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Self-Regulation by Associations:
Collective Action Problems in European
Environmental Regulation

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Abstract

How and to what effect do firms coordinate their actions in order to deal with the negative external effects of productive activity? Under which conditions do firm associations engage in environmental self-regulation and what kind of governance devices do they develop in order to tackle the specific regulatory challenges at stake? Is the 'shadow of hierarchy', the credible threat of legislation, executive intervention or court rulings, a necessary condition for associative action to emerge? Or is it only necessary if a redistributive problem is at stake? These are the questions discussed in this article. We will first develop the theoretical argument based on economic institutionalism, derive hypotheses and then submit the propositions to a first empirical assessment of associative self-regulation on waste recycling in the plastic and paper industry. (*129 words*)

Keywords

governance, self-regulation, shadow of hierarchy, transaction cost theory

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1. Introduction

How and to what effect do firms coordinate their actions in order to deal with the negative external effects of productive activity? Under which conditions do trade associations engage in environmental self-regulation and how do they tackle the specific regulatory challenges at stake? Is the 'shadow of hierarchy', the credible threat of legislation, executive intervention or court rulings, a necessary condition for associative action to emerge? Or is it only necessary if a redistributive problem is at stake? These are the questions discussed in this article. We will first develop the theoretical argument based on economic institutionalism, derive hypotheses and then submit the propositions to a first empirical assessment of associative self-regulation of waste recycling in the plastic and paper industry.

2. Theoretical Argument

The problems and processes of associative self-regulation may be theoretically grasped by applying concepts and propositions of new institutional economics and transaction cost theory (Brousseau and Fares 2000; North 1996; North 1990; Williamson 1975; Williamson 1996). If industrial processes produce negative external effects for human health and the environment and there is a public awareness of the problems of these effects, industry in general prefers to solve this problem by opting for self-regulation instead of being subject to legislation. In this situation firms may engage in discussions, often in the context of an association, to address the problem and propose self-regulatory solutions. They may form a contract laying down specific obligations which aim at reducing the negative external effects of firms' activities on the environment and human health. Self-regulation—although costly for private actors—has the advantage that the regulatory solutions provided are better adjusted to the specific problem at hand since private actors have more expertise in the area of regulation. In firms' views political collective rules frequently follow a different, political, rationale and, therefore, may be maladjusted to the regulatory problem at hand.

When drawing up a contract in which firms commit themselves to self-regulation, actors engage in a bargaining process. We assume that actors are rational utility maximizers, but boundedly so. They have limited knowledge of possible outcomes and solutions, they are uncertain about the future and are uncertain of other actors' objectives. Transaction costs will arise in the course of the search for possible solutions, in the bargaining of the contract and in the monitoring of actors' compliance with the contract. Given bounded rationality and transaction costs in the devising, agreeing on and implementation of regulatory solutions, the contract among firms will always be incomplete. Firms will not draw up a contract of cooperation that—in its provisions - anticipates every possible future contingency in the external environment and in actors' behavior. It will, therefore, be necessary to institute decision-making devices or, as Williamson argues, 'private ordering efforts' (Williamson 2002:178) on how to adjust the provisions of the contract in the course of its application. These decision-making devices are to ensure a successful coordination of actions after the contract has been adopted. They should provide a mechanism on how to adjust the contract provisions to new external conditions; they also are to secure the enforcement of the commitment of the contracting partners and to allow for a conflict settlement in case of a contradictory interpretation of contract provisions. These decision-making devices or governance rules that private actors establish for the purpose of a successful contract application may include supervision, arbitration and dispute resolution delegated to a third private actor. Alternatively, a negotiation structure may be established that provides for the re-negotiation of the contractual provisions each time a need of adjustment arises or a conflict between the contracting actors emerges. Or recourse may be taken to an existing public judicial system. These governance rules themselves are incomplete contracts, too, that may be open to interpretation and may need to be re-adjusted to new external conditions (Brousseau and Fares 2000:411).

Of course, self-regulation by industry couched in contracts between private actors are embedded in an overall space of pre-existing and evolving collective political rules. These rules may be more or less numerous. Private actors will have to take extant collective political rules into account that relate to the issue of self-regulation in question (Brousseau and Fares 2000; Granovetter 1985; North 1990). Hence, the choice between firms making their own rules (self-regulation) as opposed to the reliance on existing political rules/legislation is rarely an absolute one, but rather a combination of both. The reliance on public rules varies. Viewed as a continuum, at one end the option would be to entirely rely on legislation while at the opposite end of the continuum self-regulation by industry would be almost pure and only very marginally rely on public rules.

In most cases of self-regulation some political rule does play a role and has to be considered. The relationship between the political rules and self regulation of industry is at the center of our interest. What role does the shadow of hierarchy play in associative self-regulation? The shadow of hierarchy is usually seen in its threatening form, i.e. of negative sanctions in case of unsatisfactory self-regulation, such as a threat of legislation or a threat of executive intervention or a court ruling. However, it may also take the form of a positive incentive, such as government financially supporting private self-regulation or lending it public authority (see Héritier and Lehmkuhl 2008). We therefore ask: which type of shadow of hierarchy does have which type of inducement effect on private actors' self-regulation?

The most well-known form of shadow of hierarchy is legislative threat. When threatening with legislation, legislators will threaten to enact adverse legislation in order to take influence on firms' conduct, *unless* firms alter their behaviour in such a way as to oblige with the legislators' demands. By implication, they promise that they will forego legislation if firms comply with the demands. Compliance with legislative threats may be considered as a form of 'implicit political transaction, in which the legislator barter the non-use of legislative power ...in return for the firm's commitment to change its conduct' (Halfteck 2006:6). A threat of legislative intervention may be explicit, implicit or anticipatory. An explicit threat implies an unambiguous communication threatening legislation. Under an implicit threat, legislators signal a threat without a concrete communication or legislative plan. In case of an anticipatory threat there is neither an explicit nor an implicit threat, but a threat may be issued in the future (Halfteck 2006:34ff).

