining how the criteria previously selected will be monitored can manipulate the definitions to increase competitors' costs. For example, in the case of agro-food products, testing the level of pesticide residues makes sense according to the selected framework. The accuracy and the cost of the test depend on the range of pesticides tested, the level of detection for each pesticide and the procedures used to achieve the tests. Barzel (1982) stresses the importance of measurement costs to price multidimensional products. The result is that agents must spend resources on determining unique differences in product quality. One solution is for buyers to examine a proxy of product quality. But, sellers may have an incentive to manipulate the proxy measure in response to changes in market prices.

Nadaï (1998) examined the conditions of development of the European eco-label for detergents. A confrontation of two groups has shaped the negotiation of the detergent criteria. On one hand, there is the Soap and Detergent Industry's European Association (AIS), which includes all the major detergent producers with more than 95% of market share. On the other hand, there is the European Association of Environmental Detergent Manufacturers, which includes small and medium sized enterprises totaling about 5% of the European detergent market. Each group had a vested interest in defining criteria allowing their respective members to obtain free access to the eco-label (*i.e.*, without having to improve the environmental attributes of their products) and reduce access of the rival group. For example, the group of leading firms has proposed a specific test to check the detergent effectiveness. Despite its scientific basis, there was a strong presumption that this proposition was a cost raising strategy because of its expense (between 10000 and 15000 euros).

Last but not least, Piotrowski and Kratz (1999, p. 433) state that in India "for some firms the costs of testing for compliance with the Netherlands eco-label requirements for footwear could lead to a cost increase of up to 50 per cent."[10] Environmental activists are likely to support the initiatives aimed at strengthening the verification procedures without perceiving the induced effect on the competitiveness

of some firms. Indeed, environmental activists prefer credible programs that ensure the effective achievement and verification procedures play a key role to avoid cheap talk and reach such an outcome.

Disrupting the signaling phase to increase competitors' costs

Another way to increase competitors' costs is to create a noisy environment generating fear, uncertainty and doubt (the so-called FUD strategy in computer markets[11]) of consumers about eco-labeled products. Some firms might be tempted to develop dubious labels and messages, eco-label proliferation, specific substantiation for similar claims[12] and so forth, not necessarily false ones, in order to increase substantially the transaction costs of rivals who want to market credible eco-labeled products (Hilke and Nelson, 1984; Bougherara *et al.*, 2007). The development of an official standard for integrated farming in France was partially motivated by the need to reduce the noisy environment where each firm awarded its own eco-label. Interestingly, several consumer and environmental organizations played a major role in creating suspicion about the meaning of certain agrofood ecolabels in France.

To conclude this section let us stress that participation in standard setting groups, even if theoretically open to all stakeholders, is frequently dominated by industry interests. Because of lower organization costs, important financial and human resources and information asymmetries, big firms dominate the standard setting bodies relative to smaller competitors and other resource deficient stakeholders, such as final users, environmental associations or consumers' unions. In certain plausible circumstances, some firms may indirectly help non governmental organizations that will support their propositions. Consequently, "eco-labeling decisions would reflect the judgment of groups with the sufficient time and resources (personnel and financial) to participate in the eco-labeling process" (Sasidharan *et al.*, 2002, p. 168).

Under the hypothesis that a dominant firm adopts an ecolabel to lock consumers into a new consumption standard obliging rival firms to change technology, it is necessary to analyze the effect of such an eco-label strategy on market equilibrium outcomes and welfare.

3. The model

In this section, we propose an analytic model allowing us to study whether the adoption of an ecolabel in a RRC context is economically and socially justified. To do so, we consider a Stackelberg model with two firms, a domestic and a foreign, producing a homogeneous product. This means that the national firm chooses its output level (production capacity) with a natural first-mover advantage[13]. Then, given the output level of the national firm, the foreign firm is free to choose its optimal quantity level. Demand is given by the linear inverse demand function $p(Q) = 1 - Q = 1 - (x^D + x^F)$, where p denotes price ($p > 0$), Q represents industry output, and x^D and x^F are, respectively, the output chosen by the domestic firm and the foreign firm[14]. All production is sold in the domestic market. We compare a benchmark situation where firms propose a non eco-labeled product produced at identical costs with the situation where the domestic firm may want to impose an eco-label that raises rivals' costs by more than its own costs.

Benchmark case: Stackelberg equilibrium without eco-labeling

The subscript 0 denotes the situation without eco-labeling. We start by considering a Stackelberg duopoly where firms have constant identical production costs which, we suppose to be equal to zero.

The firms choose their output level so as to maximize their profits, which can be written $\pi_0^i = x_0^i(1 - x_0^i - x_0^j)$ where $i \neq j \in \{D, F\}$.

