THREE ESSAYS ON THE ACCEPTABILITY OF ENVIRONMENTAL POLICY IN SWITZERLAND

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Avant-Propos

J'aimerais dédier cette thèse à tous ceux qui m'ont aidés et soutenus pendant ces trois ans. A tous ceux qui étaient là pour moi quand j'ai douté, qui m'ont encouragé de continuer et de persévérer, et qui me prêtaient l'oreille quand j'étais bloqué dans ma recherche.

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Résumé

Cette thèse traite de l'acceptabilité de la politique environnementale en Suisse. La première partie de la thèse se focalise sur la demande pour la qualité environnementale telle qu'exprimée par les urnes. L'analyse est menée à l'aide de l'approche 'public choice', qui est basée sur les hypothèses de rationalité instrumentale et de maximisation de l'utilité. Pourtant, il est aussi conseillé de prendre en compte les normes et préférences construites à l'intérieur d'une société ainsi qu'une propension à penser au bien commun lorsqu'on étudie la demande pour un bien public tel que l'environnement. C'est la raison pour laquelle ces éléments ont été intégrés à l'analyse. De plus, à l'intérieur d'un cadre analytique riche qui prend en compte les motivations des citoyens de même que les facteurs contextuels pour expliquer le vote, il a été démontré que les votants réagissent d'une manière significative à la perception de la situation économique que cela soit à leur propre échelle ou à celle de leur pays. Par conséquent, lorsque ces votants sont assurés des bonnes dispositions de l'économie nationale et de leur situation financière personnelle, la probabilité qu'ils soutiennent une politique environnementale donnée est plus grande. La deuxième partie de la thèse est consacrée aux préférences de différents acteurs-clés en termes de politique environnementale ainsi qu'à la manière dont ils forment des alliances durant la phase pré-parlementaire. En se basant sur une analyse approfondie des réponses des acteurs-clés sur quatre propositions de loi, nous avons pu montrer que la ligne de conflit sur les politiques environnementales en Suisse se base sur l'affrontement des visions d'une politique libérale et d'une politique interventionniste et que, donc, les possibilitées d'alliances transversales restent limitées. Malgré l'hypothèse formulée par certains chercheurs d'un possible déplacement de cette ligne de conflit dû à l'émergence d'attentes dites post-matérielles ou gauche-libertaires, nous n'avons pas pu vérifier cette hypothèse pour la Suisse.

Mots-clés: Politique environnementale, démocratie directe, référendums, préférences, vote économique, public choice, instruments de marché

Abstract

The present thesis studies the acceptability of environmental policy in Switzerland. The first part of the thesis concentrates on citizens' demand for environmental quality at ballots. The analysis is guided by the public choice framework, which is rooted in the assumptions of instrumental rationality and utility-maximization. However, it is advisable to account for socially constructed norms and preferences, and a logic of appropriateness, too when studying the demand for a public good such as the environment. This is why these elements were integrated into the analysis. Furthermore, in a rich decision-making framework which controlled for citizens' voting motivations and for contextual factors influencing the vote, it was shown that voters react sensitively to both their personal and the nation's perceived economic conditions. Thus, when they feel confident about the country's or their personal economic conditions, they are more likely to support environmental policy. The second part of the thesis is devoted to actors' policy preferences and their alliance formation behavior in the pre-parliamentary phase. Based on an in-depth analysis of actors' responses to four pre-legislative drafts, it was shown that the main conflict line in Swiss environmental policy runs along the market vs. state divide and that, thus, the possibility to engage in cross-cutting alliances remains limited. Despite hypotheses of scholars that this line of conflict may be shifting due to the emergence of post-material or left-libertarian issues on political agendas, we were not able to corroborate this claim for Switzerland.

Keywords: Environmental policy, direct democracy, referendums, stated preferences, economic voting, public choice, market-based instruments

'Protection. For free traders, this word represents the consummate evil. For environmentalists, it is the ultimate good.'

