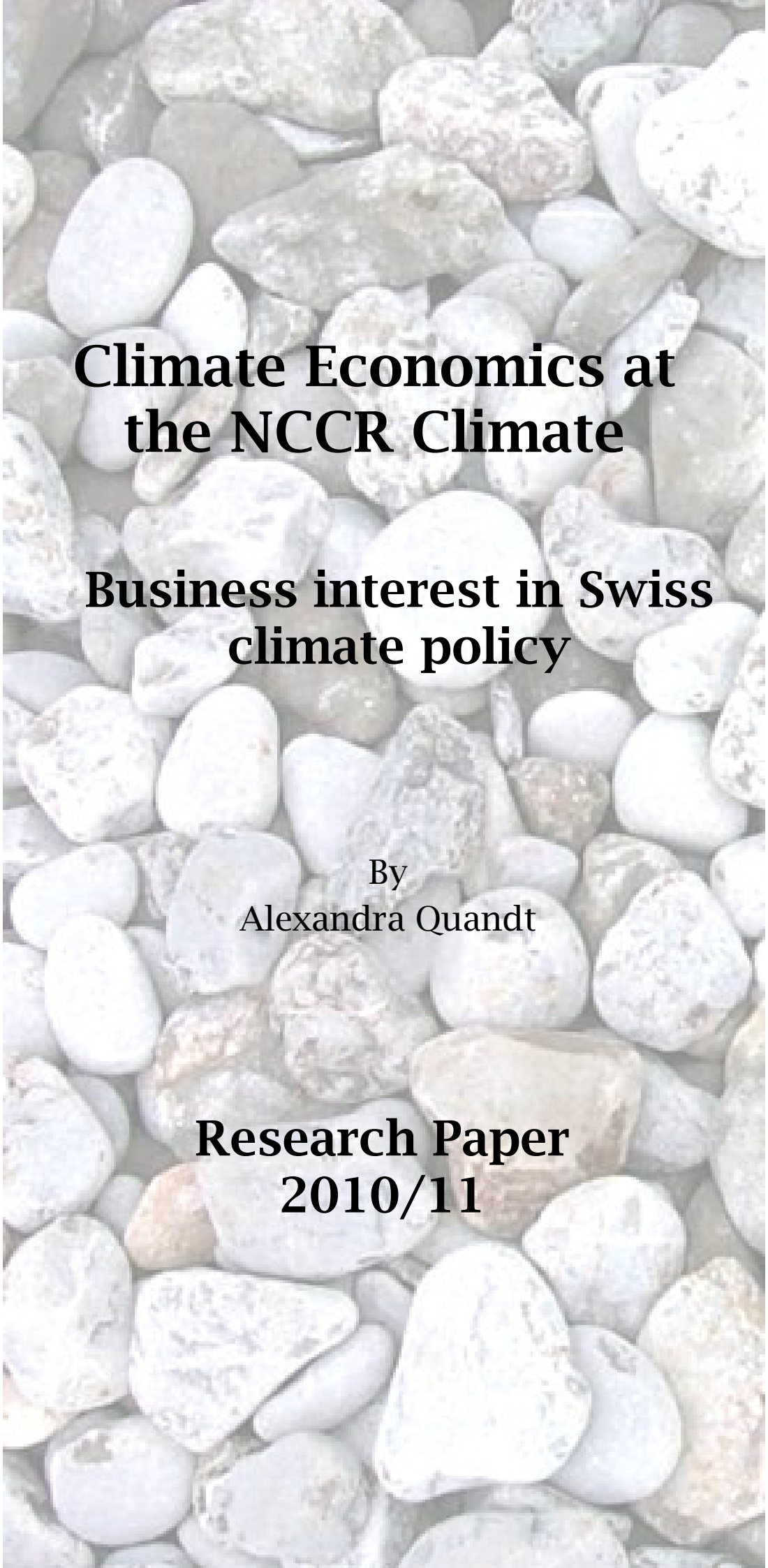

NCCR CLIMATE
Swiss Climate Research

Climate Economics at the NCCR Climate

Business interest in Swiss climate policy

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BUSINESS INTEREST IN SWISS CLIMATE POLICY

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ABSTRACT

Business interest associations play an important role in the decision making process of climate policy. In 2009, the revision of the Swiss CO_2 law for designing post-2012 climate policy is at stake. This paper analyzes the positions and arguments of the Swiss business community on climate policy, combining cluster analysis with qualitative content analysis. As a main finding, we can observe gradual positioning between opponents and proponents of climate regulation. There is no solid business front opposing climate policy in Switzerland but different clusters and sub-clusters of firms and associations drawing a pluralist picture of business interest. The positions mainly base on rational behaviour assessing the respective industry's costs and benefits of climate regulation as well as the exposure to climate change impacts. However, large business interest associations tend to overstate the expected costs resulting from climate regulation. For some cases, we find that firms are not represented appropriately by their business associations.