In a bargaining process over a contract of self-regulation that takes place in the shadow of a legislative threat, two aspects are of importance. Whether the firm is successfully induced to comply and engage in self-regulation depends on whether firms consider the legislator's threat credible and likely to be carried through (Halfteck 2006:3-6). The legislator may underline his credibility by committing himself clearly to the political issue: he may seek to organize a supporting political coalition based on logrolling in parliament; he also may commit himself by informing the public about the importance of an issue and/or garner political backing by building on a NGOs' mobilizing campaigns. Legislators also may engage in 'brinkmanship' by gradually raising the likelihood of threatened legislation, and they may further underline their credibility by having a reputation of being credible or by committing themselves emotionally to an issue (Halfteck 2006:56-59). Legislative threats elicit valuable information from industry, thereby reducing transaction costs, and increasing the likeliness of an effective outcome of the implicit political barter (Halfteck 2006:6).

The collective action problems linked with associative self-regulation, we go on to argue, differ according to the problem type at hand. Redistributive problems and problems of the type of a prisoner's dilemma are much more conflict prone than coordination problems from which all stand to gain. The different issue properties are reflected in the actors' preferences with regard to a particular issue. We therefore expect that the shadow of hierarchy, in particular the threat of legislation, is required to ensure the successful implementation of redistributive and prisoner's dilemma problems.

3. Assumptions, Hypotheses and Methodology

We start from the following *assumptions*: actors, i.e. firms, associations and governmental actors are utility maximizers, but act on the basis of incomplete information as regards the likely behavior of the other actors and incomplete information regarding the best solutions for the environmental problem at hand. Actors are opportunistic and their commitment to the contract may be problematic. We also assume that firms prefer no regulation to self regulation and the latter to legislation because adversarial legislation may reduce the profitability of the firm (meta-preferences). Firms are well situated to regulate themselves because of the information asymmetry between governmental actors and firms with respect to the problem at hand. Associations of firms prefer self regulation over legislation over no action whatsoever because an important reason for their existence is to prompt the organization of self-regulation of firms. Governmental actors at different levels, national and supranational, are not considered as unified actors and are assumed to prefer legislation over self-regulation over no action when seeking to reduce negative external effects of firms' activities. However, they are also aware of the high transaction costs involved in the legislative process. Non-governmental organizations (NGOs) prefer legislation over self-regulation over no action.

Using transaction cost theory in a strategic choice approach we derive hypotheses by first varying important attributes of the environment (legislative threat and NGO campaigns) holding actors attributes preferences constant (H1 and H1), then varying actors' preferences while holding the two aspects of the environment constant (H3).

Shadow of Hierarchy Hypotheses (H 1)

H 1 If there is a threat of legislation, firms will form associations or use existing *associations to engage in self regulation*.

As argued above, the credibility of a legislative threat may be underlined by a previous or simultaneous political mobilization and the garnering of political backing by building on NGO campaigns. We therefore submit the

Political Mobilization Hypothesis (H 2)

H 2 If there is strong political pressure from NGOs, firms will form associations or use existing associations to engage in self regulation.

We further assume that actors' situational preferences depend on the features of an issue at stake. Depending on the contested nature of an issue at stake the self-regulation contract among the involved actors will need strict governance rules to ensure contract implementation. Both in the case of redistributive and prisoners' dilemma problems the contracting partners will need to rely on strong conflict-solving governance rules. We therefore claim:

Problem-type Hypotheses (H3)

H 3.1: If a coordination/win-win problem (and actors situational preferences are similar) is at stake, no governance devices are needed.

H3.2 If a redistributive problem is at stake (and actors situational preferences are of a zero-sum nature) governance devices allowing for conflict solution through compensation of the losers will be developed.

H 3.3 If a Prisoner's Dilemma problem is at stake (actors are tempted to free-ride) strict governance allowing for monitoring and sanctioning will be adopted.

4. Background Information: Self-Regulation of the European Paper and PVC Industry and Industry Structure

The German paper industry acted as a pacemaker in self-regulation of paper recycling. In 1994 firms of the graphic paper chain agreed with the Federal Ministry for Environment to achieve 60% recovery of graphic paper until 2000. This target was met before 2000 and the agreement was renewed, increasing the rate to 80%. In the UK, the Newspaper Publishers Association (NPA) concluded a voluntary agreement with the government. This aimed at increasing the recycled content of newsprint by 70% between 2000- 2006. At the European level, self-regulation was initiated by the Confederation of European Paper Industries (CEPI) in 2000, joined by two full-member associations and a number of supporting-member associations. A first five-year commitment was successfully concluded in 2005, achieving a recycling rate of 56% of paper and board products; a second five-year agreement increases the objective to 66%.¹

On PVC, industry in Germany and the UK organized associative action as well: in Germany, a Working Group on 'PVC and Environment' was founded in 1988. In the UK, part of the industry jointly with retailers committed itself to a sustainable manufacturing process in a 'PVC Charter' (1999) and a code of practice (2000). At the European level, industry committed itself in 2000, creating the ten-year voluntary agreement 'Vinyl 2010'. Dealing with the production and waste phase of PVC, it aims at recycling 200,000 tons of available post-consumer waste by 2010. So far, 149,463 tons of 'available post consumer waste' have been recycled.² For implementation, the plastic converters association complemented the voluntary agreement by the 'Vinyl Foundation' (2007) in order to collect additional funds for recycling activities.³