The game is played in two stages. The output choice of the domestic firm is observed by the foreign one before it makes an output choice itself. Resulting Stackelberg equilibrium quantities are $x_0^{*D} = 1/2$ and $x_0^{*F} = 1/4$. Let us further assume the national welfare to be $W_0^D = \pi_0^D + S_0^D - P_0^D$, where

S_0^D represents consumer surplus ($S_0^D = \frac{1}{2}Q_0^2$) and P_0^D designates pollution. We assume that pollution is measured per unit of production, *i.e.*, $P_0^D = zQ_0$, where z is a parameter that reflects the level of pollution that is emitted per unit of output. In the case where the pollution is related to the production or transport of the good, we assume that the national policy maker is concerned with the international pollution level. We suppose that $z \leq \frac{13}{24}$. In the opposite case, the national policy maker would prefer to prevent both domestic and international production, as the positive impact of the production and consumption do not outweigh the negative impact of pollution.

The Stackelberg equilibrium with eco-labeling

In the following, we study the effects on equilibrium of introducing an eco-labeling scheme in the previously defined market. The investment in an eco-label allows the domestic firm to impose a compulsory standard[15]. Even though eco-labeling imposes fixed costs on the domestic firm, it leads to a production cost advantage as the foreign firm must meet the domestic standard to export its products. The standard is not necessarily implemented by the national government, but might be implicitly required by customers or consumers.

A significant example relates to the discriminatory effect of the EU's eco-label for paper on U.S. producers. The latter claimed the ecolabel to be a hidden trade barrier, *i.e.*, through modified market demand rather than import trade rules[16]. A second example concerns the launch by Henkel of detergents without phosphates in Germany and France in the 1980s. This launch was accompanied by aggressive ads showing water eutrophization and benefited from environmental and consumer activism. Quickly, consumers were partially "locked into" the view that ecofriendly detergents are detergents without phosphates whereas the reality was not clear (Barrett, 1992). These two examples support the idea that the introduction of an eco-label drives the initial product out of the market. Only the new eco-labeled product is marketed.

Thus we suppose that implementation of the eco-label by the national firm is used as a strategic variable with the intention to raise rival's costs, *i.e.*, to impose a new homogenous product which is more expensive to produce for the foreign firm. The foreign firm necessarily complies to the new standard as there is no longer demand for non eco-labeled products.

So, we consider the Stackelberg duopoly where the eco-labeling scheme, initiated by the domestic firm, implies an environmental-related technological change denoted t. We suppose t to be a fixed parameter. Without loss of generality, we consider $t \in [0,1]$. The domestic firm and the foreign firm have unspecified constant unit technological costs of c^D and c^F, respectively. Without loss of generality, we consider $c^D \in [0,1]$ and $c^F \in [0,1]$. We still assume production costs to be identical for the two firms and equal to zero, in order to focus on the eco-labeling effect only. We assume the domestic firm to be the instigator of the eco-labeling scheme, which causes it to incur a fixed cost denoted L. As mentioned above, the moral support of environmental activists may lower the fixed costs incurred by the instigator. The introduction of such cost is somewhat original, in the sense that preceding studies devoted to RRC analysis do not explicitly consider the transaction costs incurred by the predator in order to design, implement, and enforce the RRC strategy in their models. Under these conditions, the profit functions are $\pi^D = x^D(1 - x^D - x^F) - c^D x^D - L$ for the domestic firm, and $\pi^F = x^F(1 - x^D - x^F) - c^F x^F$ for the foreign firm.

The game between the two firms consists now of three stages. In the first stage the domestic firm chooses whether it adopts the eco-label (requiring a technology change, *t*, for both the domestic and foreign firm) or not. In the second stage it chooses its level of production. In the third stage the foreign firm chooses its level of production. Resulting Stackelberg equilibrium quantities now depend on technology change production costs: $x^{*D} = (1 + c^F - 2c^D)/2$ and $x^{*F} = (1 - 3c^F + 2c^D)/4$.

Under the hypothesis of a technology cost advantage $c^D < \frac{c^F}{2}$, an eco-label only constitutes a profitable RRC strategy if the fixed eco-labeling cost related to the technology change, L respects the following condition:

$$L \leq \overline{L} = \frac{1}{8}\left[(1 + c^F - 2c^D)^2 - 1\right] \tag{1}$$

Impact of environmental technology change through eco-labeling

The comparison of the Stackelberg equilibrium with eco-labeling with the benchmark case allows us to analyze the impact of a technology change both on profits and social welfare.