Keywords: business interest associations, climate policy, Switzerland

1. INTRODUCTION

Besides environmental effectiveness and economic efficiency, acceptability is an important criterion for an appropriate design of environmental policy. Private interest groups have always played an important role in the design of policies and the political decision making process. This is particularly true for Switzerland. The Swiss political system has always been considered as 'democratic corporatism,' with a long tradition of powerful interest associations being more coherently structured and better endowed

[1] This research is part of the Swiss NCCR Climate project on 'Modelling sectoral climate policies: Mitigation, Adaptation and Acceptance' (NCCR Climate: http://www.nccr-climate.unibe.ch/) and the research project 'Climate policy making for enhanced technological and institutional innovation' (CLIMPOL: http://www.cces.ethz.ch/projects/clench/CLIMPOL) of the Competence Centre Environment and Sustainability (CCES).

with resources than the rather weak political parties (Katzenstein 1984). It is characterized by a centralized and concentrated system of interest associations, voluntary and informal coordination of the various interests in continuous political negotiations with political parties and public administration, and an ideology favouring social partnership (Linder 2005; Kriesi and Trechsel 2008). However, the recent literature comes to the conclusion that, after its apogee in the 1980's, corporatism is on decline in Switzerland and in whole Europe. After the end of the Cold War, the emerging globalization and internationalization of political and economic exchange are weakening corporatist ties (David, Mach et al. 2009). With the emergence of new policy issues, such as environmental policy, we note the appearance of new 'public interest groups' advocating public concerns in environmental and social policy issues (Oxenfarth 2009). This development attracts pluralist theories on interest organization as it has been formulated by Robert Falkner in his book on 'Business Power and Conflict in International Environmental Policies' (Falkner 2008). Falkner states that there is pluralism among business actors on the issue of environmental regulation, e.g. climate policy. According to Falkner, business actors are not simply opposing environmental regulation, but, according to the firms' interests, there are opponents and proponents in the business community. As a consequence, business conflict may arise between technological leaders and laggards, nationally and internationally operating firms, and along the supply chain. First, Falkner argues that technological leaders and innovators, enjoying competitive advantage, could be more open to climate legislation than less innovative firms ('technological laggards'). Second, internationally operating firms, and third, firms that are operating close to consumers react more sensitively on environmental policy since they are exposed to the pressure of international NGO's and consumer organizations. Falkner expects a pluralist picture of positions on climate policy among the business community. Falkner's argumentation builds on rational choice theory. His firs assumption refers indirectly to the hypothesis of Porter and van der Linde (1995) on competitiveness and induced innovation by environmental regulation. Porter and van der Linde challenge the notion that environmental regulation is costly arguing that stringent environmental regulation induces technological progress as firms adapt to the new conditions by innovation. Accordingly, the gains from induced innovation, i.e. productivity gains or first mover advantage, may offset the costs of imposed regulation. Innovative firms face thus an incentive to become first movers, which would make them better off if environmental regulation was introduced. Moreover, one could argue that first movers might lobby for the introduction of environmental regulation in order to punish their competitors (Brau and Carraro 2004). Furthermore, firms might be interested climate regulation because they are exposed to the

impacts of climate change that might generate financial losses for their businesses. Firms could take positions in favour of climate regulation because they might benefit directly from environmental subsidies or depend on the continuation of subsidy programs, i.e. some forms of renewable energy. Finally, product differentiation could be a reason for firms to develop an environmentally friendly image in order to benefit from excess consumer demand (Prakash 2002).

The paper analyses the different positions of the business community on the revision of the Swiss CO_2 law. In particular, we investigate if there are different pluralist positions on the Swiss CO_2 law, or if there is just one solid block opposing the law proposal. In contrast to the existing literature on Swiss interest associations, mainly focusing on peak interest associations (Mach 2006; Ingold 2007; David, Mach et al. 2009), the analysis deals exclusively with positions of the business community and covers a large set of 75 actors. We consider the positions of Swiss peak interest associations, business associations and individual firms expressing their positions in the 2009 consultation on the revision of the CO_2 law and post-2012 climate policy for Switzerland. The positions are analysed with hierarchical cluster analysis and qualitative content analysis. In the qualitative discussion part we analyze the main lines of conflict on the CO_2 law and discuss potential drivers behind the arguments of the firms. The paper is organized as follows: After a brief introduction to Swiss climate policy and the Swiss economy, we will explain methods and data. The second part of the paper presents the results of the analysis and the discussion of the formulated research questions. The final section concludes.

2. SWISS CLIMATE POLICY

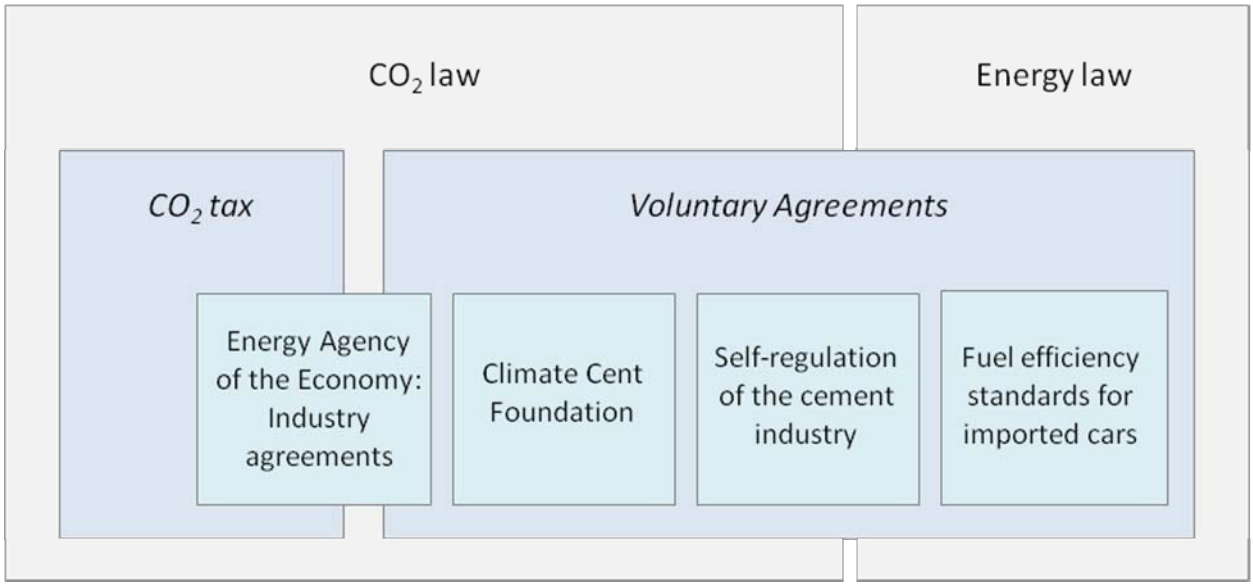
In Switzerland, policies and measures for greenhouse gas (GHG) mitigation are ruled by the Swiss CO_2 law and the Energy law. The Swiss CO_2 law entered into force in October 1999. It aims at reducing CO_2 emissions from fossil fuels by 10% over the period from 2008 to 2012, relative to the 1990 level (Bundesrat 1997).[2] Figure 1 sketches the current climate legislation for Switzerland. Fundamental in Swiss policy making is the subsidiarity principle which gives priority to voluntary approaches. Accordingly, the current version of the Swiss CO_2 law consists to a large extent of voluntary accords that were negotiated between the Swiss government and business interest associations. In 1999, the Swiss