The conditions of developing recycling schemes are very different in the two industries. The predictability of costs and the development of the respective markets vary considerably. When the 'European Declaration' in the paper sector was established, recovery methods were well developed. Experience such as in Germany demonstrated that recycling rates up to 70-80% were achievable. The market dynamics pointed to a steady increase in the global demand for recovered material and industry could easily predict future recycling rates.⁴ The European PVC industry could draw on some national experience with recycling schemes such as the German take-back schemes for PVC window frames and recycling of PVC waste from processing and installation works. Overall, however, there was initially a lot of uncertainty about the feasibility of chemical and mechanical recycling of PVC and no pronounced market demand for recycled PVC.

Comparing the EU-level associations in the two sectors⁵, it appears that the 'European declaration' embraces a wider variety of actors along the chain, whilst 'Vinyl 2010' is constituted by a shorter supply chain. The associations representing the paper and board industry (CEPI and FEFCO) form the core of voluntary action in the paper sector, together with the waste management industry represented by ERPA. They join efforts with a number of actors further along the paper chain such as the ink and printing industry, or the newspaper and magazine publishers.⁶ The four associations in the PVC sector represent the producers of the different components (vinyl, plasticizers, stabilizers) and those that convert them into different plastic products.⁷ Under the voluntary agreements different actors within the associations pursue a common goal. However, there are also conflicts of interest. In the paper industry there are conflicts between sellers and buyers, whilst in the PVC industry conflicts between small and large firms appear to prevail.

5. Methodology

In order to empirically assess our hypotheses, we operationalize our independent and dependent variables as follows:

TABLE 1 EMPIRICAL INDICATORS

Hs	EMPIRICAL INDICATORS INDEPENDENT VAR.	EMPIRICAL INDICATORS DEPENDENT VAR.	EMPIRICAL INDICATORS DISCONFIRMATION
H 1	existing legislative threat: preparatory documents for legislation; statements and discussions in government about planned legislation	new associations; new sub-organizations within associations	no new associations; no new sub-organizations within organizations
H 2	NGO pressure: politically highly salient NGO campaigns;	new associations; new sub-organizations within associations	no new associations; no new sub-organizations within organizations
H 3.1	win/win issue: all actors gain from self-regulation	no governance devices for conflict resolution. e.g. third party dispute resolution	governance devices for conflict resolution, e.g. third party dispute resolution
H 3.2	redistributive problem: winners and losers; actors seek to shift costs	governance rules allowing for compensation	no governance rules allowing for compensation
H 3.3	PD problem: high implementation costs prompting actors' free-riding	governance rules for monitoring and sanctioning	no governance rules for monitoring and sanctioning

We conduct the following comparisons:

TABLE 2 CASES STUDIED

Ns Hs	CASES NATIONAL	CASES EU	TOTAL N
H1	paper DE, UK at t1 and t2; PVC DE at t1 and t2 ; PVC UK	paper at t1 and t 2 PVC at t1 and at t2	N = 6 N = 4 N = 1 N = 11
H 2	paper DE, UK PVC DE, UK at t1 and t2	paper PVC at t1 and at t2	N = 3 N = 6 N = 9
H 3	-	PVC and paper	N = 2

To collect data we conducted (i) 47 structured interviews with actors from the two industries' associations (19), political decision makers (14 Commission officials and 6 at EP), with NGOs (8); (ii) we scrutinized official documents of the Commission and the EP, trade associations' and NGOs.

6. Hypotheses in the Light of Empirical Findings

6.1. *Shadow of Hierarchy or Legislative Threat Hypothesis (H1)*

In our first two hypotheses we vary two attributes of the environment - i.e. legislative threat and NGO pressure - whilst holding actors' (firms and associations) attributes constant in order to scrutinize the outcome of the strategic action (see also Héritier and Eckert 2008).

Under our legislative-threat hypothesis we expect that a credible threat prompts associative self-regulation. Comparing sectors (paper and PVC) and two periods of time at the national (DE, UK) and European level, the collected evidence overall supports this claim. At the national level, a period without a threat of legislation (t1) in the German and the British paper sectors, is compared to a period with a clear threat of legislation (t2). In the PVC sector, we compare two periods in Germany, and compare Germany and the UK, one with a legislative threat, the other without. At the European level, we compare both sectors across two periods each, one without, the other with a legislative threat.

In the *paper sector*, both in Germany and in the UK a legislative threat was clearly formulated. In Germany this threat materialized early in the 1990s:

There was a threat of something similar [to the Packaging Waste Ordinance of 1991, - AH/SE] being introduced for graphics, in fact Minister Toepfer had a draft ordinance ready [...] In response [...] the industry chain of graphical papers has joined forces [...] to prevent this [...] regulation which would have required that we take back all graphical papers (I-16, own translation).

To engage in self-regulation, industry could not rely on an existing organization; therefore, a new association—the Working Group for Graphical Papers (AGRAPA) was established. Business convinced the Ministry of Environment to enter a co-regulatory agreement with government refraining from legislation if self-regulation was successfully enforced. In the UK, a bill requiring that publishers recycle half of their products and that newspapers contain 80% recycled fibre by 2010, was proposed in Parliament in 2000. Government did not support the proposal, but sustained self-regulation by industry and concluded an agreement with the Newspaper Publishers Association (NPA). Given that an association existed (NPA) that could address the issue, no new organization was created.