Proposition 1: $\forall c^D > 0, c^F > 0$, *the overall production level is always lower in the case with an eco-label than without* ($Q^* < Q_0^*$) *;*

- *for* $c^D > \frac{c^F}{2}$, *the domestic firm produces less than the benchmark case (or excluded from the market for* $c^D > \frac{1 + c^F}{2}$*);*
- *for* $\frac{3c^F - 1}{2} \leq c^D \leq \frac{c^F}{2}$, *the domestic (foreign) firm produces more (less);*
- *for* $c^D \leq \frac{c^F}{2}$ *and* $c^D \leq \frac{3c^F - 1}{2}$, *only the domestic firm produces. The foreign firm is excluded from the market.*

Proof:

We have $x_0^{*D} + x_0^{*F} > x^{*D} + x^{*F}$ if $c^D > 0$ and $c^F > 0$.

If $c^D > \frac{c^F}{2}$, $x^{*D} = \max(0, \frac{1}{2} + \frac{c^F - 2c^D}{2}) < x_0^{*D}$.

If $c^D \leq \frac{c^F}{2}$, $x^{*D} = \frac{1 + c^F - 2c^D}{2} > x_0^{*D}$ and $x^{*F} = \max(0, \frac{1 - 3c^F + 2c^D}{4}) < x_0^{*F}$

QED.

A technology change necessarily increases unit costs for both firms, always reducing the overall amount of production (through a price increase). The individual production levels due to an increase in production costs may however increase or decrease.

As the domestic firm decides whether to adopt an eco-label or not, we only focus on the two cases where the eco-label allows the domestic firm to increase its production level (this will occur if it has a cost advantage such that $c^D < \frac{c^F}{2}$). For instance, the incorporation of the transport-related-emissions in the eco-labeling criteria penalizes the foreign and farther producer much more than the domestic one. The first case corresponds to $x^{*D} > x_0^{*D}$ and $x^{*F} < x_0^{*F}$ in which the foreign firm loses a part of its market share due to a cost disadvantage. The second case corresponds to $x^{*D} > x_0^{*D}$ and $x^{*F} = 0$ in which the foreign firm is driven out of the market. So contrarily to the more ambiguous results of Salop and Scheffman (1987), we found that profitable cost-raising strategies result necessarily in a price increase, a decrease of the foreign production and an increase of the domestic production.

However the cost-advantage $c^D < \frac{c^F}{2}$ is not a sufficient condition for the domestic firm to adopt an eco-label. The domestic firm chooses to adopt the label only if doing so increases the domestic firm's profits and thus condition 1 applies. We can see that its technology decision depends highly on the related cost increases: the greater its technology cost advantage, the higher the maximum limit value, $\overline{L}$. This case is not considered by Salop and Scheffman as they do not distinguish between fixed and variable costs related to a technology change.

Considering that the introduction of the eco-labeling scheme and the subsequent technological change has an impact on the pollution emission level, the total national welfare becomes $W^D = \pi^D + S^D - (1 - \alpha t) P^D$. Thus, a technology change not only implies a cost increase but also a reduction in the pollution level per unit of output. The higher the parameter $\alpha \in [0,1]$, the higher the

benefit (in terms of pollution reduction) of a technological change. If $\alpha = 0$, the technology change has no positive impact on the environment. Then for all α such that $\alpha \geq \overline{\alpha} = \frac{(Q_0^* - Q^*)}{tQ^*}\left[\frac{\frac{1}{2}(Q_0^* + Q^*)}{z} - 1\right]$ the negative impact of an eco-labeling scheme in terms of a decrease in consumer surplus (through a reduction in consumption) is lower than the positive impact in terms of pollution emission reduction. In other words, the loss resulting from the "anti-competitive" behavior is lower than the gain resulting from the environmental improvement. The threshold value $\overline{\alpha}$ increases with the relative consumption reduction and decreases with the marginal pollution level (z) and the technology change level (t). Due to the introduction of an environmental benefit associated to the technology change we obtain more ambiguous results than Salop and Scheffman (1987) who found that a price increase always reduces consumer welfare.

Nevertheless, the positive impact on the domestic producer's profit needs also to be taken into account in order to determine the socially optimal outcome. A policymaker will support a RCC strategy only if the overall domestic welfare increases with the implementation of an eco-labeling scheme. On the contrary, it could intervene in order to ban the anti-competitive behavior of the domestic firm.

Proposition 2: *A RCC strategy is beneficial for the domestic country if*

$$L \leq \hat{L} = \overline{L} + \frac{3}{4}\alpha tz - \frac{(2c^D + c^F)}{32}(6 - (2c^D + c^F) - 8(1 - \alpha t)z) \tag{2}$$

Proof:

$W^D \geq W_0^D \Leftrightarrow L \leq \hat{L}$

QED.