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

government created together with major Swiss peak industry associations the Energy Agency of the Economy (EnAW). The EnAW should enable firms to make self-declarations for emissions reduction in order to get exempted from the CO_2 tax on heating fuels. As another voluntary measure, in 2005, the oil industry and the transport associations introduced the Climate Cent, a levy of 0.015 CHF per litre of gasoline or diesel which is spent for climate friendly projects (Arquit-Niederberger 2005). Moreover, the Swiss government negotiated voluntary agreements with the cement industry and the Swiss car importers (Baranzini, Thalmann et al. 2004; Thalmann and Baranzini 2008). The cement industry committed to reduce energy-related CO_2-emissions by 44.2% between the years 1990 and 2010 (Cemsuisse 2003). The Association of Swiss car importers (ASIA) committed to reduce specific fuel consumption of newly imported passenger cars from 8.4l to 6.4l/100km between the years 2000 and 2008 (DETEC 2002).

The CO_2 law suggests that a CO_2 tax on heating fuels could be introduced by the government if the voluntary efforts made by industry were not sufficient to reach the national reduction target. Consequently, in 2008, a levy of 12 CHF per tonne of CO_2 was introduced for combustible fuels. The tax is to be increased by 12 CHF every year if necessary to meet the reduction target, to a maximum of 36 CHF. It was maintained at 12 CHF in 2009 but raised to 36 CHF in 2010. The tax revenue is redistributed to the population by health insurance.

FIGURE 1: SWISS CLIMATE LEGISLATION IN 2008



Since the Swiss CO_2 law is going to expire in 2012, the government has launched a discussion on the revision of the CO_2 law in 2008. For this purpose, the administration made two different proposals that should be discussed in a public consultation on the revision of the CO_2 law in 2009 (DETEC 2008).

VARIANT 1: 'BINDING CLIMATE TARGETS'

The first proposal commits to a 20% reduction of GHG emissions by 2020 with respect to 1990, or 30% if other countries commit to similar targets. The reduction target should mainly be achieved with domestic measures, i.e. the CO_2 tax on heating fuels. Only 25% of the emissions reduction could be realized by emissions trading. If the reduction path is not met, the government can introduce the CO_2 tax on transport fuels, too.

VARIANT 2: 'BINDING STEPS TO CLIMATE NEUTRALITY'

The second proposal aims at a climate neutral Switzerland by 2030 to 2050. The target should be reached step-wise, starting with 50% GHG emissions reduction by 2020, using both domestic measures and flexible mechanisms. Domestic measures would include a CO_2 tax on transport fuels and non-energetic emissions from agriculture. A price ceiling of 1.2 billion CHF is defined for total certificate costs until 2020.

3. THE SWISS ECONOMY

Switzerland is a service economy. In 2008, the tertiary sector contributes to more than 70% of GDP and almost 73% of employment in Switzerland (FOEN 2009). The largest economic sectors are the financial sector accounting for 11% of total industry output, the wholesale and the retail sector (10%), construction (6%), and the chemical industry (7% including nuclear, coke and petroleum manufacturing). They are followed by spendings for rentings of machinery and equipment (6%) public administration, health and social work and real estate (household) activities (5% each), machinery and equipment, medical and optical instruments, tobacco, food products and beverages (4% each); (SFOS 2008).[3] Other economic sectors contribute less than 2% to Swiss consumption.

