

Voluntary Agreement of Swiss Car Importers

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Abstract

This paper provides empirical evidence on the theoretical literature on voluntary agreements. The case study on fuel efficiency standards for passenger cars in Switzerland investigates the motivation for signing as well as the performance of the agreement. The qualitative part of the analysis deals with the firms' perceptions of climate change and their positions on climate policies and measures, based on expert interviews. The findings suggest that there are potentially conflicting positions behind the association's position communicated to political decision makers. The negotiated target and the defined measures were not sufficient to reach the national climate policy target. Theoretical propositions on preemptive strategic behavior and regulatory relief as motives for participation cannot be rejected.

1. Introduction

One of the major sources of greenhouse gas emissions in Switzerland is the transport sector. In 2005, the transport sector accounted for 36% of energy related CO₂ emissions in Switzerland. Transport emissions increased by 8.2% between 1990 and 2005. This development can be explained by population growth, but also by an increasing demand for mobility and consumers' preferences for heavy vehicles. Between 1989 and 2005, both, Swiss population and daily distance travelled per person, have been increasing by 12% and 15% respectively (SFOS 2010). For addressing CO₂ emissions from transport, the Swiss CO₂ law formulates a reduction target of 8% for transport emissions between 1990 and 2010. According to the subsidiary principle, Switzerland has approached the realization of this target by introducing voluntary measures. Accordingly, a voluntary agreement on fuel efficiency was signed by the

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Association of Swiss Car Importers and the Swiss government in 2002. The aim of the accord was the step-wise reduction of average fuel consumption from 8.4l/100km to 6.4l/100km between 2000 and 2008. Together with the 'Climate Cent,' a levy of 1.5ct per litre of gasoline spent for emissions' mitigation projects, these voluntary accords were the only policy measure implemented for tackling emissions from transport in Switzerland (Niederberger 2005; Thalmann and Baranzini 2008). At the end of 2008, average fuel consumption of newly imported cars in Switzerland still was 7.14l/100km, and emissions from transport have been increasing.

The Intergovernmental Panel on Climate Change (IPCC) defines voluntary agreements (VAs) as follows: *"An agreement between a government authority and one or more private parties with the aim of achieving environmental objectives or improving environmental performance beyond compliance to regulated obligations. Not all VAs are truly voluntary; some include rewards and/or penalties associated with participating in the agreement or achieving the commitments."* (IPCC 2007)

According to Thalmann and Baranzini (2005), there are three categories of voluntary approaches in environmental policy: unilateral self-regulation, negotiated agreements, or public voluntary programmes. Prominent examples in climate policy are the Carbon Disclosure Project, the agreement of European car manufacturers on emissions standards (Ryan 2008), or the voluntary agreements of the Swiss economy for emissions reduction (Baranzini, Thalmann et al. 2004).

Voluntary approaches tend to be popular with those directly affected and can be used when other instruments face strong political opposition (Thalmann and Baranzini, 2005). In contrast to other climate policy instruments, voluntary agreements enforce co-operation of the regulated and the regulator. They contribute though to closing the information gap. Moreover, they require co-operation and co-ordination among polluters. VAs are flexible in target setting and the ways to reach the target. However, incentives are needed for successful design of VA, and the regulator needs credible threat in case of non-compliance.

Motives for firms to participate in voluntary programmes are benefits on the demand or the supply side. On the supply side, 'no regret' or 'win-win' opportunities that may lower production costs are reasonable motives for firms to participate in a voluntary agreement. In some cases, the VA may help to overcome some barrier for technology lock-in. Participants can benefit from collective learning about abatement options or technical assistance by the government. On the demand side, voluntary accords can signal green preferences and make consumers sensitive on environmental issues. Also regulatory

gains from strategic preemptive behavior can be reasons for the ‘institutional entrepreneur’ to engage voluntarily, e.g. by setting high technology standards (DiMaggio and Powell 1983; Lyon and Maxwell 2003; Brau and Carraro 2004; Brau and Carraro 2004). Vice versa, regulatory threat has been known as motivation for voluntary approaches (Segerson and Miceli 1998), which might risk lower target setting and interest group influence (Krarup 2001). Signing a voluntary agreement might dilute or postpone more demanding regulation like taxes or command and control regulation (Thalmann and Baranzini 2008). Moreover, voluntary action can raise competitiveness issues. Information exchange within an agreement can increase market concentration which might provoke collusive behavior and could thus have adverse effects on competition (Brau and Carraro 2004).

The literature suggests that voluntary approaches are known to be less environmentally effective and economically efficient than other market based policy instruments, e.g. a Pigou tax or permit trading (Lyon and Maxwell 2003; Thalmann and Baranzini 2004). However, voluntary approaches are likely to be more acceptable for the regulated since they are involved in the negotiation process. VAs are thus a suitable tool for approaching new policy issues as transition measure or in case of weak institutions where it might otherwise be impossible to implement binding legislation (Krarup 2001).

The purpose of this work is twofold: On the one hand, it aims at understanding the positions of Swiss car importing firms on climate policy; on the other hand, it provides empirics on the theoretic literature on voluntary agreements, assessing the performance of the voluntary agreement signed by the Swiss car importers and the implications for effective climate policy design. Therefore, we consider two different levels of analysis: the firm level and the industry level. The first part of the study considers the firm perspective aiming at understanding firms’ positions on climate policy. This used to be the original part of the work stemming from an inductive research approach with the firm as unit of analysis. In addition, the second part deals with the economic assessment of the voluntary accord from a top-down perspective. The unit of analysis is the industry represented by its association. The following research questions are considered:

1. *How do Swiss car importers perceive climate policy?*
2. *How can the agreement be evaluated?*
3. *What were the motives for participation?*

This first part of the paper investigates firms’ strategies and positions on climate policy. The underlying assumption is that there is no unique position of the industry on climate policy but pluralist positions

and strategies among individual firms. Assuming a competitive market environment, car importers are expected to develop different positions and strategies, according to the product strategies of their car manufacturers. The resulting question is how the business association representing the whole market is able to cope with these conflicting strategies, and how the final industry position is developed.