Equation 2 shows that the domestic welfare depends on the fixed labeling cost incurred by the domestic firm. If the RRC variables overlap environmental purposes, this cost can be lowered thanks to the help of environmentalists. The threshold value will be higher or lower than threshold value for the domestic firm according to the impact of the technology change on the pollution level and the

consumption decrease (through the cost increase). We should notice that, under certain conditions, a RCC strategy is never socially optimal ($\hat{L} < 0$). This leads us to the discussion of the overall impact of eco-labeling in terms of the national welfare W^D which allows us to distinguish different overall outcomes resulting from the RRC strategy (Table 1).

[Insert table 1 around here]

By comparing equations (1) and (2), we can determine $\bar{z}$ for which $\hat{L} = \bar{L}$:

$$\bar{z} = \frac{(2c^D + c^F)(6 - (2c^D + c^F))}{(2c^D + c^F) + \alpha t(3 - (2c^D + c^F))} \tag{3}$$

Then we can determine situations for which the private interest of the domestic firm does not coincide with the global national objective; *i.e.*, the equilibrium outcome is undesirable from a national welfare point of view.

Proposition 3:

- *For* $z < \bar{z}$ *and* $c^D < \frac{c^F}{2}$ *, there exists* $L \in \left]\hat{L}, \bar{L}\right]$*, for which the equilibrium outcome (eco-label adoption by the domestic firm) does not coincide with the social optimum (no technology change) (case B)*
- *For* $z \in \left[\bar{z}, \frac{13}{24}\right]$*, there exist* $L \in \left]\bar{L}, \hat{L}\right]$*, for which the equilibrium outcome (no eco-labeling by the domestic firm) does not coincide with the social optimum (technology change) (case C)*

Proof:

We have $L \leq \hat{L} = \bar{L} + \frac{3}{4}\alpha tz - \frac{(2c^D + c^F)}{32}(6 - (2c^D + c^F) - (1 - \alpha t)z) = \bar{L} + A$.

Then $A < 0$ (and thus $\hat{L} < \bar{L}$) if $z < \bar{z}$ and $A \geq 0$ (and thus $\hat{L} \geq \bar{L}$) if $z \geq \bar{z}$.

QED.

So there exists two situations where private and public interests diverge. The first one occurs when the environmental impact of the product is low and the technology cost advantage for the domestic firm sufficiently high. In this case, the domestic firm uses eco-labeling to disadvantage the foreign firm. Then, as the resulting decrease in consumption outweighs the change in welfare associated with the pollution decrease, the national welfare is harmed by the RRC strategy. Firms may easily legitimate their requirements by environmental arguments and gain the support of credible parties, such as consumers and environmentalists unions that do not necessarily take into account the overall effect on rivals and on social welfare[17]. Indeed, some activists are somewhat "narrow-minded" and focus their efforts on a specific environmental issue (*e.g.*, water pollution by phosphates). Consequently, they are more likely to support an industrialists' strategy that overlap their specific field of interest, regardless of the overall effects of this strategy. The second situation corresponds to the one where a RRC strategy would be socially desirable but where the domestic firm does not implement an eco-labeling scheme. This situation will occur when the environmental impact of production is high and where the domestic firm faces a relatively high fixed cost to implement the eco-label (*i.e.*, exceeding the domestic firm's threshold value, $\overline{L}$).

This result is new and highlights the intuitive results of Salop and Scheffman (1987) that a technology change has an ambiguous effect on equilibrium welfare. It distinguishes the two situations described above for which a disinterested governmental intervention could be justified. Indeed, in the former situation (case B), the domestic government could counterbalance the eco-labeling of the domestic firm by informing consumers on the low environmental benefit of the technology change. Normally, consumers should not totally lock into the new consumption pattern and there remains demand for non eco-labeled products. In the latter situation (case C), the domestic government could try to may consumers boycott non-ecolabeled products or implement an efficient ecolabeling scheme in order to bear the fixed cost instead of the domestic firm.

Although the situations above are theoretically well identified, the real world is more complex, making the dividing line between cases difficult to draw. In the following section, we examine some factors

that may help policy makers in identifying situations more vulnerable to undesirable outcomes from a welfare viewpoint.

4. Policy recommendations

Proving the anti-competitive *intent* and/or the anti-competitive *effect* of the dominating firm remains a difficult task, especially if environmental groups or other activists lobby to get the same ecolabeling criteria. The activists' interference in the process puts at the forefront the protection of the environment while the industrialists persuade quietly decision makers to auction off the market protection. In most cases faced by the FTC (Scheffman and Higgins, 2003) lawyers failed to prove that firms' strategies were effectively cases of antitrust. As far as we know, most reported cases faced by the FTC were not directly related to environmental issues[18]. Nevertheless, some cases faced by courts were related to voluntary standard setting that is similar to the design of ecolabel criteria, like the case of Allied Tube & Conduit Corp. v. Indian Head, Inc (Ben Youssef *et al.*, 2005)[19]. In addition, it seems obvious that firms will not claim publicly their use of such strategies.