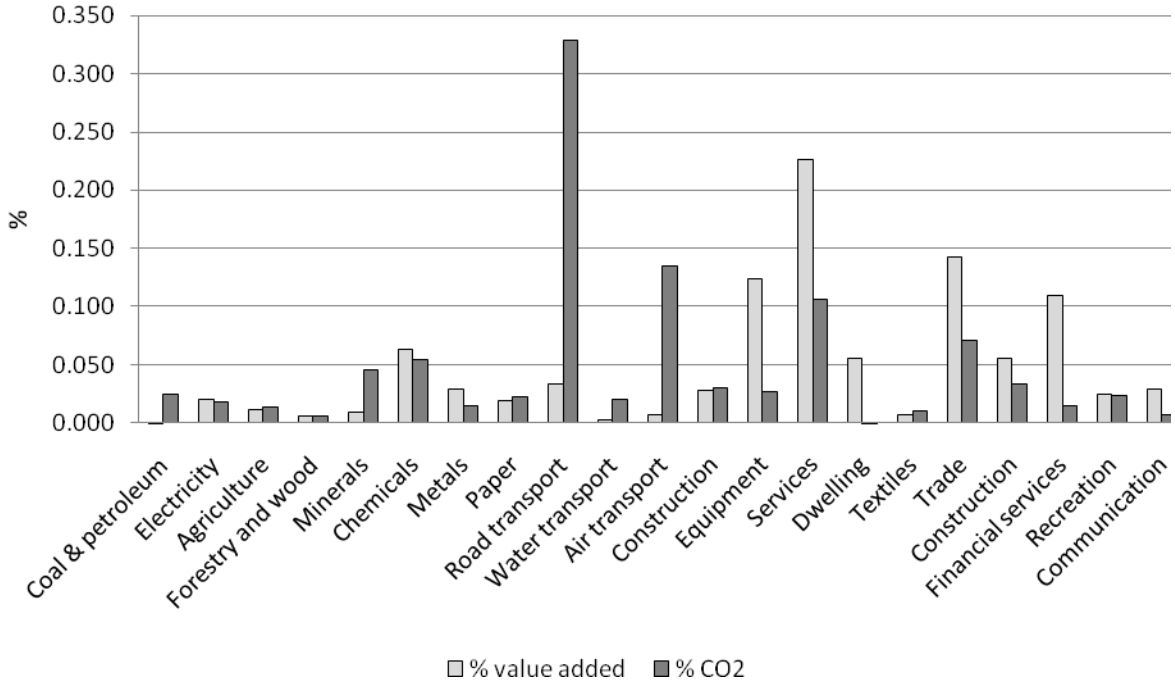
[3] These figures are shares of total industry output, without imports, from Swiss input-output-tables for 2005.

In 2003, the greatest GHG emitters were the transport sector (30%) and the residential sector (22.6%), followed by the industry (22%). Agriculture (11.7%) and the commercial and institutional sector (10.5%) contribute the lowest share of GHG, together with waste incineration (3.2%) (FOEN 2005).

Emission reduction efforts by firms have been done within the framework of the voluntary agreemets (Baranzini, Thalmann et al. 2004; Thalmann and Baranzini 2008). In 2008, 1899 firms made self-declarations within the framework of the Energy Agency of the Economy (EnAW). They reduced 1 Mt CO_2 emissions due to increases in energy efficiency by 18% (EnAW 2009). According to the voluntary accord, the cement industry succeeded in reducing energy-related CO_2-emissions from 1.3 Mt CO_2 to 0.58 Mt CO_2 (-55%) in 2009 (Cemsuisse 2010). The Swiss car importers could not meet their target of 6.4l/100km average fuel consumption per newly imported vehicle. The average fuel consumption was 7.14l/100km in 2008, and the target was not reached, as discussed in Börner and Quandt (Börner 2010; Quandt 2010). To sum up, the emissions statistics provided by the UNFCCC (2010) show that, between the years 2008 and 2000, energy-related CO_2-emissions were increasing for the chemical industry (9.8%), public electricity and heat production (19.5%), petroleum refining (58%), and road transport (5.6%). In contrast, energy related CO_2-emissions were decreasing in iron and steel production (-8%), non-ferrous metals (-33%), print, pulp and paper production (-27%), food production (-5.2%), civil aviation (-36%), and the primary sector (-5.5%). In 2008, total GHG emissions (excluding LULUCF) were 0.45% higher than in 1990 (UNFCCC 2010).

Figure 2 compares the shares of added value of Switzerland's most important economic sectors with the shares of CO_2-emissions based on GTAP data (GTAP 2001). Except coal and petroleum refineries, the ratios of relative CO_2-emissions per relative value added are very low for alle economic sectors. Air transport (0.2) and road transport (0.1) show the highest ratios followed by water transport (0.08) and minerals production (0.05). All other ratios are at 0.01 or are going to zero.

FIGURE 2: SHARES OF CO2-EMISSIONS AND VALUE ADDED BY ECONOMIC SECTOR



4. METHODS AND DATA

For answering the research questions formulated in the introduction to the paper, we perform hierarchical cluster analysis and qualitative content analysis of the responses to the public consultation on the revision of the CO_2 law. The available data consist of a questionnaire that was formulated by the Swiss Federal Office for the Environment (FOEN) and answered by 75 firms and business associations. With 'business associations,' we refer to industry associations, trade associations and other interest groups representing the Swiss economy. The majority of the responses included the questionnaire that was sent together with a letter or short report expressing the positions and interests of the firms or associations.

First, the questionnaires are analyzed in a hierarchical cluster analysis. The cluster analysis examines multivariate data with a view to uncovering or discovering groups or clusters of observations that are homogeneous and separated from other groups (Everitt and Hothorn 2006). The analyzed questionnaire consists of 21 questions on the two variants of the CO_2 law and policy measures independent from these variants. These include questions on the CO_2 tax, emissions trading, financing, adaptation measures, and risk management. For calculating the distance matrix and performing hierarchical cluster analysis, 'R' is

used as statistical software. We calculated distance measures by simple matching, since questions could only be answered with 'yes' or 'no' in the questionnaire. If the respondent did not tick 'yes' she answered 'no'.

Second, we perform qualitative content analysis (Mayring 2007) with elements of public discourse analysis (Scollon 2008; Wodak and Meyer 2009) of the letters that were sent together with the questionnaire to the Federal Office of the Environment for a qualitative assessment of the respondents' positions. The analysis focuses on the agency, positions, arguments, text length, and quality and detailedness of the argumentation. The data was made available to us by the Swiss Federal Office for the Environment after the end of the consultation in June 2009.