According to the literature on voluntary approaches, targets are likely to be less ambitious or compare to business as usual scenarios only (Krarup 2001; Glasbergen 2004; Thalmann and Baranzini 2004). The underlying hypothesis for this research question is that the measures taken by the signatories of the agreement were not sufficient. Furthermore, a collective action problem might explain the result (Segerson and Jones 2004).

The third question deals with the motivation of the Swiss car importers to sign a voluntary accord. As suggested by the literature, regulatory gain and preemptive behavior make voluntary approaches attractive for firms (Lyon and Maxwell 2003; Brau and Carraro 2004; Brau and Carraro 2004). Vice versa, regulatory threat has been identified as an important motivating factor for signing voluntary agreements (Segerson and Miceli 1998; Krarup 2001). The discussion part compares the voluntary agreement with an alternative CO₂ tax on transport fuels which has been strongly opposed by the industry. The analysis is based on a discussion of the price elasticity of demand for fuel in Switzerland.

The approach for dealing with these multiple questions is the case study as suggested by Yin, with expert interviews as major data source (Yin 2003). The structure of the paper is as follows: The methods section describes the case study approach employed in this paper. Chapter three presents the data sources used for this work. Chapter four illustrates the results of the case study. First, we reflect the firms' perceptions on climate policy. Second, we discuss the economic assessment and the motives for participation of the agreement signed by the Swiss car importers. The final section concludes.

2. The case study as qualitative method

Following a phenomenological approach, the case study is selected to deal with the research questions formulated above. By definition, the case study is a monographic approach employing various methods such as interviews, participant observation or field studies for illustrating empirical evidence for qualitative research on more than one research question. The case study is a method by which a bounded social phenomenon is accurately described doing fully justice to its context. It is a suitable

approach for complex research on real-world situations dealing with multiple research questions and different data sources where the boundaries between context and phenomenon are not evident. It investigates research related to 'how' and 'why' questions and further explores the phenomenon using an inductive approach (Yin 2003).

The economic literature on voluntary agreements is mostly theoretical. However, the case study approach has been applied by some authors in order to show empirical evidence on voluntary accords, e.g. on the German industry associations (Alberini and Segerson 2002), the U.S. chemical industry (King and Lenox 2000), French car manufacturers (EEA 1997) or the Swiss economy (Baranzini, Thalmann et al. 2004).

The case of the voluntary agreement signed by the Swiss car importers requires methods that are suitable for interdisciplinary applied research with multiple research questions and different data sources. For exploring the different research questions related to this case, including 'how' and 'why' questions, the case study is chosen as research approach. This research contains inductive and deductive elements. Inductive is the aim of understanding the firms' perceptions on climate policy and the resulting sub-research questions. As main data source, expert interviews were carried out. Bibliographic sources and transport statistics provide the material for illustrating the case of the Swiss car importers and answering the research questions. The deductive part of this study tests the theoretical propositions on voluntary agreements derived from the literature based on the empirical findings from our interviews and desktop research.

3. Data sources

For addressing construct validity, different data sources will be used for data triangulation. The most important data sources are 20 expert interviews that were carried out for this case study. Moreover, documents, as for instance press releases, advertisements by the firms and personal information of the Federal Energy Agency, the Association of Swiss car importers and newspaper ads of the Swiss car importers have been collected in the case study database. In particular, a visit of the 'Salon d'Automobile' in Geneva, Switzerland's greatest car exhibition, and a collection of advertisements published in the 'Neue Zürcher Zeitung', Switzerland's most famous newspaper, provide empirics on marketing campaigns of the Swiss car importers in 2009.

20 semi-structured face-to-face interviews were carried out with 15 directors and PR managers of Swiss car importing firms and 5 experts from research, NGO's and the association of Swiss car importers and the Swiss administration in June and July 2009 (for meta-data, see Annex, 0). The firm sample covers 65% of the Swiss car market. The experts were interviewed in order to control for the validity of the answers provided by the firm representatives regarding the deductive research questions. The information provided by the car experts is also used as input for the subsequent positivist analysis.

The interview questions were open and semi-structured covering market- and non-market issues. These included questions on the firm's perception of climate change and climate policy, chances and risks accruing from climate change and climate legislation, the firm's environmental strategy, the motivation for signing the voluntary agreement, measures taken by the firm, the satisfaction with the agreement and the work of the industry association, and further policy recommendations. The questionnaire served as guideline for the interviews. As suggested by Yin, the interviewer tried to familiarize with the interviewees to better understand his position and his aims (Yin 2003). The interviewer promised not to cite or quote the interviewees except with explicit permission. Meta-data was noted shortly after the interviews. The interviews were transcribed, and the data was coded with the software package Atlas.ti.

4. The voluntary agreement of Swiss car importers

In 1990, Switzerland set up the first framework for promoting energy efficiency, Energy 2000. The aim was to stabilize energy consumption by the year 2000 on the level of 1990 and to decrease energy consumption afterwards. The main motivation behind was energy security. In 2000, this public voluntary programme has been replaced by 'SwissEnergy' aiming at the reduction of fossil fuel consumption and CO₂ emissions by 10% by the year 2010. 'SwissEnergy' sets up a framework of self-declarations by the Swiss industries, which allows for binding regulation if voluntary measures were not sufficient. In May 2000, the Swiss CO₂ law came into force stipulating the reduction of greenhouse gases in Switzerland by 10% by 2012, compared to 1990. The target is split into sub-targets of 8% reduction for transport fuels and 15% reduction for heating fuels. Basically, the target should be reached with voluntary measures with the option of a subsidiary CO₂ tax if these measures would not prove sufficient.