Daniel C. Esty, 2001

1 Introduction

On April 17, 2007 the United Nations Security Council held its first-ever debate on the impact of climate change on peace and security. This meeting put forth neither measurable consequences nor did it receive unanimous support from all Security Council member states. However, it points to the growing salience of environmental issues such as climate change. The origins of these global climate protection activities date back to the 1992 'Earth Summit' in Rio de Janeiro, where developed countries pledged to stabilize Greenhouse Gas (GHG) emissions to 1990 levels by the year 2000. The Kyoto Protocol in 1997 then went a step further demanding for a reduction of GHG emissions by 5% below 1990 levels by 2008-12. These international developments had repercussions on the national political scene as well. Inspired by international efforts, Switzerland aimed at reducing its own CO_2-emissions with a respective federal bill. In 1994, well before the Kyoto Protocol, Swiss government proposed a first legislative draft which aimed at stabilizing CO_2-emissions akin to the Rio agreement. However, it took more than six years until the CO_2-law, heavily modified and subject to concessions by government, entered into force on May 1, 2000.

Environmental and climate issues are rising to the top of political agendas in advanced industrial democracies. Though, the growing importance of the environmental issue has only rarely led to more stringent ecological policy or greater acceptability in the political arena. Neither has it up to now led to a big surge of Green parties' vote shares. Yet, a new, 'second era of environmentalism' seems to be dawning which only partly resembles the grassroots ecological movement of the late 1970s and early 1980s - the era where Green parties emerged across Europe (Kitschelt 1989, Ladner 1989, Hug 1990). But this second wave of environmentalism seems to point in a different direction: firstly, the problem is global since climate change affects the entire planet regardless of regional origins of emissions, and secondly, economic instruments are playing an increasingly large role in mitigation and abatement efforts (Kolstad & Toman 2005). There are reasons to believe that the concern for the environment is indeed not only limited to developed countries but that emerging markets such as the BRIC-economies (Brazil, Russia, India, China) will need to take action against climate change, too, as their economies are growing at a rapid pace and emitting ever-larger amounts of Greenhouse Gases. In the

meantime, however, resistance to signing international emission abatement treaties in these countries remains fierce.

The two aforementioned components then also distinguish the current phenomenon from the one in the 1980s - the founding years of Green parties and ecological movements such as the WWF and Greenpeace. Indeed, while green parties were mostly created out of grassroots ecological movements and other New Social Movements in advanced democracies, protection of natural resources and the habitat is no longer an issue confined to a small set of actors at the far political Left. The issue seems to have been picked up by social-democratic, green and moderate bourgeois parties alike. Furthermore, the state's role in establishing environmental regulation dates back to the beginning of the 20th century, where the goal of Swiss environmental regulation was to protect mountain areas from earth slides and avalanches. In the 1950s, under the influence of highly active pressure groups, which aimed at protecting lakes and rivers against pollution, environmental regulatory activities were undertaken. The ecological movement of the 1970s thus found its precursors in the activities of the post-war environmental activists.[1]

However, there is a paradox to the current situation: while the problem nowadays figures prominently on political agendas and is used for political credit-claiming, enforcement of stringent environmental regulation remains cumbersome (Schneider & Volkert 1999, Thalmann & Baranzini 2008). As environmental policy entails redistributive politics and cost uncertainty (McKibbin & Wilcoxen 2002), features which are closer to socialist than to capitalist politics (Kitschelt 1994), bourgeois parties and organized business traditionally oppose stringent environmental regulation as they fear economic contraction. The latter thus seek to obtain regulation which maximizes short-term benefits and minimizes costs for voters and interest groups, while left and green parties and their natural allies strive for means to mitigate damages from pollution regardless of costs incurred (Kitschelt 1989, Scharpf 2000). Therefore, scholars argue that the main conflict line in environmental policy runs along a economy vs. ecology-axis (e.g. Jasper 1990, Esty 2001, Kriesi & Jegen 2001). However, the distributive conflict is crucial not only for corporate and collective actors (Scharpf 1997) but also for the people, the voters. It is often argued that economic self-interest prevails when voters step into the bal-

[1] For a detailed account of the making of Swiss environmental politics, refer to Knoepfel, Nahrath & Savary (2007) or Knoepfel (1992).

lot booth and that ideological considerations only play a minor role (Deacon & Shapiro 1975, Kahn 2002, Kahn & Matsusaka 1997). However, our analyses show that self-interest may explain a big part of the vote outcomes but that it is important to account for social bases of preferences and norms too when analyzing voting decisions on a public good such as the environment.