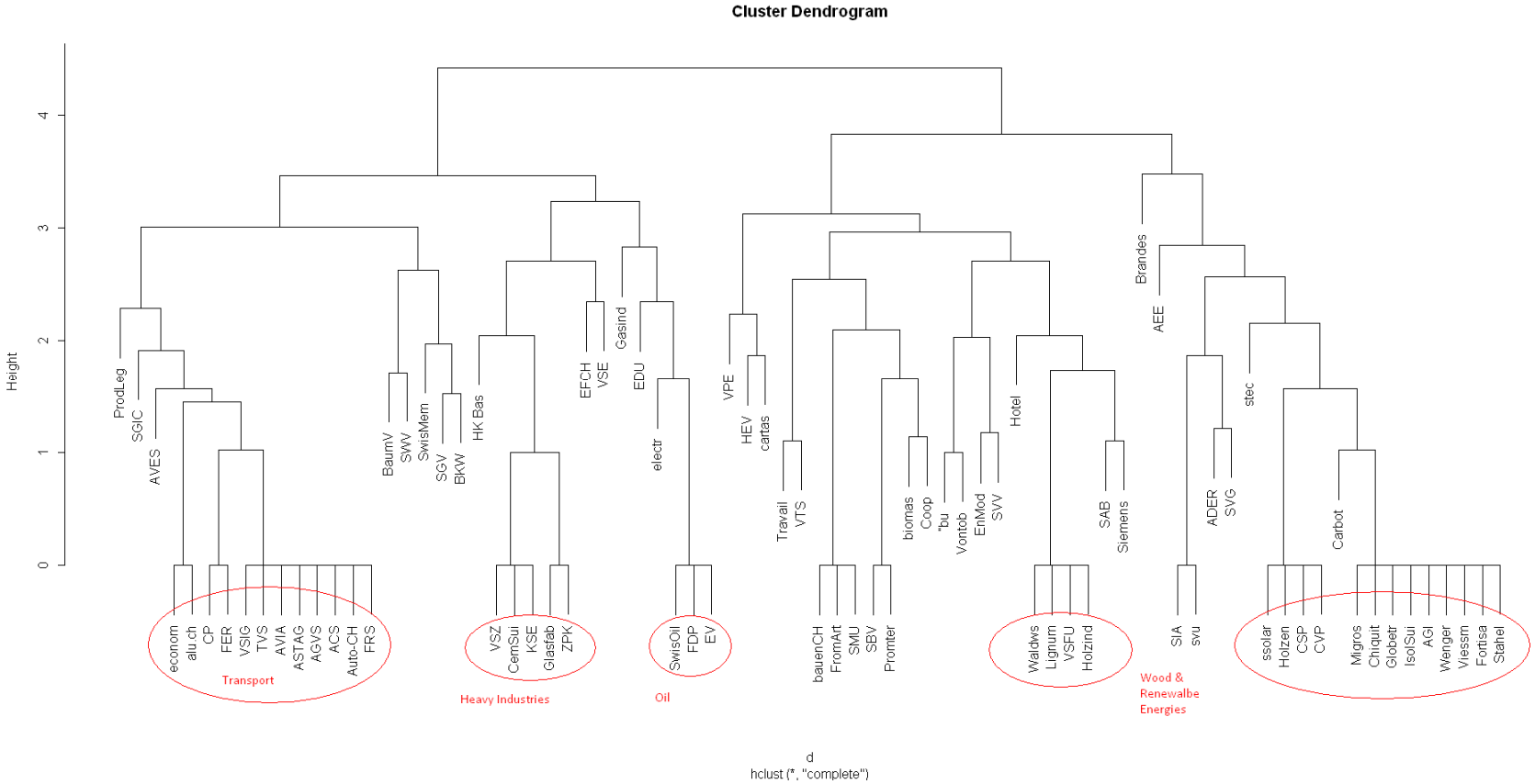
5. Results

Figure 3 shows the quantitative cluster analysis for the responses of 75 Swiss firms and industry associations to the questionnaire on the revision on the CO_2 law. On the aggregate level, there are two main clusters and several sub-clusters of firms and business associations that have responded similarly to the questionnaire.

Respondents on the left-hand side of Figure 3 oppose both variants proposed by the Federal Government, emphasizing the importance of voluntary approaches and demanding minimum state intervention. This group consists of peak business associations, transport associations, conventional energy industry and heavy industries. On the right-hand side, there is a very heterogeneous group of sectors, such as the primary sector, the service economy and the renewable energies, preferring Variant 1 or more ambitious mitigation targets. This group shows concerns about climate change impacts and agrees to the implementation of climate policy measures or demands even more ambitious climate policies and measures. The hierarchical cluster analysis identifies several sub-clusters (see Figure 3):

- Economiesuisse, AluSuisse, the employers' association and the transport associations form one big sub-cluster on the lower left-hand side of the figure.
- The renewable energy industry, the building services industry and retailers and other representatives of the service sector form another cluster on the lower right-hand side of the figure.

FIGURE 3: CLUSTER ANALYSIS ON THE POSITIONS OF BUSINESS INTEREST ASSOCIATIONS AND INDIVIDUAL FIRMS ON THE REVISIONS OF THE SWISS CO_2 LAW 2009



- In between these two, we find some smaller clusters, as for instance the heavy industries on the middle left and the timber industry on the middle right-hand side of the figure.

These groups are identified as clusters because they ticked similar answers in the questionnaire. However, during the qualitative analysis of the letters that were sent together with the questionnaire, it became clear that not all respondents within one cluster would strictly share the same position. Some answers were ticked for different reasons. Combining the information of the quantitative cluster analysis with qualitative content analysis of the letters that were sent to the consultation we identify three large clusters of respondents and four smaller sub-clusters.