Regarding emissions from road transport, the Swiss Parliament approved a bill of the Federal Council on specific fuel consumption of passenger cars, the VAT, which entered into force in January 1996.² It fixed target values for fuel consumption of newly registered cars. If average fuel consumption was not reduced by 15% by 2001, the government would be able to introduce binding regulatory measures. In 2001, average fuel consumption of newly imported cars was 8.3l/100km corresponding to a decrease of only 7.5% compared to 1996. Consequently, the Federal Council introduced the energy label and signed a new voluntary accord with the Association of Swiss car importers in 2002.

On the 19th of February 2002, the Association of Swiss car importers and the Swiss Federal Council signed an agreement on reducing fuel consumption of newly imported vehicles to Switzerland. The average consumption of 8.4l/100km in 2000 should be reduced to 6.4l in 2008. The agreement defined a step-wise annual reduction of 0.25l/100km. Precise measures for reaching the target were not defined. The two most important measures that had been developed were the information initiative 'Smart drive' and the Swiss energy label for cars that were implemented together with the Swiss Energy Agency. The association launched the information campaign 'Smart drive'³ including related press releases and marketing campaigns with an annual budget of 1.5 Mio CHF p.a. between 2005 and 2008.⁴ It should inform consumers how to save emissions by optimizing driving behavior. The energy label indicates the fuel consumption per vehicle relative to its size in seven efficiency categories (see Figure 1).⁵

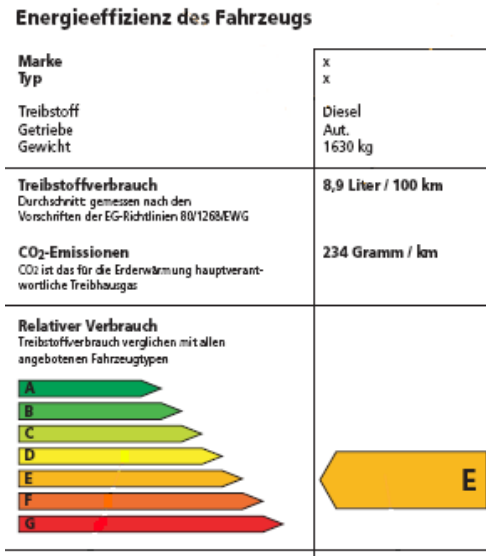
² <http://www.admin.ch/cp/d/1995Dec18.110858.5038@idz.bfi.admin.ch.html>

³ www.clever-unterwegs.ch

⁴ Figures provided by Auto-Suisse, June 3, 2010.

⁵ The energy category for each vehicle is calculated in relation to vehicle weight. Accordingly, vehicles are labeled energy efficient in each weight class.

Figure 1: Energy label of the Swiss Energy Agency



Informationen zum Treibstoffverbrauch und zu den CO₂-Emissionen, inklusive einer Auflistung aller angebotenen Neuwagen, sind kostenlos an allen Verkaufsstellen erhältlich oder im Internet unter www.enargie-schweiz.ch abrufbar.

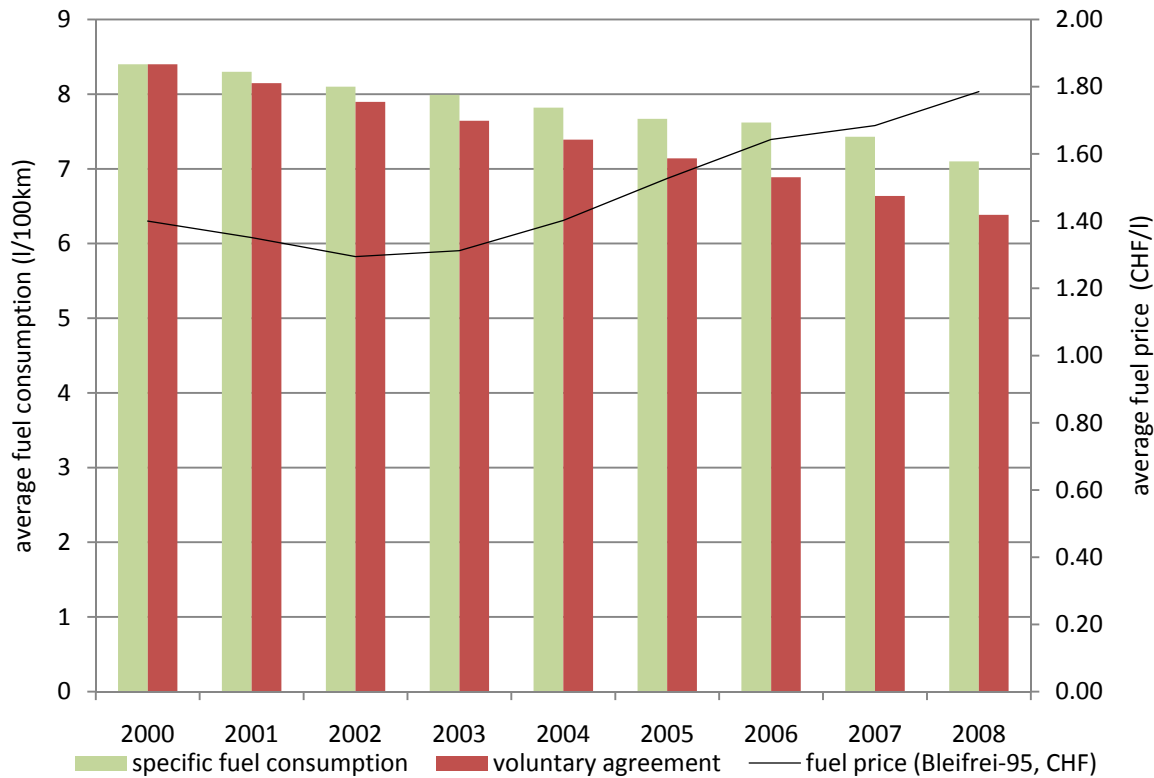
Der Treibstoffverbrauch und die CO₂-Emissionen eines Fahrzeugs sind auch vom Fahrstil und anderen nichttechnischen Faktoren abhängig.