At the European level, the threat of legislation had not progressed to the point of a concrete communication or legislative plan being published. As several interview partners stated: '[...] We heard some rumors that the European Commission had plans about recycling targets [...]' (I-12) and: 'It became never really concrete, but it has again and again been discussed' (I-14), in particular during the discussions of the 'Recycling Fora' of 1999 and 2000. DG Environment also repeatedly considered legislation on the occasion of other legislative proposals, thereby reinforcing the concerns of the industry. The reason why the proposal was not submitted is the disagreement between DG Enterprise and DG Environment (I-32). Yet the pressure resting on industry was strong enough to induce it to create a new association—the European Recovered Paper Council (EPRC) - to implement a voluntary agreement. Over time the number of members increased: in 2001 the corrugated board producers joined the two founding associations, the paper industry and the waste management industry. The first declaration of 2000 was supported by three associations. One of them engaged in the second round of 2006 alongside with four new associations as full signatories. Six additional associations lent support by acting as 'associate signatories' of the new declaration. A European association had been established including a growing number of sectoral associations along the value chain.

Comparing the German and British *PVC sectors*, it emerges that an explicit legislative threat prompted industry action in Germany, while the British industry organized in the absence of a legislative proposal. In Germany the environmental implications of PVC drew political attention throughout the 1980s and 1990s (Pohle 1997). Plans to legislate against the use of PVC materialized most concretely in 1988 when a group of Green MPs requested to ban the material altogether and

some municipalities such as Bielefeld declared themselves as ‘PVC free zones’. The industry quickly responded by organizing a new association, the Working Group on ‘PVC and Environment’ the same year.⁸ Its activities focus on information campaigns, the generation of scientific expertise and the preparation of self-regulatory measures regarding the sustainable production of PVC and the recycling of PVC waste. In 1993, two parliamentary motions from SPD and Green MPs requested to phase out PVC in some areas and/ or to close down production sites in order to reduce dioxin exposure. A parliamentary Enquete Commission on the ‘Protection of the Human Being and the Environment’ in 1994 however came to the conclusion that a substitution of PVC cannot be recommended.⁹ Criticism gained new momentum in 1995 and 1996 with the debate around the role of PVC materials being responsible for the fires at a hospital in Aachen and the airport in Düsseldorf. Green MPs ensued. In the UK, after a debate on plasticizers in some PVC products (such as toys) in the 1990s, the government and the industry concluded a mandatory agreement stopping short from banning plasticizers. In a successive debate on PVC waste, government again refrained from PVC-specific legislation (Is-7-9). Instead, two important manufacturers of PVC and a group of retailers concluded VAs in 1999 (National Centre for Business & Ecology 1999).

The European case on PVC environmental issues demonstrates how an explicit legislative threat builds up over time and how industry responds to this by initiating self-regulation (Is-1-9, I-22, I-25, I-26, I-29). Reacting to member state initiatives, the environmental implications of PVC became an issue in several product-focused legislative acts. The Commission, strongly supported by the EP, proposed in its Directive on End-of-Life Vehicles to assess the environmental impact of PVC waste in an ‘integrated, horizontal approach’. In 1995, several horizontal studies on PVC were commissioned, forming subsequently the basis for the Green Paper ‘PVC Environmental Issues’ (COM 2000 469). Whilst the Green Paper listed legislation and VAs as possible options, the EP, in its Resolution (OJ C 21 E, 24.1.2002) clearly favored legislation as a ‘long-term horizontal strategy’ and requested more ambitious measures. The European PVC industry responded to the threat of legislation, several months before the European Commission issued its Green Paper, by initiating voluntary action. To quote just a few statements:

In order to enter into the debate and to propose something from industry’s side [...] we started to speak in the value chain [...] in order to see [...] if we can propose something [...] and to avoid, as it was the main objective, any specific legislation on PVC [...] (I-2)

[...] To me the Vinyl 2010 commitment was very much a pre-empted strike to prevent legislation regarding PVC [...] There was a very real threat there and the industry needed to react (I-8)

In Europe the pressure was very hot [...] and the Commission decided to study PVC very seriously, [...] It was into this kind of debate that the PVC industry decided to take the ‘bull by the horns’ and proposed to the Commission that it engages in the voluntary commitment (I-7)

The outcome was Vinyl 2010. The four sector associations signed a ten-year programme addressing the reduction of the use of heavy metal stabilizers, the recycling of PVC and the development of recycling technologies. Emission targets were set for the manufacturing of PVC, the gradual phase-out of lead until 2015 and the recycling of 200,000 tons of ‘available post consumer waste’ until 2010. As one interviewee concluded: ‘[...] from a political point of view, it (the issue AH/SE) has been taken off the table and they are waiting for the industry to deliver’ (I-3).

In conclusion only one (UK PVC) out of eleven cases disconfirms our legislative threat hypothesis. In all other cases the absence or existence of a legislative threat mattered. In most cases (9 out of 10) new organizations were established. Interestingly, it is mostly *special purpose associations* that were created to govern self-regulation thereby circumventing a typical collective problem of sectoral roof associations.

In an association you always have to find the smallest common denominator. You never can actively tackle a specific issue because then some members would object: what are you doing with our membership fees [...] Therefore we have established the working group for PVC over the entire chain (I-6, our translation).

6.2. Political Mobilization Hypotheses (H 2)

In our second hypothesis we expect that political pressure from NGOs induces firms to engage in associative self-regulation. In the paper sector NGO campaigns did not play a decisive role for the emergence of self-regulation in the period and countries under scrutiny.¹⁰ NGOs started calling for higher recycling rates at a time when European industry was already actively engaging in self-regulation. From an industry perspective ‘[...] NGOs awoke to this only much later and they still demand things that we [the European paper industry, AH/SE] have already done many years ago and that have become “standard” in our industry.’ (I-14).