CLUSTER 1: PEAK ASSOCIATIONS, ENERGY, HEAVY INDUSTRIES AND TRANSPORT

Peak Assoc.:	*Economiesuisse, Employers' association, Swiss House Owners, Swiss Trade and Crafts Association (SGV), Swiss Trade (VSIG),*
Oil:	*Oil Union, SwissOil, 1 oil retailer,*
Road use:	*Swiss Car Importers, road user associations (ASTAG, AGVS, ACS, Route Suisse)*
Energy:	*AVES, Swiss Energy Forum, Swiss Electricity (VSE), Natural Gas (VSG), electrosuisse, 1 energy firm*
Heavy industries:	*SwissMem, CemSuisse, Conference Stone and Earth (KSE), Swiss Glassworks, Pulp and Paper (ZPK), Alusuisse, Swiss Brick Makers (VSZ)*
other:	*Fédération des Entreprises Romandes, Chamber of trade and commerce Basel, Chemical and pharmaceutical industry (SGCI), Swiss Textiles, Swiss Builders' Association, Swiss Vegetables*

The first group of respondents to the revision on the CO_2 law consists of peak industry associations, transport associations, the heavy industries, the energy industry and two trade associations. All associations in the first cluster reject both variants formulated by the Swiss government. Most of the respondents favour of the alternative proposal formulated by the peak industry association economiesuisse. In this proposal, economiesuisse demands the continuation of the current CO_2 law relying on voluntary approaches as main policy instrument.[4] The association demand further the possibility to abolish the CO_2 tax if the mitigation targets have been met.

[4] For an evaluation of the effectiveness of Switzerland's voluntary agreements see: 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.

These associations emphasize the success of voluntary approaches. They oppose the introduction of a CO_2 tax on transport fuels and demand internationally harmonized policy measures. They promote the use of flexible mechanisms and object the earmarking of tax revenues from the CO_2 tax on heating fuels. Many of them ignore the importance of climate policy in comparison to other policy issues. Some respondents doubt the scientific evidence of climate change.

Sub-cluster 1: Oil and transport

All transport associations make very similar proposals. In addition to the lines of arguments described above, they particularly emphasize the success of the Swiss Climate Cent as voluntary measure and strictly oppose a tax on transport fuels. Transport associations clearly oppose the introduction of a CO_2 tax on transport fuels and other state regulation. The oil industry claims a lower emissions reduction target including all greenhouse gases. The oil industry and one transport association clearly doubt the validity of the IPCC results.

Sub-cluster 2: Heavy industries

The second sub-cluster of respondents in Cluster 1 consists of the heavy industries. In contrast to other respondents, the heavy industries demand a lower reduction target for GHG emissions than 20% by 2020, but agree to the implementation of policy measures for buildings and the transport sector. The interest associations of the heavy industries, i.e. cement, glass, brick and pulp and paper, make very similar proposals on the revision of the CO_2 law. Together with the textile and the machine industry, they emphasize the voluntary efforts that have already been made in cooperation with the Energy Agency of the Economy and state that no further achievements would be possible to make. They refer to an alternative proposal made by the association for energy intensive industries (IGEB), which is similar to the proposal of economiesuisse but with a maximum reduction target of only 15% by 2020. The heavy industries propose internationally harmonized sectoral approaches based on industry benchmarks. The heavy industries criticize the grandfathering of emissions certificates which punishes the voluntary efforts made by early movers.

Sub-cluster 3: Energy

In addition to the before mentioned arguments, the energy associations criticize the mandatory CO_2 compensation for gas power plants. The electricity associations promote nuclear power and claim equal

treatment for all fossil fuels, whereas the natural gas association further demands the integration of methane emissions from agriculture into climate legislation and the promotion of combined heat and power. Two electricity associations propose the total electrification of road transport.

CLUSTER 2: AGRICULTURE, CONSTRUCTION AND SERVICES

Peak association:	*Swiss Mountains (SAB)*
Energy:	*Employees in Electricity (VPE), Swiss Water Economy (SWV)*
Industry:	*Constructionsuisse, Swiss Metal Union,Swiss Textile Care (VTS), 1 pulp and paper producer*
Agriculture:	*Farmers' Association, Prométerre, FromArte*
Tourism:	*Hotelleriesuisse*
Services:	*1 bank*

Cluster 2 shows a very heterogeneous structure. It consists of the peak association of the Swiss mountain regions, the construction industry, the metal industry, farmers, and some individual firms. Except the tourist industry and the mountain regions, all parties of Cluster 2 have in common that they prefer Variant 1 over 2. Most of them agree to earmarking of tax revenues as well as to the implementation of adaptation measures against climate change impacts. Similar to Cluster 1, the Swiss Metal Union, the textiles association, and the associations of house owners and construction show concerns about competitiveness issues and emphasize the effectiveness of voluntary approaches together with international harmonization of policies and measures. However, they demand explicitly incentive programs for the building sector that should be funded by the revenues from the CO_2 tax on combustible fuels. The tourism industry and the primary sector express sincere concerns about the impacts of climate change on the Swiss economy but insist on the exemption from the CO_2 tax for small and medium sized enterprises. In particular, hotelleriesuisse demands stringent adaptation measures and more funding for research in adaptation The farmers' association points out that no other greenhouse gases than CO_2 should be considered in future climate legislation.