Gültigkeit der Deklaration: 6. 2004

Source: (Haan, Müller et al. 2007)

Figure 2 compares the development of average fuel consumption of newly sold cars with the annual targets of the voluntary agreement and the average fuel price in Switzerland. Even though average fuel consumption declined from 8.4l/100km in 2000 to 7.14l/100km in 2008, there is still a considerable gap between the target value and the actual result achieved in 2008. The graph compares the annual achievements with the average fuel price in Switzerland between 2000 and 2008. In 2004 and 2008, greater fuel reductions could be related to increasing fuel prices.

Figure 2: Specific fuel consumption of passenger cars vs. negotiated target and fuel price in Switzerland (2000-2008)



Source: Auto-Suisse, 2009; SFOS, 2010

The subsequent analysis will deal with the research questions formulated in the introduction of this paper, i.e. the perception of climate policy by car importers, the evaluation of the agreement, and motives for participation.

4.1 Perception of climate policy

In the interviews, firms were asked about their perception and their attitude towards climate change and climate change policy in general and, in particular, the voluntary agreement signed in 2002. Most of the interviewees seemed to be open for the topic and showed awareness on the issue. Some managers showed personal concerns about the severity of global climate change. However, the majority of the respondents were not very well informed about climate change. Some respondents even confused the topic with local air pollution. In 2008 and 2009, car importers made considerable effort addressing environmental responsibility in marketing campaigns. Some interviewees suggested that they felt forced to deal with climate change because of the strong political and public pressure they were confronted with.

„Durch die Medien. Das war ja dann irgendwann das große Thema. [...] Das wird einem auferzungen, da kann man gar nicht anders. Da muss man mitmachen, man kann ja nicht gegen den Strom schwimmen.“
[By the media. (Climate change) was finally the big issue. (...) We are forced to deal with it, there is no alternative.]

« Actuellement, on subit plutôt la pression des politiques plutôt que de l'influencer. C'est le problème. »
[Actually, we do rather suffer the pressure of the politicians than influencing them. That is the problem.]

This perception was confirmed by car experts who agree that the car industry has been one of the most, if not *the* most monitored industry by the public which exerts substantial pressure on managerial decision-making. Besides these critical views, almost all respondents consider climate change rather as opportunity than as threat for their business. Accordingly, innovativeness would be rewarded by the discussions on climate change and environmental issues. Importers of smaller and environmentally friendly cars recognize their competitive advantage. Several firms claimed that it would not be a problem at all for them, if stricter climate legislation was introduced. However, one importer of small cars fears increasing competition for his segment if producers of bigger cars were pushed into this direction.

« Je pense que, heureusement pour nous, les efforts fait ces dernières années deviennent payants. On a fait des efforts, on a même des produits, on est présent sur le marché avec des solutions dont les autres concurrents rêvent. [...] Nous, on a de la chance d'avoir une entreprise qui a compris cette problématique de l'environnement et qui a décidé de faire quelque chose. »

[Luckily, our efforts made over the last years will pay out. We made these efforts. We do even have products. We are present on the market with solutions our competitors are dreaming of. (...) We are lucky to have a (car manufacturer) who has understood the issue of the environment and decided to do something.]⁶

„Wir können uns vom Markt differenzieren, indem wir schon relativ weit sind im ganzen Umweltgedanken, sei es in der Produktion oder im Produkt selbst. [...] Dort sehen wir eine Chance, dass uns eigentlich der Markt entgegenkommt. Die Politik ist sensibler geworden, der Markt sowieso, und nimmt dann unsere Produkte mehr wahr, als es eigentlich in der Hochkonjunktur, in der keiner von Umweltschutz sprach, der Fall war. Das sehe ich als Chance.“

[We can differentiate from the market, since we are relatively advanced in environmental issues, regarding production or the product itself. (...) We see a chance in the market itself. Policy became more sensitive, the market even more, and it perceives our products better than in economic boom, when nobody talked about the environment. I consider this as chance.]

⁶ Please note, that Switzerland is no car producing country. Cars sold on the Swiss market have to be imported by a car importing firm. Usually, the firms are subsidiaries of the corresponding car manufacturer. Some firms import several brands, such as Emil Frey SA (Alfa Romeo, Aston Martin, BMW, Cadillac, Chevrolet, Chrysler, Corvette, Daihatsu, Dodge, Fiat, Ford, Hummer, Jaguar, Jeep, Kia, Lancia, Land Rover, Lexus, Mini, Mitsubishi, Opel, Piaggio, Saab, Subaru, Suzuki, Toyota, and Volvo) and AMAG (VW, Audi, Seat, Skoda, Porsche).