In the *PVC sector*, by contrast, the influence of NGO campaigns on the formation of associative action was eminent. In Germany the PVC industry was under constant criticism notably from Greenpeace Germany campaigning to ban PVC¹¹. ‘In the beginning of the 90s we [the PVC industry, AH/SE] had enormous difficulties in being publicly heard: there were “the poisoners from industry” and “the saints from the ecological associations”’ (I-1, our translation). As mentioned before, the criticism gained new momentum during the 1990s with the discussion about the fire incidents and the role of PVC in them. Greenpeace also launched focused actions concerning the application of PVC in toys, cosmetics and sports shoes (I-42). The PVC Working Group which was initiated in the late 1980s aimed at taking off this public pressure from industry. In the UK a fully-fledged NGO campaign took off only some years ago. Greenpeace criticized PVC packaging and targeted UK retailers (Leadbitter 2002, I-7,8). It established a ‘PVC Retail Working Group’ and commissioned a study to investigate the option of phasing out PVC. Eventually, a dialogue developed between the PVC industry and the retailers. Two important PVC manufacturers signed an environmental charter and a eco-efficiency code of practice (Ecology 1999) with important retailers. Thus, indirectly, NGOs helped industry to set up self-regulation. As one interviewee stated: ‘Greenpeace actually did those guys in the PVC industry a lot of good.’ (I-8)

At the European level, Greenpeace launched activities in the mid-1990s (Is-41-43), influencing the debate by providing counter-expertise on the chlorine industry and by campaigning against its use in different applications:

If there is a political debate [...] we can enrich it by providing scientific data and by popularizing the problem. For as long environmental topics are discussed behind closed doors, the environment is always losing out. Environmental issues can only prevail in a political discussion if they become public (I- 43; our translation).

However, with the prospects of European PVC legislative measures fading, Greenpeace eventually abandoned its campaign:

Our meetings with the Commission became increasingly frustrating... there was no willingness whatsoever to transform arguments into political action. It makes no sense to continue the debate—[...] you have to see in which other areas [...] to move things forward. (I-42, our translation).

In view of the waning NGO pressure, an interviewee from industry admitted: ‘The biggest danger that we are now facing is that there is not much ado about PVC, so that we will fall asleep again.’ (I-4)

In conclusion, all three PVC cases confirm our political mobilization hypothesis, whilst the paper cases disconfirm it. The empirical assessment of H1 and H2 shows that a credible legislative threat and NGO political mobilization in most cases prompts associative action.

6.3. Problem-type Hypotheses (H 3)

When empirically assessing the problem type hypotheses we vary actors’ preferences while holding constant the environmental factors of legislative threat and NGO campaigns. We assume that the problem type—i.e. coordination (win/win), redistributive and PD problems—are reflected in the motivations of the involved firms. In the case of *coordination problems or win/win situations*, actors

have similar preferences in favor of self-regulation because all stand to gain. Accordingly, no governance rules for monitoring and sanctioning will be needed for successful associative self-regulation. (H 3.1.).

Such win/win aspects are: avoiding legislation, raising reputation and providing mutual information. Our findings demonstrate that pre-empting legislation was a powerful motive for engaging in voluntary agreements in both sectors. Self-regulation is preferable since industry itself chooses the measures to take and can ‘sell’ the voluntary activity to a broader public in order to raise reputation:

It [self-regulation, AH/SE] is not imposed. [...] you set achievable targets [...] if you know how our business works [...] (I-13)

It was also about effectively communicating our achievements in the recycling of paper to the public [...] to show how well paper recycling actually works and to demonstrate which huge amounts of used paper are going into the process. (I-15, our translation)

The fact that we don't have legislation on PVC [...] is always the way to motivate our troops [...] to go ahead [...] Otherwise we will switch again to something [...] where we have no control [...] (I-2).

As expected, we do not find specific governance rules to address this type of issue. The cooperation of firms and associations appears to function smoothly where win/win aspects of self-regulation are concerned.

By contrast, associative action is more problematic in the case of *redistributive problems* where actors experience gains and losses. Redistributive implications most importantly result from the fact that costs and benefits (organizational and financial) of voluntary action are distributed unevenly among associations or firms. Hence governance rules allowing for conflict solution through compensation of the losers will be necessary (H 3.2)

We encounter a zero-sum conflict in the paper sector: the paper and board industry seek to maximize the amounts of recovered material under the objectives set by the ‘Declaration’. The traders and collectors of material, by contrast, shun the costs for making high quality material available:

We [the paper industry, AH/SE] have to tell the suppliers [...] that it is necessary [...] to augment the quantity, [...] without losing out in [...] quality (I-16, our translation).

Improving quality is a common enterprise. It is not possible to pass these costs on to the suppliers solely. (I-15, our translation).

Further along the paper chain, a similar conflict over the cost of quality issue emerges between the printing industry and the paper industry: for the printing industries the quantity of recycled material does not matter, whilst the quality of paper is crucial for their business:

For us it is really a qualitative question [...] They [the paper industry, AH/SE] want to reach their [quantitative, AH/SE] targets, that's all.(I-12).

In the PVC sector, another line of conflict about the use of associational resources emerged between the plasticizer producers and the other members. Given that the plasticizer which is most heavily used in PVC, phthalates, were subject to a focussed NGO campaign in the late 1990s, therefore wished to focus on a counter-campaign and research rather than spending money on ‘Vinyl 2010’: So, we have actually ended up suffering as a result of the money that we have had to pay into the voluntary commitment. (I-5)

In view of redistributive conflicts, the association introduced governance rules ensuring the application of the contract by (i) the compensation of the ‘losers’ of self-regulation; and (ii) by allowing for flexible implementation and renegotiating the contract.