CLUSTER 3: SERVICES, THE TIMBER INDUSTRY, AND RENEWABLE ENERGIES

Peak association:	*Travail.Suisse*
Energy:	*Géothermie, Suissetec, Swissolar, Wood energy, Biomass, 3 energy firms*
Industry:	*Industry firm 2*
Buildings:	*IsolSuisse, AGI, SIA, SVU, 3 building service companies*
Forestry:	*Lignum, Swiss Timber Industry, Swiss Forestry, VSFU*
Finance:	*Insurance industries (SVV), Energy-Model Zürich*
Retail:	*4 retailers*
Other:	*öbu, 2 service companies*

The third group consists of the Swiss employees' association, the renewable energy industry, the timber industry, and various representatives of the service sector. All respondents in this group vote for Variant 1 or claim even more ambitious reduction targets than proposed by the Swiss government. Altogether, they express their concern about climate change and its impacts. The respondents prefer Variant 1 for its domestic reduction target, which they consider to be an opportunity for the Swiss economy in terms of innovativeness, investments and employment. Moreover, some of the respondents demand higher domestic reduction targets and the offset of Switzerland's 'grey emissions' by foreign certificates, as well as the integration of marine and air transport into the emissions trading system. All respondents to cluster 3 agree to the earmarking of tax revenues for the national building programme. Some of them demand similar programmes for renewable energies, research and development or public transport. Referring to the McKinsey abatement cost curve, many respondents claim the exploitation of cheap reduction potentials in the buildings and the transport sector.

More progressive positions on climate policy were drafted by the Swiss employees' association, the retailers, the insurance industry, and an industrial firm. They emphasize the high potential for employment and innovation from domestic GHG mitigation, the exploitation of cheap reduction potentials in transport and the building sector, referring to the McKinsey abatement cost curve. Moreover, one retailer criticizes the failure of the voluntary agreement for private road transport, and the industry firm demands higher investments in public transport, renewable energies and R&D.

SUB-CLUSTER 4: TIMBER INDUSTRY

The timber industry particularly advocates the CO_2 tax on combustibles linked with the buildings programme. This provides incentives to substitute other building material by timber and promote wood as renewable energy. Moreover, the timber associations demand a fund compensating forest owners for their sinks, and they oppose a CO_2 tax on transport fuels since their business faces high transport costs.

6. DISCUSSION

Overall, we do not observe a solid block of opponents to climate legislation but a pluralist picture of positions. The positions of the business community on Swiss climate policy range gradually from opponents to proponents. The oil industry and the transport associations formulate the strongest arguments opposing climate legislation, whereas the renewable energy industry, the insurance industry, the building services and some individual firms give the most progressive answers in which they express

sincere concern about climate change impacts, and propose further climate legislation. The common arguments of the opponents to climate legislation are concerns about economic growth and competition. Firms and business associations in Cluster 1 oppose both variants proposed by the federal government. They emphasize the success of the voluntary approaches and demand more flexible mechanisms. These industries strictly oppose the introduction of the CO_2 tax on transport fuels and claim that no further reductions would be possible. Proponents of climate legislation are in favour of Variant 1 or demand even higher reduction targets. They emphasize the benefits from domestic GHG reduction in terms of competitive advantage from innovation, investments and employment. Furthermore, proponents of climate policy welcome the reduced import dependency on fossil fuels claiming the application of the polluter-pays principle. Among all respondents, there was consensus about the harmonization of Swiss legislation with the EU and international climate politics.

In the following, we discuss the hypotheses of Porter and Falkner on business conflict and first mover advantage that were introduced in the introduction of the paper. First, the positions of technology oriented firms are ambiguous. On the one hand, the renewable energy industry, a big manufacturing firm and the building service industry take a very progressive stance on climate policy and measures. On the other hand, the association of machine and metal industry, the heavy industries and the chemical industry take a rather conservative position on climate legislation. However, the heavy industries have made considerable reduction efforts and approve introduction of further policies and measures in the buildings and the transport sector, e.g. a CO_2 tax on transport fuels or subsidies for the energy efficiency of buildings. Second, there is no clear evidence for Switzerland that internationally operating firms would be more open to climate legislation. The heavy industries, the chemical industry and the trade associations are rather opposing further climate regulation. However, we observe that the internationally operating financial and insurance industry, and one manufacturing company express serious concerns about climate change and emphasize the need for climate policy and measures. Our analysis also confirms that firms operating close to consumers were more open to climate policy. Swiss retailers formulate very progressive positions on climate policy. The same argument holds for financial services, the tourism industry, and other service sectors. However, the umbrella organization economiesuisse which is also representing the whole service industry is rather opposing climate regulation (Cluster 1). For instance, economiesuisse opposes the introduction of a CO_2 tax on transport fuels, while it also represents members demanding more ambitious measures for the transport sector and equal treatment of all economic sectors. This is contradictious since the majority of its members

belong to economic sectors that expressed more progressive positions than the association itself.[5] Moreover, we observe that business interest associations tend to under- or overstate their positions and oppose or demand policy measures that would not concern their core business. However, to the knowledge of the author, no single study has been carried out by business associations that assesses the actual costs and benefits that accrue to the firms from climate regulation. In particular peak associations show a tendency to work with rather general arguments. This was, for instance, the case for the employers' association, the trade associations, the builders' association and the house owners providing standard answers that oppose government regulation in general. Peak industry associations face the challenge to represent a large number of business associations with very different characteristics, which forces them to find the lowest common denominator. To sum up, based on our analysis, we do first observe lines of conflict between more and less regulated sectors, as well as potential beneficiaries of subsidy programs. Second, there is potential conflict between industries that have already made voluntary efforts and those who have made few efforts only. Third, there was some discussion about the kind of greenhouse gases (methane vs. CO_2) that should be considered in the future climate policy regime.

In the second part of the discussion, we focus on the potential drivers that might explain the different positions of the Swiss business associations. First, we consider direct costs and benefits that would accrue from the Swiss CO_2 law: The introduction of a price on carbon induces shifts in supply and demand from market distortion. This invokes output changes. Assessing the economic burden of Swiss post-2012 climate policy, Sceia et al. (2009) find that the output losses for most economic sectors are rather low.