In fact, almost every firm participating in the study could demonstrate achievements in environmental strategy, i.e. developing alternative fuel technology, or increasing fuel efficiency. The majority of the corresponding car manufacturers research and develop multiple alternative technologies, but focus mostly on one particular technology. Some of them have set up specific programmes for enhancing fuel economy, such as Blue Motion of VW, Efficient Dynamics of BMW, or VOLVO's DrivE. Other brands became famous for specific car models that have been released as 'green flagships' (most famous is Toyota's 'Prius'), or most economic models, e.g. Daihatsu's 'Cuore' consuming 4.4l/100km. Moreover, many car manufacturers plan launching new products or setting up comprehensive research programmes on hybrid technology or electric vehicles in early future, e.g. Mitsubishi's iMiev, launched in 2009, or the Renault-Nissan cooperation on electric vehicles. These attitudes are also reflected in marketing and advertisements that were launched by Swiss car importers in 2009. Almost all advertisements referred to the environment promoting fuel economies or new product strategies, with some exemptions, e.g. Audi. However, this trend comes to an end in early 2010. Moreover, it can be questioned, how much effort has been spent for green marketing vs. green investments, i.e. how reliable those marketing strategies are compared to firms' veritable product strategies. Some managers mentioned explicitly that they did not want to 'jump on this train' of green marketing now just because all the others were doing so.

To sum up, the overall picture suggests a diverse picture of the product strategies of Swiss car importers showing different attitudes and positions on climate change and offering a broad range of products for the Swiss market (see Table 1).

Table 1: Overview on specific fuel-saving technologies of imported cars in Switzerland in 2008

Car brand	Average emissions (g CO ₂ /km)	Product mix: focus on small cars or alternative fuels (natural gas or ethanol)	Eco-friendly product line or efficiency programme
Audi	191	None	-
BMW	170	None	Efficient Dynamics
Chrysler	230	None	-
Citroën	160	Small cars, ethanol	airdream
Daihatsu	n.a.	Small cars	-
Fiat	144	Small cars, natural gas	-
Ford	160	Natural gas, ethanol	ECOnetic
Honda	162	Hybrid	-
Mazda	168	None	-
Mitsubishi	181	None	-
Nissan	166	None	Nissan green programme
Peugeot	158	Small cars	Blue Lion
Renault	173	Small cars, ethanol	Eco ² line
Seat	168	Ethanol	ecomotive
Skoda	158	Small cars	Green Line
Toyota	149	Hybrid	-
Volvo	190	Natural gas, ethanol	DrivE
VW	178	Natural gas	Blue Motion

Source: TCS Verbrauchskatalog (TCS and SuisseEnergie 2008) and personal interviews

Assuming perfect competition on the Swiss car market, it is hard to determine one single industry position on climate legislation since this would consequently produce winners and losers. From our analysis, we do not find strong evidence for a homogenous structure of firms' positions on climate policy measures. Hence, we could expect firms to develop different non-market strategies for gaining competitive advantage as suggested by Porter (Porter and Linde 1995). In the car market, this was actually observed with the particle filter for diesel engines which had been developed by Group PSA in the 1990s. For amortizing their investments and gaining competitive advantage, Group PSA lobbied for binding regulation as favorable framework condition. The heterogeneous structure of the Swiss market puts into question meaningful representation of the industry in the political decision process. In the case of Auto-Suisse, the aggregate position emphasizes the position of potential losers from climate regulation. It seems that there are a few firms that become politically active and influence the aggregate position of the association on the expense of other firms that might potentially benefit from climate regulation. However, no individual non-market action can be observed by those members that are not sufficiently represented by their association. A possible explanation might be that other benefits resulting from membership in the association compensate the losses an inappropriate position on climate legislation, e.g. benefits for cooperation in research and technology. Moreover, lobbying for stricter climate policy measures beyond the association can be considered as public good among the

firms benefiting from it. Hence, the individual firm faces incentive to free ride on the other firms' efforts. On the other hand, it is likely that the firms' priority is to minimize overall regulatory risks thus showing some kind of collectively rational behavior.

4.2 Evaluation of the agreement

According to the agreement, total fuel consumption in Switzerland is 6% lower in 2008 than in the year 2000.⁷ Moreover, the impact on emissions savings is diluted by the switch to diesel which has a higher density than petrol. Hence, overall emissions savings are by definition lower than the 8% greenhouse gas reduction target formulated in the CO₂ law. The voluntary measures based on marketing and information campaigns were not sufficient to reach the target of 6.4l/100km in 2008 (see Figure 2). In addition, the energy label for cars is misleading as it relates fuel consumption to vehicle weight. According to it, a heavy car can be labeled as very efficient (A) if it consumes more than the target value of 6.4l/100km. This measure actually contradicts the achievement of the fuel reduction target. Moreover, the agreement challenges the definition of a voluntary agreement as climate policy instrument since no firm measures had been defined.

As reasons for not reaching the target, many interviewees mentioned arguments that were also communicated by the association. The line of argumentation was twofold. On the one hand, the time frame of the agreement was too short for achieving the target. The innovation cycle for designing new cars would take at least 8 years. On the other hand, Swiss consumers would prefer heavy cars. This was due to the mountainous topography of Switzerland, the high level of purchasing power and consumers' preferences that were reflected in the increasing number of SUV sales. Moreover, the low diesel share and the tax on diesel fuels in Switzerland hindered the expected fuel switch from petrol to diesel. Some interviewees claimed that environmental technologies have not developed as fast as they were supposed to, and that incentives were missing for consumers. Some respondents mentioned that one of the reasons for failure might have been bad communication among the firms.