The first governance rule (i) provides for the compensation of the losers by the winners. The association which gains most takes on a leadership role in establishing associative action. We find evidence for this compensation in both sectors: under the European Paper Declaration, the paper

industry's association launched the process and delivers most financial and human resources support. In the PVC sector, the resin producers assume a similar role:

The self-regulatory initiative has been driven by the paper industry [...] The initiative was not on our side, but we were ready to participate [...] we were jumping on the bandwagon (I-15, our translation)

The monitoring and the verification has been paid by CEPI alone [...] The other associations, which are less involved in the quantitative target, they don't want to [pay a lot AH/SE]. (I-14)

The PVC producers [...] who initiated this in the first place [...] said [...] We cannot afford to do all of this by ourselves. So they looked at everybody in the supply chain to get involved. [...] The people who are still pushing this most is the PVC industry. (I-5).

Someone has to be the engine and somebody has to pay (I-4).

On the loser side the plasticizer producers is compensated by being accepted as an association that is into a full legal member of 'Vinyl 2010'. Unlike the stabilizers association - which assumed legal personality in order to become a full partner - the plasticizers prefers not to be liable for self-regulatory action:¹² in consequence, under the association's governance rules, it is not granted a voting right on the board (I-5).

if you set yourself up under a legal entity, there are liability issues [...] if something went dramatically wrong [...] We don't because we are just contributing to it, but we are not a liable, legal entity. (I-5)

Besides this 'limited membership', the plasticizer industry was also compensated financially since self-regulation under Vinyl 2010 fails to address their major concern:

The plasticizers haven't paid their full contribution, because their toys issue put so much demands on their resources that they were spending so much on scientific research (I-3).

The second strategy (ii) allows for flexibility during implementation. In both sectors, the self-regulation provides for a one-year funding scheme only which allows for renegotiation after a year (I-3, I-14). Another element of flexibility is assured by setting aggregate targets. In both the paper and the PVC industry such targets allow for balancing out the regulatory burden among participating countries, small and large firms and the varying differing possibilities to collect and recycle products.

We need some flexibility. So, it could be easy for a big player to organize lots of recycling, but for a small player [...] it can be difficult [...] And then we also need to have some flexibility across countries. Some countries use more recovered paper and some countries less; but in all countries the level is increasing, but at an individual pace and that is normal [...]. So this is why it is good to set a target on average, and then you can decide product by product. (I-14)

Similarly, sub-targets have been identified for specific product groups in the *PVC sector* below the aggregate target of recycling 200,000 tons 'of available post consumer waste'. These sub-targets have been regularly reviewed and updated in view of the experience gained in the course of implementation¹³.

An ex post renegotiation of the contract also allows for a redefinition of targets in gathering recyclable material. The PVC industry, however, refrained from doing so:

The overall commitment of 200,000 tonnes by 2010 has been maintained and extended to the new Member States, keeping in mind that experience has demonstrated that the available volumes of PVC waste are actually lower than the ones expected in 2001.¹⁴

An opportunity to re-negotiate the old contract presented itself when the European paper chain engaged in the second 'Declaration' in 2006. Responding to concerns raised by the suppliers of recovered material, the recycling target was redefined in order to take account of export: 'the target recycling rate includes net recovered paper exports to countries outside Europe'. Moreover, the participating associations are given the possibility to formally resign from the commitment.¹⁵

In conclusion, in the case of redistributive problems we find evidence that governance mechanism such as the compensation of losers, flexibilisation and the renegotiation of the contract play an important role.

In our last Prisoners' Dilemma hypothesis we expect that actors' temptation to free-ride is contained by strict governance mechanisms. However, that would only apply to free-riding within the associative agreement. If an industry remains outside the agreement altogether such rules would be of no use. By refraining from formally joining, firms may—while in principle fully agreeing with the desirability of avoiding legislation and improving their reputation by self-regulation—may still be tempted to save costs by not incurring costs of membership. In the *paper sector*, for instance, the European Tissues Symposium did not participate in the first declaration, but joined in the second round. The association observed the implementation of the first five years, whilst already using the positive record of the initiative for public relation purposes (I-17). In the *paper sector* the 2007 created 'Vinyl Foundation' aims at bringing on board some of those that so far do stay outside the agreement. By establishing a 'positive list' of plastic converters that pay their share, the visibility of contributors will be increased. This strategy of positive discrimination should increase the reputation costs for free-riders.

In the *PVC sector*, 'free riding' by staying outside of the agreement has been particularly relevant for the plastic converters due to the large number of small firms. The costs of identifying such free-riders may indeed be larger than the benefit of bringing them on board (I-4). As one interviewee (I-6) estimated: approximately 20% of firms of the sector are not organized within the association representing plastic converters. Opting out has been mentioned by the additive producers' organization stating that member firms have left the agreement for cost reasons.

[...] Free-riding is a real problem to anybody in this [...] circumstance [...] Take somebody like European Oxo who have just now gone out of the ECPI. They did not contribute an insignificant amount of money a year, in terms of the total of our budget at ECPI, including Vinyl 2010 [...] That makes them more competitive [...] the only real selling point of phthalate plasticizers [is, AH/SE] price, price, price! So if you can save a few cents per ton of what you are selling, you have a competitive advantage (I-5).