Voting on the environment has for a long time been omitted from scholarly attention. Firstly, there was only little possibility to study voters' stated preferences on the environment due to the absence of a great amount of direct democratic mechanisms in advanced democracies at the nation-state level. Secondly, and possibly more important, academic interest was for a long time limited to analyses of voting behavior in national general elections where data was also easier to come by. Lastly, scholarly focus was directed towards the emergence and formation of Green parties in Europe while voters' preferences on the environment at national ballots remained little explored (Kitschelt 1989, Poguntke 1989, Hug 1990, Sciarini & Finger 1991).

In the economics profession, however, research was directed mainly at externality control and at means to mitigate harmful effects of pollution (Butler & Maher 1986). The seminal paper on pollution control by Buchanan & Tullock (1975) directed scholarly attention away from direct regulation towards incentive taxes. They argued that the efficacy of taxes over direct regulation is greater and that enforcement of results is facilitated (Buchanan & Tullock 1975). Their public choice approach to externality control thus pled for a new direction in emissions control. However, enforcement and implementation of economic instruments such as tradable permits and emission taxes remain difficult in real-world politics despite economists' and policy analysts' recommendations (e.g. OECD 2001, Thalmann & Baranzini 2008, Schneider & Volkert 1999). Hahn (1989) showed that, despite recommendations by environmental economists to rely increasingly on market-based instruments instead of direct regulation, command-and-control approaches prevailed at the end of the 1980s. Kirchgässner & Schneider (2003) maintain that the application of economic instruments such as incentive taxes is still scarce but that acceptability has risen slightly. In Switzerland, however, the use of market-based instruments is still met with considerable resistance by employers and the politico-economic milieux. Wallart & Bürgenmeier (1996) showed that in a survey, more than half of major companies regarded incentive taxes as the most efficient instrument but as we will see later, their resistance to im-

plementation has been very efficacious. Market-based instruments have the advantage that they can be enforced budget-neutrally and should not incur redistributive politics. Yet, a paradox remains: although incentive taxes are economic instruments relying on market mechanisms, they call upon interventionist politics, too.[2] Indeed, the design of the revenue recycling is crucial since partial or full earmarking will lead to intersectoral redistribution or to subsidizing of lower income classes. Thus, in order to secure liberal market forces' support of incentive taxes, full redistribution of revenues is essential (Deacon & Shapiro 1975, Felder & Schleiniger 2002, Thalmann & Baranzini 2008).

To date, only few studies exist which analyze citizens' stated preferences on the environment at ballots. Early on voting analyses with survey and aggregate data were undertaken at the sub-national level in the United States by Deacon & Shapiro (1975) and Fischel (1979). The study by Deacon & Shapiro (1975) focused on citizens' preferences for a public good, here the preservation of the California Coastline, using aggregate municipal-level data. They proposed a public choice model where the individual is expected to pursue highest attainable utility subject to a budget constraint (cf. Downs 1957). Integrating a certain number of socioeconomic characteristics, they find higher education to be highly consistent with a favorable stance towards environmental protection. Furthermore, having relatively conservative views seems to undermine approval, whereas their results on income remain elusive. Fischel (1979) corroborated these results in the late 1970s claiming that pro-environment voting choices might be divided along economic and social class lines. Deacon & Shapiro (1975, p. 954) concluded, that ' ... the results obtained cast doubt upon the notion that individuals somehow alter their preferences (or behavior) away from selfishness and towards the social good as they leave the market and enter the polling booth. To the extent that the impact of the proposed policy changes could be specified beforehand, observed voting responses were consistent with self-interest'. Thus, research in ecological economics assumes that the demand for environmental quality can to a great extent be explained by rational, self-interested behavior; thus, by price and income effects only (Kahn & Matsusaka 1997, Kahn 2002). In a similar vein, Schneider & Volkert (1999) argue that voters' self-interest in favor of environmental policy is a necessary but not sufficient condition for successfully ecologizing the economy. They indicate that voters must be aware of long-term ecological problems and

[2] I owe this thought to Philippe Thalmann.

must not make a trade-off between job security and environmental protection in order to approve of environmental policy at ballots.