As confirmed by the interviewees, the agreement showed considerable shortcomings in its design. Most importantly, it provided neither incentives nor sanction mechanisms. Furthermore, the most important party, the consumer, was not involved. Firms claimed they were on the one hand totally dependent on the decisions of the consumer and on the other hand the supply of their car manufacturer. Actually, the

⁷ This figure considers the cumulative share of newly imported cars relative to the total stock of passenger cars and the annual amount of fuel savings according to the agreement.

scope of measures to be taken by a car importing firm is very limited. On the one hand, the importer has to rely on the products of the car manufacturer. On the other hand, it does not operate close to the consumer either, since the car seller, the garagiste, is the next entity in the supply chain. Consequently, the agreement could not work out, since there were no financial incentives for consumers to choose fuel efficient vehicles. Car experts criticize likewise that the agreement lacks credible incentives and sanction mechanisms. Moreover, further policy measures providing financial incentives should have been introduced by the Swiss government, but this was not the case. Neither firms nor consumers faced serious incentives for saving fuel. Whatever their choice was, there would not be any consequences for any of the parties. In contrast to that, car importers have an incentive to sell bigger cars which are normally more expensive and thus more promising in terms of profitability, as some interviewees pointed out. Hence, it is likely that one of the most important factors explaining the reduction achievements in 2008 was the rise of the oil price having the effect of an indirect fuel tax (see Figure 2).

In the second part of the interview, the firm representatives were asked about their knowledge of the voluntary agreement and the measures by firms for reaching the target. The overall knowledge of the interviewees on the agreement was rather poor. Only few respondents could point to details of the contract. The majority referred to their business association Auto-Suisse for this question. About half of the interviewed persons claimed that in 2002, they had not been in the business, yet, or worked for other companies or on other positions. Being asked for specific measures that were taken on behalf of the agreement, only one respondent could name two models that were actually taken out of the market during that time. Other respondents answered that some models were taken out of the market, but they could not name them. The majority of respondents referred to marketing activities for fuel efficient cars or information campaigns for efficient car driving. One firm had offered certificates for compensating emissions to clients. But this programme was abolished in 2007 and later replaced by cooperation with myclimate.⁸ To summarize, firms seemed to be badly informed about aims and measures of the agreement.

Moreover, there were different understandings of who should finally be responsible for taking measures. On the one hand, the business association Auto-Suisse claimed that it was her sole responsibility to take measures. On the other hand, some firm representatives claimed that it was only their task to take measures and not the association or it was up to both of them, the firms and the association. Regarding these different understandings by firms, one possible explanation is the problem

⁸ Myclimate is a Swiss non-profit foundation selling carbon offsets: <http://www.myclimate.org/en.html>.

of collective action (Olson 1968). Since no individual firm targets have been defined, achieving the overall target becomes a public good. Individual firms face an incentive to free ride on other firms' efforts (Segerson and Jones 2004).

In contrast, one over-arching interest of the industry is to avoid regulatory risk. This can be considered as public good for the whole branch. Individual firms do therefore face no incentive to engage politically, i.e. become 'institutional entrepreneurs' (DiMaggio, 1988). This is the task of the association. Moreover, the level of communication among firms seems to be very high. The majority of the interviewees were very well informed about the state of our research activities and the interview schedule. This insight would give support to the proposition of Brau and Carraro (2004) that VAs increase the level of intra-industry communication.⁹

4.3 Motives for participation

Section 4.1 refers to the perceptions of firms on climate change and climate policy. It shows a diverse picture of firm positions with different perceptions and strategies. According to their positions, firms were more or less motivated for signing the voluntary agreement of 2002. Some firms consider it 'a good step into the right direction' promoting technology development and doing good for the environment. Others agreed that more ambitious policy targets would have been beneficial for their product strategy. However, the majority of car importers was not much concerned about those non-market activities and was satisfied to leave this work to their association.

According to these different firm positions, the firms' understandings on the reasons for the association to sign this accord were twofold. One part of respondents referred to the official argumentation of the business association, which is very positive about the intentions in 2002:

„Da wollte man eigentlich ein Zeichen von Seiten der Automobilindustrie setzen, dass wir uns bemühen. Es wird unterschätzt, was in der Entwicklung der Automobilindustrie eigentlich freiwillig gemacht wird, ohne Druck.“

[The automobile industry wanted to show that we make efforts. The voluntary achievements that are made in the automotive industry, without pressure, are underestimated.]

In contrast, other respondents stated that public and political pressure led the industry to sign this contract. More precisely, the agreement had been signed in order to avoid the introduction of a fuel tax.

⁹ Brau and Carraro (2004) state that voluntary agreements would lead to an increased level of communication among its participants which raises questions on collusion.

« Je pense que cet accord volontaire on l'a subit finalement. Il a évité d'amener de nouvelles taxes.»

[I think that finally, we have suffered this accord. It has avoided the introduction of new taxes.]

Provided the heterogeneous picture of firms' positions on climate policy, the question is how this agreement came finally into existence and what the motivation of the association was to sign a voluntary accord on fuel efficiency instead of accepting a tax on transport fuels.

The literature acknowledges benefits on the demand and the supply side or non-market strategy, such as preemptive behavior or low target setting as reasons for participating in voluntary accords (Segerson and Miceli 1998; Krarup 2001; Lyon and Maxwell 2003; Baranzini and Thalmann 2004; Brau and Carraro 2004; Brau and Carraro 2004). Actually, the industry's preference for a policy instrument depends on the costs and benefits for the industry. If car importers preferred the voluntary agreement over a tax, the measures the agreement have to be less costly than the expected profit losses from a tax on transport fuels. Actually, the impact of a tax reducing fuel consumption by 8% is negligible. Sceia et al. (2009) show in general equilibrium simulations that the influence of such a limited transport levy does not influence composition of the passenger cars fleet (Sceia, Altamirano-Cabrera et al. 2009). Moreover, given inelastic demand for fuel sales (Baranzini, Neto et al. 2009), the tax burden would be passed on to the consumer. Swiss car drivers prove to be less sensitive to price changes when purchasing a new car. The bigger the vehicle the less sensitive is the consumer's reaction on price changes at car purchase (Haan, Müller et al. 2007; Peters, Mueller et al. 2008). Provided the introduction of a levy on transport fuels, consumers would either drive a bit less or replace existing cars by new efficient cars. Consequently, demand would increase in the short term. The tax would probably have the same effect as it was intended by the accord, but would not harm car importers. Hence, it would be reasonable for car importers to prefer the fuel tax instead of costly firm measures. Actually, the association of Swiss car importers agrees that the economic impact of a fuel tax on car sales would be rather low.