Free-riding by not implementing the voluntary accord of which an industry is a member allows firms to save costs and achieve a competitive advantage, as well. In the *paper sector*, compliance differs considerably across countries. In some countries, suppliers of recovered paper do not comply with the prescribed quality standards (I-15). Some national associations deliver the statistical data in an unreliable and non-comparable way, while others faithfully fulfill their reporting duties (I-16). In the *PVC sector*, some stabilizer producers have delayed the phasing out of lead in order to gain a competitive advantage (I-2,4); and converters do have an incentive to shirk when they report the volume of PVC resin used since these form the basis of their financial contribution to the agreement.

The governance rules used to contain free-riding during implementation, such as monitoring and sanctioning, are not easy to apply. The fragmentation of the market, the fact that firms do often have multiple locations and that material is exported renders monitoring of non-compliance difficult.

In the *paper sector*, monitoring tools have been established, such as an annual monitoring report containing specific quantifications on the progress towards targets. A monitoring task force drafts the reports and submits it to the European Recovered Paper Council composed of signatories, supporters and observers (EU institutions and stakeholders). Independent consulting firms are charged with the auditing and control of the reports on the recycling. The text of the agreement on self-regulation and the cooperation among the associations is governed through internal by-laws which identify the constituents of the agreement, specify the tasks of the parties involved, allocate secretarial and organizational tasks and the financing of audits.

Similar monitoring devices exist in the *PVC industry*: progress is being reported on an annual basis and observed by a monitoring committee (including the European Commission and the Parliament), auditing tasks are delegated to a consultancy firm. These tools have been complemented by a new

initiative taken in 2007 with the creation of the so-called 'Vinyl Foundation'. It has the task to collect the funds from the PVC converters for 'Vinyl 2010' in order to improve compliance of the participating parties. The 2007 created 'Vinyl Foundation' aims at bringing on board some of those that so far do stay outside the agreement. By establishing a 'positive list' of plastic converters that pay their share, the visibility of contributors will be increased. This strategy of positive discrimination should increase the reputation costs for free-riders.

In conclusion, in both sectors various governance rules have been developed in order to contain free-riding within the voluntary agreement.

7. Conclusions

So why and how do firms and trade associations coordinate their actions in order to deal with the negative external effects of productive activity? When do they engage in environmental self-regulation and what kind of governance devices do they develop in order to tackle the specific regulatory challenges at stake? Is the 'shadow of hierarchy', the credible threat of legislation, executive intervention or court rulings, a necessary condition for associative action to emerge? Or is it only necessary if a redistributive problem is at stake?

By first varying two important attributes of the information environment in which private actors engaging in self-regulation interact, legislative threat and NGO campaigns, we developed a number of hypotheses. Our empirical findings show that in all but one case a threat of legislation matters when developing associative action. Evidence is less clear as regards NGO campaigns given its absence in the paper sector. NGO campaigns therefore may underline a legislative threat and raise its credibility, but by itself are not a sufficient condition for self-regulation to emerge.

By secondly varying actors' preferences as function of the problem type at hand, we develop further propositions. Redistributive problems and problems of the type of a prisoner's dilemma are much more conflict prone than coordination/win-win type of problems from which all stand to gain. In order to deal with the former two problem types, industry actors recur to various governance devices such as flexible contract design and winners' compensation of losers to solve redistributive problems. Prisoner's dilemma problems may only partially be addressed by governance devices to the extent that free-riding is controlled and sanctioned within an association.

We conclude that private actors engaging in self-regulation will not successfully manage all types of conflicts. Nevertheless, by efforts of 'private ordering' (Williamson 2002:13) they seek to address all types of issues, of a negative sum and positive sum nature. They lack powerful sanctioning tools to deal with PD situations, but prove to be able to flexibly handle redistributive problems.

TABLE 3: INTERVIEWS

No.	Date	Location/ Type	Type of Actor
1	18/08/05	Bonn	Private, PVC Industry (Horizontal)
2	22/11/05	Brussels	Private, PVC Industry (Stabilizer Producers)
3	22/11/05	Brussels	Private, PVC Industry (Vinyl Manufacturers)
4	23 /11/05	Brussels	Private, PVC Industry (Converters, Horizontal)
5	23/02/06	Brussels	Private, PVC Industry (Additives Producers)
6	24/02/06 02/04/08	Frankfurt a. M.	Private, PVC Industry (Converters, Horizontal)
7	26/05/06	London	Private, PVC Industry (Horizontal)
8	26/05/06	London, phone	Private, PVC Industry (Horizontal)
9	26/05/06	London	Private, PVC Industry (Horizontal)
10	24/01/06	telephone	Private, Waste Management
11	10/04/06	e-mail	Private, Waste Management
12	04/05/06	Brussels	Private, Paper Chain (Printing)
13	05/05/06	Brussels	Private, Paper Industry (Board Manufacturers)
14	05/05/06	Brussels	Private, Paper Industry (Paper Manufacturers)
15	08/05/06	Bonn	Private, Waste Management
16	08/05/06	Bonn	Private, Paper Industry (Paper Manufacturers)
17	10/05/06	telephone	Private, Paper Industry (Tissues Manufacturers)
18	26/05/06	London	Private, Waste Management
19	01/06/06	telephone	Private, Waste Management
20	23/11/05	Brussels	Public, European Commission, ENVI
21	23/11/05	Brussels	Public, European Commission, ENVI
22	24/11/05	Brussels	Public, European Commission, ENTR
23	05/12/05	telephone	Public, European Commission, ENTR
24	09/12/05	telephone	Public, European Commission, ENVI
25	23/02/06	Brussels	Public, European Commission, ENVI
26	23/02/06	Brussels	Public, European Commission, ENVI
27	03/05/06	e-mail	Public, European Commission, TREN
28	03/05/06	Brussels	Public, European Commission, ENTR
29	04/05/06	Brussels	Public, European Commission, ENVI
30	04/05/06	Brussels	Public, European Commission, ENVI
31	04/05/06	Brussels	Public, European Commission, ENVI
32	18/05/06	telephone	Public, European Commission, ENVI
33	01/12/06	Brussels	Public, European Commission, ENTR
34	23/11/05	Brussels	Public, European Parliament
35	22/02/06	Brussels	Public, European Parliament
36	22/02/06	Brussels	Public, European Parliament
37	22/02/06	Brussels	Public, European Parliament
38	02/06/06	Florence	Public, European Parliament
39	10/04/08	telephone	Public, European Parliament
40	18/11/05	telephone	Private, NGO
41	23/11/05	Brussels	Private, NGO
42	23/11/05	Brussels	Private, NGO
43	05/12/05	e-mail	Private, NGO
44	22/02/06	Brussels	Private, NGO
45	25/04/06	telephone	Private, NGO
46	04/05/06	Brussels	Private, NGO
47	04/05/6	Brussels	Private, NGO