Moreover, anticompetitive effect may be perceived differently according to the producers that are disadvantaged. It seems obvious that the predator and the rivals have interests in focusing on different effects resulting from the strategic parameter. The predator (conversely rivals) has vested interests in over-emphasizing the environmental harm (conversely the competitive effects) and weakening the subsequent competitive impacts (conversely the environmental benefits). Here, it seems obvious that environmentalists are likely to reinforce the strategy of the predator, especially if the championed cause is well-known and more likely to benefit from a strong public support. For example, the Siemens and dolphin cases are quite different in people's perceptions. While the fate of dolphins is emblematic and attracts a wide audience in the U.S., the difficulties encountered by foreign manufacturers of brominated flame retardants are less likely to gain a similar support. The role of environmentalists is evident in the tuna case (Körber, 1998) and in the cut flower case (Appendix 1). Interestingly, environmentalists may differ in their environmental purposes.

Without purporting to be exhaustive, we can similarly to Hillman and Ursprung (1992, 1994) distinguish NIMBY [Not In My Back Yard] or locally interested environmentalists and NIABY [Not In Anyone's Back Yard] environmentalists or environmentalists that seek to preserve the environment, regardless of any location bias. To implement a RRC strategy coupled with environmentalists' support, industrialists may select adequate environmental considerations, *e.g.*, local criteria that both meet NIMBY environmentalists' demands and disadvantage foreign rivals. Interestingly, Gary N. Horlick, a trade lawyer noted that most eco-labels are attributed to domestic companies rather than their foreign competitors. In Germany, just 17 per cent of the companies receiving Blue Angel seals are foreign. In Japan, the figure is 2 per cent. "The trade concern is, the people setting the criteria are going to be local. Even if they are acting in good faith, they are going to respond to local needs, which may not be the most environmentally sound over all" (Wildavsky, 1996).

In the case of environmental impacts of transportation, players may 'instrumentalize' the different transportation modes, for example by focusing on a few used modes (*e.g.*, air transport *versus* rail transport) in order to discredit rivals regardless of the most used transportation means. Differences in environmental issues among countries may also be "instrumentalized" in order to disadvantage foreign producers (Verbruggen *et al.*, 1995; Piotrowski and Kratz, 1999; Sasidharan *et al.*, 2002). In the real world, for variety of reasons –*e.g.*, political support, ideological protectionism – domestic governments may be more sensitive to arguments emanating from domestic producers and environmental activists, regardless of their validity.

If we postulate that public authorities are benevolent welfare maximizers, identifying sectors where such RRC strategies are more likely to be used and generate adverse results, may help policymakers to target their actions and increase the efficiency of public resources. Without providing a definitive answer to this issue, we suggest that institutional, technological and environmental heterogeneity between producers is likely to favor the emergence of such RRC strategies. Indeed, if producers use different technologies, increasing the cost of using a given "technology", can affect certain producers without harming the predator in the same proportion. Conversely, if all producers are identical, a RRC

is likely to have an equivalent impact on all the firms, making the strategy useless. If environmental priorities vary among producers, a RRC strategy may be more likely to occur. These three factors, *i.e.*, institutional, technological and environmental heterogeneity, are likely to play a major role in shaping the cost differential that the eco-label introduction may cause.

Furthermore, the use of RRC strategies with several sophisticated variants[20] (Lyon, 2003) and the responses by public authorities are likely to increase the transaction costs in the economic system. Most models analyzing RRC strategies do not consider the transaction costs incurred by the predator in order to design, implement, and enforce the RRC strategy, but only the increase of its own production costs subsequent to the "direct" effect of the RRC strategy such as the increase of the transportation cost. Indeed, such transaction costs may be substantial, *e.g.*, the costs of providing scientific basis to introduce transportation environmental effects, attending the meetings, delaying the standard setting process and so on. Again, these costs may be lowered by the lobbying of activists that will provide legitimacy to the industrialists' initiatives. The "rules of the game" defining the participation conditions of different stakeholders may also inadvertently facilitate or obstruct the implementation of a RRC strategy. The above factors are likely to shape the fixed cost of implementing a RRC strategy

Finally, rivals are likely to adopt counter-strategies to defeat the predator's attempt to obtain an advantage over its competitors (Boudreaux, 1990). Public authorities may incur significant costs in analyzing the overall impact of such strategies, especially with strong information asymmetries. Piotrowski and Kratz (1999), among others, have recommended that the governments revise and enforce more adequate "rules of the game" (*e.g.*, fair representation of all stakeholders in standard setting organizations or mutual recognition in eco-labeling schemes) to achieve the environmental objectives of eco-labels and avoid strategic discrimination.