[5] This observation opens up new issues of agency between the firms as principal and the business association as an agent which cannot be answered sufficiently with our analysis.

TABLE 1: OUTPUT VARIATIONS FOR SWISS ECONOMIC SECTORS BY 2020 WITH TWO DIFFERENT SCENARIOS (IN %)

Sector	Petroleum refining	Agriculture	Forestry	Minerals	Chemical	Metal	Printing and publishing	Consumption goods	Equipment	Dwelling	Rail transport	Road transport	Air transport	Services
Scenario 1	-8.2	-2.1	-1.5	-0.4	-0.1	0.3	-0.2	-1.2	-0.3	-0.3	-0.7	-0.7	-0.3	-0.1
Scenario 2	-11.9	-3.8	-3.2	-0.8	-0.2	0.1	-0.4	-2.2	-0.9	-0.3	-1.1	-1.0	-0.3	-0.1

Source: Sceia et al. (2009). Assumptions for Swiss post-Kyoto climate policy: emissions trading for energy intensive sectors with 80% of allowances grandfathered, CO_2 tax on transportation if limit on certificate purchase is reached, CO_2 tax on combustible fuels with 200 Mio. CHF of tax revenues spent for the building programme, no constraints for air transport, emissions standards for newly registered cars and penalty for car importers if emissions are above target value. Scenario 1 with limited international agreement (only low abatement globally), Scenario 2 with international agreement where stronger abatement would be agreed upon all world regions.

Table 1 shows the output losses from Swiss Post-2012 climate policy for different economic sectors in 2020, provided two different international climate policy scenarios. The most affected sector is petroleum refining expecting production losses between -8.2 and -11.9%. It follows agriculture with production losses between -2.1 and -3.8%, forestry (-1.5 to -3.2%), consumption goods (-1.2 to -2.2%), and rail and road transport (-0.7 to -1.1% each). According to this study, the total loss of Swiss GDP would not be more than -0.33% (Sceia, Thalmann et al. 2009). This figures is still lower than the expected annual welfare losses from climate change impacts in Switzerland of -0.48% of GDP by 2100, (Ecoplan 2007).[6] The expected output losses simulated by Sceia et al., confirm that the oil industry, expecting considerable output losses in petroleum refinery, would consequently oppose climate legislation. Compared to the oil industry, other opponents, as the heavy industries, the chemical industry or road transport, would only face moderate output losses. In contrast, the primary sector, agriculture and forestry, would face much higher output losses but do not oppose climate legislation. Second, industries that would benefit from climate regulation give strong support to the CO_2 law and the earmarking of tax revenues. Tax revenues spent for investment programmes in research and development or the building programme would benefit certain industries. In fact, the renewable energy industry, building services, the timber industry and eco-consultants are in favour of the law. Third, one manufacturing firm that has the potential to develop alternative technology could benefit from climate regulation that would put a price on carbon. This example confirms the Porter hypothesis according to which first movers would enjoy cost advantages over their competitors (Porter and Linde 1995). Finally,

[6] This figure considers only direct impacts. Accounting for indirect economic impacts and uncertainties from non-linear events, the annual losses of GDP are likely to be much higher.

Swiss retailers mention benefits from product differentiation which might raise additional profits from environmentally friendly product lines.

Industries that are exposed to direct impacts of climate change are likely to support climate policies and measures in order to reduce the operative risk. In Switzerland, the most vulnerable industries to climate change are tourism and energy, but also agriculture, transport and the insurance business are affected by damages from climate change (Ecoplan 2007). Moreover, firms can be affected indirectly by their suppliers from foreign countries. We observe that Swiss farmers, the timber industry and the tourism industry show concerns about the impacts of climate change and demand measures for adaptation. In particular the insurance industry shows serious concerns about climate change impacts increasing business risk.

Since not all responses were determined by pure rational decision making, we try to identify other factors explaining deviations from pure rational choice theory. One of them is the size and structure of the organization. We observe that peak industry associations and large business associations that are representing well established industries tend to take a more conservative position on climate legislation, whereas smaller associations and individual firms tend to support climate policy. We expect strategic behaviour, reputational or historical factors to be the reason why large and mature associations tend to take more conservative positions. The heterogeneous structure of their members makes those associations subject to inter-organizational conflict. Finally, an interesting observation is that firms that are organized as cooperatives or family business and that are not subject to the maximization of shareholder value show high ethical values promoting corporate social and environmental responsibility. This can be confirmed in the case of two retailers, one bank and the eco-consultants.

7. CONCLUSION

From our analysis, we can draw a pluralist picture of positions of the Swiss business community on climate policy. There are various positions ranging gradually from opponents to proponents of climate legislation. Business actors tend to discuss the detailed features rather than the general thrust. Based on the responses to the public consultation on the Swiss CO_2 law, we identify three big clusters and several sub-clusters of business associations and individual firms. Peak interest associations, the oil industry, transport associations and heavy industries take a rather conservative position on the CO_2 law demanding lower targets and soft policy measures. Proponents are the renewable energy industry, the timber industry and the service sector. The positions can mostly be explained with rational choice theory, comparing costs and benefits of climate regulation and potential climate change impacts. However, we observe that large business interest associations that are representing well-established industries tend to take a more conservative position than smaller associations or individual firms. These associations tend to over-estimate the costs of climate policy. Though, corresponding studies that assess explicitly the costs and benefits accruing to their members do not exist. As a consequence, some business associations do not represent the majority of their members appropriately. Future work could assess these relationships quantitatively or discuss further the agency dynamics between firms and business associations.

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