Interviews 1, 6, 15, 16, 20, 22, 25, 34, 35, 40, 41 and 44 were conducted in German, Interview no. 38 in French. Quotes in the text have been translated by the authors.

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ENDNOTES

- 1 See European Declaration on Paper Recovery rf. <http://www.paperrecovery.org/>
German paper industry activities rf. <http://www.gesparec.de/>;
UK newspaper recycled content VA rf. <http://www.defra.gov.uk/environment/waste/topics/paper.htm>;
- 2 See last progress report 2007
- 3 Vinyl 2010 rf. www.vinyl2010.org; Vinyl Foundation rf. <http://www.vinylfoundation.org/>
German Working Group PVC and Environment rf. <http://www.agpu.de/>;
UK PVC sector activities rf. <http://www.bpf.co.uk>;
- 4 In the 1990s, the consumption of paper and board increased by 3% per annum. In 1999 when voluntary action was launched, the recycling rate in the CEPI area amounted to 48,7%, with an annual growth in the late 1990s of 1%. rf. p. 7 Annual report 2000 “European Declaration on Paper Recovery” at <http://www.paperrecovery.org/>
- 5 The structure of the sectors at national level is not considered here since we do not examine the internal governance (hypothesis 3) for the national agreements.
- 6 The founding associations of the European Paper Declaration in 2000 were the Confederation of European Paper Industries (CEPI) and the European Recovered paper Association (ERPA). The European Federation of Corrugated Board Manufacturers joined in 2001. The European Federation of Waste Management and Environmental Services (FEAD), the European Paper Merchants Association (EUGROPA) and the International Confederation for Printing and Allied Industries (INTERGRAF) were supporting members. For the second agreement in 2005, three more associations joined as full members, the International Confederation of Paper and Board Converters in Europe (CITPA), the European Tissue Symposium (ETS) and the International Association of the De-inking Industry (INGEDE). Six associations support the agreement, the European Newspaper Publishers Association (ENPA), the European Printing Ink Association (EuPIA), the European Federation of Magazine Publishers (FAEP), the Association of European Adhesives Manufacturers (FEICA), the Worldwide Association for Self-Adhesive Labels and Related Products (FINAT) and the European Association for the Advancement of Radiation Curing by UV, EB and Laser Beams RadTech-Europe (RTE).
- 7 The ‘producing’ side is represented by the European Council of Vinyl Manufacturers (ECVM, www.ecvm.org), the European Stabiliser Producers Association (ESPA, www.stabilisers.org) and the European Council for Plasticizers and Intermediates (ECPI, www.ecpi.org); the ‘converting’ side is represented by the European Plastics Converters (EuPC, www.plasticsconverters.eu).
- 8 The situation in 1988 when the Working Group was initiated is described at: <http://www.agpu.de/index.php?id=141>
- 9 Parliamentary motions: Deutscher Bundestag Drucksache 12/6386 (SPD) and 12/6222 (BÜNDNIS 90/ Die GRÜNEN); report of the Enquete Commission: Drucksache 12/8260.
- 10 We do not deny that industry is subject to NGO campaigning and criticism - the worldwide campaign against clear cutting, the use of virgin fibre and fibre from "ancient forests" illustrates the opposite. As an element of NGO activism against climate change, the European paper industry has been lately been put under stress by the SHRINK pledge launched by 50 European NGOs (June 2008) which addresses the “madness of over-consumption of paper” see <http://www.shrinkpaper.org/>
- 11 Greenpeace Germany campaigning activities are summarised at http://www.greenpeace.de/themen/chemie/gefahren_risiken/artikel/wenn_die_chemie_nicht_stimmt_ein_rueckblick_auf_die_90er_jahre/#abschnittPvcIstEinUmweltgift
- 12 There might have also been organisational difficulties for ECPI not assuming legal status, which were not present for ESPA (1-6). In any case, legal liability is a tricky issue for such voluntary agreements since the signatory members are themselves associations and not firms – and associations cannot make their firm members comply.
- 13 Such updating of targets is documented in the subsequent progress reports, see: http://www.vinyl2010.org/Home/Check_our_progress/Previous_reports/
- 14 Updated version of the voluntary commitment dating 2006, p. 6, to be consulted at: http://www.vinyl2010.org/images/stories/vinyl2010_voluntary_commitment.pdf
- 15 See “European Declaration on Paper Recycling 2006-2010” www.paperrecovery.org/

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