Hence, as outlined above, voting on the environment has to date still received fairly little scholarly attention. I try to fill this gap with my contributions in Chapters 2 and 3. Moreover, Chapter 4 takes on a different focus to the study of policymaking, in that it analyzes the pre-parliamentary phase, thus, the stage in policymaking where influence of corporate and collective actors is believed to be biggest. As has been shown in the above and will be explored further below, the present thesis thus sheds light on two major research questions: on the one hand I strive to comprehend better voters' motivations and choice when voting on the environment, and on the other hand, I seek to shed light on corporate and collective actors' policy preferences. More exactly, the first question is concerned with voters' self-interest, socially constructed preferences, and the influence of economic conditions on the vote choice, whereas the second question deals with pressure group politics and alliance behavior during the consultation procedure. These research questions will be outlined in more detail in the actual Chapters and I wil give some indications as to the literature and the empirical methods used to address these questions.

Plan of the Thesis

In the remaining part of this introduction, I will present the three Chapters of the thesis. Each Chapter was written in the context of the research project which was at the origin of the thesis.[3] All three papers are have been accepted for publication pending revision in international scientific journals.

In Chapter 2, written together with Bruno Lanz, we propose to expand the common notion of voters, guided by self-interest and utilitarianism, with a framework which allows for price and income effects but also takes into account the role of ideology and norms-based behavior. We analyze three referendums in the year 2000 on incentive taxes on fossil energy and the promotion of renewable energy sources. All three projects - two were backed by government and parliament - were dismissed by the Swiss electorate. We study this triple refutal with municipal-level aggregate data conducting a WLS Seemingly Unrelated Regression Estimation (SURE). Our criticism is mainly directed at

[3] Ph. Thalmann & P. Sciarini. 2004. 'A Multilevel Analysis of Votes on Environmental Issues'. Swiss National Science Foundation, grant no. 100012-103517.

an overly simplistic conception of man, which assumes utility-maximization and self-interest to be the sole motivation when making a decision on a public good such as the environment. We contend that the 'ideological' or 'collective choice' component must be included when analyzing voting outcomes. We do not intend to dismiss the public choice framework, on the contrary, but we aim to propagate a broader conception of preferences, based *inter alia* on socially accepted norms and rules.

Sagoff (1998, p. 214) refers to the dualism between self-interested and norms-based behavior as the 'utilitarian and deontological ... conceptions of rational choice'. Thus, while the former relies on a strict weighing of costs and benefits, the latter may adopt behavior which matches a certain situation or norms. Judgment is then mostly based on a logic of appropriateness, i.e. on a logic where specific behavior benefits society as a whole. Consequently, the individual choice is deemed to be consistent with social roles of identities, rules, and institutions shaping human behavior (March & Olsen 1998). Likewise, this is also referred to as sociological institutionalism where institutions are defined so as to include rules, routines and standard operating procedures as well as socially constructed worldviews (Scharpf 2000). Remark though that Diekmann & Preisendörfer (1992, 2003) claim that the pro-environmental behavior might be foregone when the costs incurred by the environmental measures appear too high and that thus environmental policies would only be enacted in so called low-cost situations.

Yet, while economists assume people to follow their self-interest and to make a rational choice, early research in Political Science on Americans' voting behavior in national elections was rather pessimistic. Scholars did not regard the citizens as being able to make a reasoned choice based on political convictions or ideology. The conclusion drawn by these scholars was that citizens were unable to reason and deliberate about politics in a sophisticated manner and did not dispose of constrained belief systems, i.e. ideology (Converse 1964). In the decades which followed after the minimalist view portrayed in the famous Michigan study *The American Voter* by Campbell *et al.* (1960), the discussions surrounding the voter's aptitude to reach a political statement did not lose any of their intensity. While voters are believed to remain little informed about politics or to have no attitudes whatsoever (Zaller 1992, Popkin 1991), ways out of this dilemma have been sketched out. Indeed, it is now widely accepted that citizens, albeit not being close to the

democratic ideal-type, can overcome the obstacles of low political informedness to make a strategic decision by mimicking the behavior of like-minded citizens and employing heuristic cues (Lupia 1994). Scholars emphasize the cognitive deliberations voters put themselves through to reach an attitudinal statement in referendum or national elections when low political sophistication constrains the process of opinion formation. This view intended to show that people do reason their choices some way or the other, even though their levels of political expertise are rather low and they lack coherent ideology (Sniderman, Brody & Tetlock 1991). Especially in Switzerland several studies provide evidence for this new outlook in public opinion research (e.g. Christin, Hug & Sciarini 2002, Kriesi 2005, Sciarini & Marquis 2000).