5. Conclusion

Despite attracting promises of reconciling the marketplace and environmental considerations, we have shown how eco-labeling schemes may be used to disadvantage rivals with the (unwitting) support of environmentalists. Environmentalists and industrialists can join forces to get in the eco-labeling arena environmental and market protection. We have suggested a new and fruitful application field of the RRC theory. We have shown that anti-competitive eco-labels (or other pro-environmental devices) may be legitimized on the ground of environmental improvement. Eco-labeling can have a negative impact on the domestic country if the intention of the domestic firm is to obtain a cost advantage compared to its rival. Nevertheless, an eco-label may favor national social welfare if the environmental benefit related to a technology change is sufficient. We also highlight the situation where the environmental benefit is sufficiently high but where the domestic firm is not willing to invest in an eco-label to get a technology cost advantage.

Our analysis may provide helpful elements for the debate related to the trade effects of eco-labeling schemes between developed and developing countries. It may also play a strong role in discussing the effects of "locally grown" or "locally made" label encouraging consumers to consume products made near to the consumption place (Pirog and Shuh, 2000). Many extensions can be analyzed. The strategic manipulation of credible third parties such as consumers or environmentalist unions (Grolleau *et al.*, 2004) constitutes a challenging issue.

On the analytics, while we focused on the cost effect of eco-labels, relaxing the assumption of homogenous products and allowing for the differentiation of the supplied goods is also a challenging issue. This way, the adoption (or not) of eco-labels by a firm can affect the relative cost structure as well as the degree of differentiation between the rivals' offerings. Moreover, the results could be somewhat modified by general equilibrium effects. Indeed, it is necessary to model how a RRC strategy in a given sector may affect other sectors (Salop and Scheffman, 1987). Finally, more is necessary to go further on the empirical side. Empirical tests of the insights developed above are especially challenging because intentions are frequently hidden and necessary data not available

publicly. Empirical tests may allow detecting a RRC outcome leading to suspicion about a potential RRC strategy without proving its intentionality.

Footnotes

[1] Brominated Flame retardants and Eco-labeling Schemes, 1997, EBFRIP (European Brominated Flame Retardant Industry Panel) legal complaint, http://www.firesafetyinfo.org/Environment/eco-shemes.htm.

[2] We do not assume that all industrialists and environmentalists involved in ecolabeling schemes are driven by strategic considerations. Conceptually, agents may be positioned on a two axis space with purely benevolent industrialists and environmentalists at one end and malevolent or gullible industrialists and self-serving pseudo-environmentalists at the other end.

[3] In the international trade literature, several contributions are devoted to cases where environmental and labor standards or policies are potentially used as protectionist devices (Sturm and Ulph, 2002 for a recent review and the references therein). Of particular interest, are the contributions of Hillman and Ursprung (1992, 1994) who have considered commonality of interests between environmentalists and industrialists in an electoral competition model in which the government can be lobbied by domestic and foreign firms and by domestic environmentalists. "The principal general conclusion is that environmentalists need to consider carefully the underlying consistency between their environmental objectives and their position on trade policy, in particular since there are strategic considerations involved which make the environmentalists potential bedfellows of interests that have less pure objectives in influencing trade policy than the environmentalists impute to themselves" (Hillman and Ursprung, 1994, p. 75).

[4] "Sleeping patents" (Gilbert, 1981) are also a form of input overbuying in order to raise competitors' costs.

[5] Exceptions include Hilke and Nelson (1984), Scheffman (1992), Sartzetakis (1997), Depken and Ford (1999), McWilliams *et al.*, (2002) and Lyon (2003).

[6] We describe such a conceptual scheme for ease of exposition and as a comparison basis. Of course, it does not reflect the complexities of real world ecolabeling schemes.

[7] The most significant improvement to the environment is difficult to capture in the real world. For example, some involved parties may advocate, in good faith, for environmental criteria that address local needs, regardless of other environmental issues elsewhere.

[8] There may be non-cost reasons why compact fluorescent light bulbs are less popular than standard bulbs (*e.g.*, the light produced can be perceived as being different). As suggested by a referee, we do not believe that their different European-market shares has a necessary connection with manufacturers' effort to keep them in different eco-labelling categories or markets.

[9] The authors do not confirm or infirm this opinion.

[10] The consumers may appear as the missing group in the described examples. Of course, these examples are somewhat simplified to ease exposition. Nevertheless, even when consumers participate, they may lack technical abilities to "decipher" all raised points.