Possible explanations for the instrument choice of the Swiss car importers are strategic behavior or non-credible threat. The relatively low target and the low budget give support to the argument that the agreement had been signed for strategic reasons. The agreement served to minimize regulatory risks by postponing stringent policies and measures. Uncertainty over the costs of alternative policies could explain this choice. Maybe, the car importers join a coalition with other industries that would be more affected by the introduction of the CO₂ tax on transport fuels. Indeed, the Association of Swiss car importers opposes the tax on transport fuels arguing for aggregate economic impacts. Accordingly, the

tax would increase production costs for other sectors and favor rail vs. road transport. It has to be noticed that a general opposition of taxes can be observed in the Swiss society. Moreover, the industry did not have to expect serious consequences from non-compliance. Since the accord was voluntary it would not justify sanctions. Car experts confirm the hypothesis from the literature that the agreement was probably signed for strategic reasons in order to postpone more stringent legislation (Thalmann and Baranzini 2008).

5. Conclusions

This paper presents a case study on the voluntary agreement on fuel efficiency signed by the Swiss car importers in 2002. Based on 20 expert interviews and bibliographic data, firms' positions on climate policy, the motivation for signing and the performance of the agreement have been evaluated.

The analysis shows that there are diverse positions on climate legislation among the Swiss car importers. Some of them show more pro-active positions on climate policy than their industry association whereas others are well in line with it. The findings of the interviews suggest that there are a few influential members in the association that seem to determine collective position of the association. Though a considerable share of firms acknowledges potential benefits from climate legislation, no action is taken. This raises the question of representativeness of the association's collective position.

The agreement signed by the Swiss car importers has not been sufficient for reaching the negotiated target of 6.4l/100km fuel consumption for the average imported car in Switzerland in 2008. The agreement did not formulate explicit firm measures; it was relatively cheap and non-binding. This case study gives support to the argument that an environmentally effective policy should rely on market-based mechanisms. The assumption that this agreement has been designed in order to postpone more stringent market-based climate policy measures could not be reversed. Although the Swiss car importers have made some efforts, this agreement effectively avoided the introduction of stringent climate policies and measures for road transport on the expense of other economic sectors. Moreover, it is likely that the Swiss car importers form an interest coalition with other industries that might eventually suffer from the introduction of a CO₂ levy on transport fuels. On the aggregate level, the exemption of road transport from stringent climate policy measures can be interpreted as subsidy to market participants on the expense of other economic sectors.

Despite its shortcomings, this voluntary agreement raised awareness among firms and consumers thanks to information campaigns and labeling activities. Information and education are important measures for climate policy in order to be acceptable for the public. In particular in Switzerland, where car drivers show very low sensitivity on fuel prices, information campaigns remain a key element of effective climate legislation. Acceptability of policy measures is a key condition for sustainable policy implementation.

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6. Annex

6.1 Data on car sales by Auto-Suisse and total stock of passenger cars

Table 2: Quantification of transport fuel

		2000	2001	2002	2003	2004	2005	2006	2007	2008
total stock of motor vehicles ¹	<i>thousand</i>	4'585	4'707	4'809	4'888	4'969	5'040	5'108	5'186	5'245
sales by Auto-CH ²	<i>thousand</i>	315	317	295	272	269	259	269	285	289
total km travelled ¹	<i>Mio km</i>	48'062	48'508	49'061	49'526	50'018	50'464	50'811	51'207	51'948

Source: 1 = Swiss Federal Statistical Office (SFOS 2010); 2 = Association of Swiss car importers (Auto-Suisse 2009)

6.2 Table of interviewees

	Firm	Function	Name	Date	Place	Market share (2008)	Average emissions
Car importers	FIAT	PR responsible	Mrs. Bertschinger	16 June 2009	Zurich Schlieren	5%	144g
	Citroën	PR responsible	Mr. Zimmermann	23 June 2009	Geneva	3%	160g
	Mazda	PR responsible	Mr. Loffredo	23 June 2009	Geneva, Petit-Lancy	3%	168g
	Honda	General Director	Mr. Launaz	26 June 2009	Geneva Satigny	3%	162g
	Peugeot	PR responsible	Mr. Schär	1 July 2009	Bern, Moosseedorf	5%	158g
	AMAG	PR responsible	Mr. Graf	2 July 2009	Zurich	Total: 24% VW: 11% Audi: 6%	Average: - VW: 178g Audi: 191g

						Skoda: 4% Seat: 2%	Skoda: 158g Seat: 168g
	Renault / Dacia	Director	Mr. Renaux	2 July 2009	Zurich, Urdorf	5%	173g
	Mitsubishi (Frey)	Director	Mr. Hoch	2 July 2009	Zurich	1%	181g
	Toyota (Frey)	Director	Mr. Rhomberg	7 July 2009	Zurich	5%	149g
	Chrysler / Jeep / Dodge	Associate Director	Mr. Steffen	8 July 2009	Zurich, Schlieren	1%	230g
		PR responsible	Mr. Rossier				
	VOLVO	PR responsible	Mr. Heiniger	9 July 2009	Zurich, Glattbrugg	3%	190g
	ASCAR AG (Frey)	Director	Mr. Hüsser	10 July 2009	Safenwil	1%	
	Ford	Director	Mr. Soltermann	13 July 2009	Zurich, Wallisellen	5%	160g
		PR responsible	Mr. Thomann				
Association	Auto- Schweiz	Director	Mr. Burgener	30 June 2009	Bern	<100%	175g
Experts	BFE		Mr. Volken	20 June 2009, 25 June 2010	Bern, Papiermühle		
	VCS		Mr. Egli	16 June 2009	Winterthur		
	ETHZ		Mr. de Haan	7 July 2009	Zurich		
	WWF		Mrs. Saul	13 July 2009	Zurich		