Following this strand of research a study was done in the larger context of the present thesis, which aimed to test John Zaller's (1992) Receive-Accept-Sample model applied to environmental referendums in Switzerland (Sciarini, Bornstein & Lanz 2007). His model is essentially concerned with the average voter who, making an opinion statement, gives an answer according to what is 'at the top of his head' at any given moment. Hence, when individuals form political opinions, they do not have an attitude which they refer to but rather make an opinion statement on the grounds of the information they receive from the political elites and on their level of political awareness which interacts closely with their political predispositions. Based on a theoretical framework which took into account utilitarian, normative and cognitive determinants of vote choice, the analysis was able to show that each group of determinants has an impact on the choice and that none of the three proves superior in explaining the outcome. Regarding the predictors of the vote choice, it was shown that the left-right divide proved to be remarkably stable even in the light of intervening variables, and that the influence of citizens' political awareness and of the elites is indeed crucial for the choice (for more detailed results see Sciarini, Bornstein & Lanz [2007]).

Building on the public choice approach, we tested how the economy vs. ecology divide impacts on people's vote choice. We followed on the one hand, the rational choice-influenced economic voting literature, and on the other hand, we took into account concepts from research in political psychology. Thus, in Chapter 3, written together with Philippe Thalmann, we investigate how perceptions of economic conditions in Switzerland influence individuals'

voting decisions. To this end, we tested the relationship between perceptions of personal and national economic predicaments with the readiness to pay for the protection of natural resources and the habitat. Thus, if the economy vs. ecology polarization holds true, we should be able to observe that citizens are less willing to pay for the environment when their pocketbooks, or those of the country are empty - or when they perceive them to be empty.

The concept of economic voting was developed and applied first in the context of U.S. national elections (Kramer 1971). The main hypothesis is as simple as it sounds: if the performance of the incumbent party is satisfactory in terms of economic performance such as per capita income, then citizens will vote in order to retain the party in office (ibid., p. 134). Building on his analysis, a wealth of research followed which evolved and refined the original claim, introducing e.g. the distinction between retrospective and prospective economic voting (Kinder & Kiewiet 1981). Furthermore, it was argued that voters may not only care about macro-economic conditions (sociotropic voters), but about their personal financial situation too (pocketbook voters) (MacKuen, Erikson & Stimson 1992, Sanders 1991, Markus 1988). Likewise, in ecological economics it has been emphasized that a good economic performance of a country is crucial to gain voters' approval on environmental policy (Schneider & Volkert 1999, Kirchgässner & Schneider 2003).

Using the survey answers from the post-referendum VOX-surveys to the open question on citizens' vote motivation on a number of environmental ballots, we were able to classify the electorate into five groups of voters, that is (1) people making a decision with the help of heuristic cues (Lupia 1994, Sniderman, Brody & Tetlock 1991); (2) those making a vote choice based on partisan preferences or following the advice of government (Downs 1957, Kriesi 2005); (3) citizens thinking about their personal financial situation when casting their vote; (4) citizens taking a decision based on the nation's current economic situation; (5) and finally those anticipating future economic developments of the nation's welfare (see e.g. Kinder & Kiewiet 1981, Sanders 1991, Bowler & Donovan 1998, Kinder, Adams & Gronke 1989). The latter three groups are assumed to carefully weigh costs against benefits when making a decision and thus, to rebuke green policies in times of economic downturn. We analyzed 36 environmental referendums in Switzerland, which took place between 1983 and 2004, with a logistic multilevel model controlling for individual-level as well as economic and other contextual determinants of the vote choice.

Furthermore, we set up precise hypotheses pertaining to each group's voting behavior. We used multilevel models to be able to model individual-level and aggregate data simultaneously. The approach accounts for variance in the dependent variable measured at the lowest level of analysis while incorporating information from the other levels of analysis. Furthermore, the context level can be defined spatially or in any other environment which is believed to interact with individual factors shaping political behavior (Steenbergen & Jones 2002, p. 219).