[11] "Fear, Uncertainty and Doubt" is an expression first used by Gene Amdahl who left a lead engineer post in IBM to form his own company, and used the term to describe the aggressive marketing strategy employed by IBM to thwart customers from choosing Amdahl Corporation's products.

[12] For example, the claim "GMO free" supposes a previous definition of GMO product itself, the choice of a detection threshold and the level of investigation of the food into agro-food chain (*e.g.*: What is it about cow's milk fed cereals from GMO seeds?) (See Caswell, 2000 for an example applied to international trade of GMO).

[13] A domestic firm may have a natural first-mover advantage because it is better informed on national administrative procedures, market characteristics and demand. It should be noticed that similar results are obtained for a simultaneous decision framework.

[14] Throughout the article, the superscripts D and F denote the domestic firm and the foreign firm, respectively.

[15] The first-mover advantage is even more obvious in the case where the national firm is the instigator of the MQS. In order to focus on the effect of a MQS only, we have supposed a Stackelberg equilibrium for the benchmark case as well. In a simultaneous-move game (Cournot equilibrium), the leader would have been worse off whereas the follower would have been better off.

[16] "Although the EU's eco-label program for copy paper is voluntary, the U.S. pulp and paper industry charges that the labeling program will pose a severe trade barrier – one that will translate into lost market share in Europe (…). Although the label is not required, and therefore products without the label will not be stopped at customs, American Forest & Paper Association said many European retailers, such as in Sweden, may refuse to allocate substantial shelf space to products without the label and that the new strict criteria developed may be used by governments as guidelines for procurement of "environmentally preferable" paper products." Anonymous, 1996, EU's new "eco-label" called trade barrier, *Pulp and Paper*, October, 19-21.

According to Elizabeth Seiler, director of the environmental affairs department of the Grocery Manufacturers of America, "in the grocery trade, some retailers have made it [eco-label] a price of entry into the market. To have shelf space in Norway for laundry detergent, you have to have the Nordic Swan." (Wildavsky, 1996).

[17] An example *à la* Machiavel can be a producer funding an independent environmental association aiming at purchasing pollution permits. On one side, the environmentalists want to reduce the overall pollution by acquiring pollution permits that are removed from the market. On the other side, the producer wants to raise the costs of its competitors that will have to incur higher costs in order to get pollution permits.

[18] Interestingly, Grodsky (1993) provides several cases of eco-labeling strategies where the FTC intervened but without refereeing explicitly to a RRC framework.

[19] In 1980, Indian Head, a producer of plastic electric conduits, asked the National Fire Protection Association, one of the main private associations for standardization in this domain, to certify in its 1981 National Electrical Code (NEC) – the reference in several U.S. states – that its plastic products satisfy safety regulations. At time, only metal conduits were approved in the code. The steel industry members and the steel electric conduit manufacturers decided to make the approval failing so that plastic conduits do not be approved by the NEC. To reach their purpose, they recruited and remunerated 230 new members who were intended to vote against the project of Indian Head. These new members had no technical competencies on the points that were debated, and were previously

trained to voting only (*e.g.*, by using talkies-walkies to vote). The costs incurred by the instigator (registration fees for new members, participation to the meeting, etc.) were estimated to U.S. $ 100 000. As a result of this strategy, the Indian Head proposition was rejected (390 votes for and 394 votes against) and his products were excluded from the markets referring to the NEC. This problem was solved by the Supreme Court who condemned the exclusion and imposed damages to Allied Tube. Finally, the NEC integrated progressively, since 1984, the plastic conduits.

[20] The only limit to RRC strategies is the ingenuity and imagination of economic agents.

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Table 1: Welfare Resulting from the RRC Strategy

	Domestic Firm's Decision	Introduce the eco-label	Not introduce the eco-label
Impact on welfare	**Conditions**	$c^D < \frac{c^F}{2}$ and $L < \overline{L}$	$c^D > \frac{c^F}{2}$ or $L > \overline{L}$
$W^* > W_0^*$	$L < \hat{L}$	Case A Public and private interests converge	Case C Public and private interests diverge
$W^* < W_0^*$	$L > \hat{L}$	Case B Public and private interests diverge	Case D Public and private interests converge

Appendix 1: Eco-labeling schemes in the German market of cut flowers

"The experience of Colombian exporters of cut flowers to Germany provides an example of the impact which a powerful domestic NGO-driven voluntary eco-label can have on a developing country's trade prospects" (OECD, 2002).