References

- Alberini, A. and K. Segerson (2002). "Assessing Voluntary Programs to Improve Environmental Quality." Environmental and Resource Economics **22**: 157-184.
- Auto-Suisse (2009). Immatikulationen von neuen Personenwagen. Bern, Association of Swiss car importers.
<http://www.auto-schweiz.ch/cms/Personenwagen.html>
- Baranzini, A., D. Neto, et al. (2009). Elasticité-prix de la demande d'essence en Suisse. Geneva, Swiss Federal Energy Agency.
- Baranzini, A. and P. Thalmann, Eds. (2004). Voluntary approaches in climate policy. New Horizons in Environmental Economics. Cheltenham, Edward Elgar.
- Baranzini, A., P. Thalmann, et al. (2004). Swiss Climate Policy: Combining VAs with other instruments under the menace of a tax. Voluntary Approaches in Climate Policy. A. Baranzini and P. Thalmann. Cheltenham, UK, Northampton, MA, USA, Edward Elgar: 249-276.
- Brau, R. and C. Carraro (2004). The economic analysis of voluntary approaches of environmental protection. A survey. Critical Issues in Environmental Taxation III. Richmond, UK, Richmond Law & Tax.
- Brau, R. and C. Carraro (2004). Voluntary Approaches as Climate Policy Tools: Competition issues and the role of market structure. Voluntary Approaches in Climate Policy. A. Baranzini and P. Thalmann, Edward Elgar.
- DiMaggio, P. and W. W. Powell (1983). "The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields." American Sociological Review **48**(April): 147-160.
- EEA (1997). Environmental Agreements Environmental Effectiveness. Copenhagen. **2**.
- Glasbergen, P. (2004). The architecture and functioning of Dutch negotiated agreements. Voluntary approaches in climate policy. A. Baranzini and P. Thalmann. Cheltenham, UK, Northampton, MA, USA, Edward Elgar.
- Haan, P. d., M. Müller, et al. (2007). Lenkungsabgaben zur Senkung des CO₂-Ausstosses beim Neuwagenkauf. Bern, Swiss Federal Energy Agency.
- IPCC (2007). Policies, Instruments and Co-operative Arrangements. Fourth Assessment Report (AR4) of Working Group III IPCC (Mitigation), Intergovernmental Panel on Climate Change.
- King, A. and M. Lenox (2000). "Industry self-regulation without sanctions: The chemical industry's responsible care program." Academy of Management Journal **43**(4): 698-716.
- Krarup, S. (2001). "Can voluntary approaches ever be efficient." Journal of Cleaner Production **9**: 135-144.

Lyon, T. P. and J. W. Maxwell (2003). "Self-regulation, taxation and public voluntary environmental agreements." Journal of Public Economics **87**(7-8): 1453-1486.

Niederberger, A. A. (2005). "The Swiss climate penny: An innovative approach to transport sector emissions." Transport Policy **12**: 303-313.

Olson, M. (1968). The logic of collective action. Cambridge, Massachusetts, Harvard University Press.

Peters, A., M. G. Mueller, et al. (2008). "Feebates promoting energy-efficient cars: Design options to address more consumers and possible counteracting effects." Energy Policy **36**: 1355-1365.

Porter, M. E. and C. v. d. Linde (1995). "Toward a new conception of the environment-competitiveness relationship." Journal of Economic Perspectives **9**(4): 97-118.

Ryan, L. (2008). Has the EU Automobile VA met policymaker and theoretical expectations? EAERE Annual Conference 2008. Gothenburg.

Sceia, A., J.-C. Altamirano-Cabrera, et al. (2009). Assessment of acceptable Swiss post-2012 climate policies. Climate Economics at the NCCR Climate. N. Climate. Lausanne, NCCR Climate. **2009/04**.

Segerson, K. and K. R. Jones (2004). Do voluntary approaches to climate change lead to efficient environmental protection? Voluntary approaches in climate policy. A. Baranzini and P. Thalmann. Cheltenham, UK, Edward Elgar Publishing Ltd: 67-88.

Segerson, K. and T. J. Miceli (1998). "Voluntary environmental agreements: Good or bad news for environmental protection." Journal of Economics and Management **36**(2): 109.

SFOS (2010). Fahrzeug- und Infrastrukturnutzung - Indikatoren. Neuchâtel, Swiss Federal Statistical Office.

<http://www.bfs.admin.ch/bfs/portal/de/index/themen/11/04/blank/key/01/01.html>

SFOS (2010). Tagesmobilität in der Schweiz pro Person. Neuchâtel, Swiss Federal Statistical Office.

<http://www.bfs.admin.ch/bfs/portal/de/index/themen/11/07/01/01/unterwegszeiten.html>

TCS and SuisseEnergie (2008). Verbrauchskatalog. Fahrzeugliste mit Verbrauchsangaben. Bern, Touring Club Suisse
Swiss Federal Office of Energy.

Thalmann, P. and A. Baranzini (2004). An Overview of the Economics of Voluntary Approaches in Climate Policies. Voluntary Approaches in Climate Policy. A. Baranzini and P. Thalmann, Edward Elgar.

Thalmann, P. and A. Baranzini (2008). "Gradual Introduction of Coercive Instruments in Climate Policy." Critical Issues in Environmental Taxation **5**: 53-74.

Yin, R. K. (2003). Case study research. Thousand Oaks, SAGE.