The cut flower market is relatively saturated and largely dominated by the Dutch and Colombian producers with respectively 56.5% and 14.1% of world export in value in 1995[1] followed by other countries, *i.e.*, India, Thailand, Kenya, Tanzania, Costa Rica, Ecuador and Zimbabwe (Liemt, 2000). While the production costs of flowers in greenhouses are relatively high and only possible in Europe (notably in the Netherlands) thanks to subsidies (Grote, 1999), developing countries such as Colombia benefit from lower production costs due to favorable climatic conditions and cheap workforce (Wijk, 1994). Germany is one of the world's biggest markets for cut flowers. The yearly turnover of German flower shops is about €3.2 billion euros with 82 per cent of these flowers from imports, mainly from the Netherlands and secondly from Colombia.

In the early 1990s, several European and especially German non-profit organisations (*e.g.*, Food-First Action, "Brot für die Welt" [Bread for the World] and "Terre des Hommes") began campaigning against what they considered as unacceptable labour and environmental conditions in the flower-export industries of developing countries. Moreover, this network of NGO from developed countries was in cooperation with *Corporación Cactus*, a Colombian non-governmental organization. A particular-related event was the release in 1988 of the award-winning documentary, *Love, Women and Flowers*. It focuses on the conditions of women working in Colombia's flower industry showing female workers exposed to pesticides without respiratory protection and appropriate protective clothing (OECD, 2002). In 1994, environmental and human rights organizations joined together with the German Flower Wholesale and Import Trade Association (BGI) to discuss appropriate social and

[1] The share of Netherlands and Germany in world exports was quasi identical in 2004 (http://www.sadctrade.org/cutflowers).

environmental criteria for flower growing and require them from exporters. The attempts of the German flower importers organization (BGI) to "produce a voluntary declaration in which Colombian floriculturists would acknowledge compliance with environmental standards in force in Colombia and accordingly agree to submit to an environmental audit by a commission of Colombian and German experts" failed. According to Wijk (1994), the idea is that cut flower firms exporting to Germany should sign this declaration in order to be placed on a 'white list'. Instead, in 1996, *Ascoflores* decided to develop its own campaign, in part to counter the bad reputation and image that the developed-country campaigns were creating (WTO, 1998) with the *Florverde* (Green Flower) programme.

As part of the developed countries campaign, several labelling schemes (notably the "Flower Label programme" created in 1996) were launched in European countries in order to raise environmental and social standards in developing countries. While the global trade in cut flowers was expanding,[2] Colombia's flower exports to Germany registered a fall of nearly 25% in volume between 1992 and 1996 (OECD, 2002). In a paper submitted to Committee on Trade and Environment and to the Committee on Technical Barriers to Trade of the WTO, Colombia alleged that the main responsible of this decrease was the negative campaigns coupled with the discriminatory European ecolabeling schemes (WTO, 1998). Several technical details on the discriminatory dimensions of the German and Dutch eco-labeling schemes are reported in Verbruggen *et al.* (1995) and WTO (1998). For example, the eco-labeling requirement of German importers was, at that time only aimed at Colombian producers. Moreover, the criteria were not taking into account the natural conditions of foreign producers. Some schemes were likely to include energy criteria related to transports that would automatically put domestic producers at an advantage. For credibility reasons, some argued that the compliance with ecolabel criteria has to be achieved by German experts. "Despite the good intention of some of these pressure groups, the accusing studies and documents take isolated and not necessarily

[2] Flowers can be considered as largely substitutable by other gifts. Moreover, consumers may refuse consuming flowers because they perceive a dissonance between the gift nature and the ethical and environmental concerns.

verified cases as being representative of Colombia's flower-growing industry" (WTO, 1998). Verbruggen *et al.* (1995) concluded that "*eco-labelling reflects an offensive manoeuvre by an industry facing fierce competitive pressures*" (emphasis added). Grote (1999) supports a similar position by stressing the dominant role of domestic players and the use of European eco-labeling schemes to "serve the sector's own objectives of improving its competitive position". Interestingly, at the same period, tariffs on cut flowers in the European Union were progressively reduced in line with WTO commitments. The concomitant rise in the use of private voluntary eco-labels generates suspicion about a possible causal link between developed country tariff rate reductions and an increase in the use of such schemes (Vitalis, 2002).

A case like this inevitably foreshortens events, gives them more coherence and order than day-to-day life actually saw. Nevertheless, it supports the view that private and voluntary eco-labeling schemes may significantly affect competition. These programmes may allow coalitions between environmentalists and industrialists who join forces, but to reach different purposes. Indeed, environmentalists may pursue better environmental and social performances through stringent ecolabel criteria while industrialists may seek market protection in the ecolabeling arena (Tullock, 1967). This strategy echoes the bootleggers (the domestic producers) and baptists (the environmentalists) theory developed by Yandle (1983, 1999a).