Citizens' negative perceptions of the nation's economic condition thus have an adverse effect on approval of green policy. Moreover, when citizens perceive to be financially better-off, their approval rates are more likely to take a hike. However, this does not apply to all voter groups. Although variables pertaining to public opinion processes and elite influence as well as to the impact of political awareness on the decision could not be tested within our framework, we underline the close relationship between citizens' vote choice on the environment and their perception of personal and national economic predicaments.

Finally, Chapter 4 analyzes environmental bills at one of the earliest stages in policymaking. The focus of the article lies on actors' policy preferences in the pre-parliamentary phase, i.e. in the consultation procedure. I analyze four pre-legislative drafts between 1990 and 2004, which all aim at introducing incentive taxes in environmental regulation. Kitschelt (1994) argued that the environmental policy space is no longer divided solely by a market-state axis, but that a second authoritarian-libertarian axis cuts across the first shifting political competition towards a left-libertarian vs. right-authoritarian configuration. His work is based on Inglehart's (1977) post-materialism hypothesis showing that differences in lifestyles and the emphasis on non-material goods were largely due to economic prosperity after WWII and the sustained absence of war (Inglehart 1977, pp. 13). This in turn led to a growing importance of issues such as the conservation and protection of the environment. Following Kitschelt (1994), these changing value orientations were mainly due to four developments: rising levels of affluence, higher education, a shift towards more white-collar occupations, and the growth of the modern welfare state (ibid., p. 21). Electoral competition would therefore no longer be based on class politics, but on a new left-libertarian vs. right-authoritarian conflict. Whereas I do not specifically test his hypothesis of the re-configuration of electoral competition,

I aim at uncovering the alliances which were formed between corporate and collective actors during consultation. I argue that, if the above statements hold true, we should be witnessing cross-cutting alliances as left-libertarian issues are believed not only to shift electoral competition but also to have the capacity to cut across the distributive axis (Carter 2006, Kitschelt 1988).

The data stems from actors' responses to the policy drafts during consultation procedure and is analyzed with Multidimensional Scaling. The consultation procedure is deemed crucial in that actors can influence the bill to be adopted more fundamentally by voicing their opinion earlier in the policymaking process (Sciarini 2006, Papadopoulos 2001). In corporatist Switzerland interest associations have a strong influence on policymaking. Furthermore, members of parliament are bound by double loyalties: on the one hand they represent their party's interests, on the other hand they are often tied to sectoral employers and employees organizations, or to other consumer and environmental groups (Kriesi 2001, Linder 2006). Indeed, my analysis corroborates not only the economy-ecology antagonism, but also the difficulties of enforcing environmental policy against a strong alliance of organized business, bourgeois parties and employers organizations. Hence, my analysis reverberates George Stigler's (1971, p. 3) famous words, that 'regulation is acquired by the industry and is designed and operated primarily for its benefit'. This thesis shall therefore also shed light on the difficulty of enforcing stringent and effective climate and environmental policy in Switzerland in the light of active pressure group politics inside and outside the parliamentary realm.

In the above I made clear, that the issues raised in my thesis are highly related to one another although each Chapter adopts a different approach and different methods to the study of policymaking. The underlying assumption is that the acceptability of environmental policy at ballots, and the enforceability in the parliamentary arena is complicated by a distributive conflict. Hence, environmental policy is, more than other policy domains, subject to a trade-off between interventionist politics and liberal market economics advocating the primacy of economic growth and security.

Furthermore, the objects studied in the three Chapters are interdependent. In the second Chapter, we analyze three projects at ballots with aggregate municipal-level data so as to control for the effects uncovered by Thalmann (2004), who studies the same objects with post-referendum survey data. This

extension of his analysis thus proved insightful as we were able to take into account determinants unavailable to individual-level analyses. But secondly, these three ballots also have a direct link with the objects studied in Chapter 4. Not only were both to introduce incentive taxes on energy and pollutants, but many business actors and employers rejected the three bills at ballots in the year 2000 on the grounds that the federal law on CO_2 entered into force the same year. Thus, this is crucial to note, since the analysis in Chapter 4 essentially helps us to understand that business support to the projects was declined in 2000 on the grounds of *bad timing* and, equally important, on the *constraining design* of the bills: only one of the three bills foresaw complete redistribution of revenues to the population and the firms. As I was able to show in Chapter 4 the question of revenue-use seems to be the most important one to business and economy actors. Thus, the objects for the second Chapter were chosen so as to re-analyze Thalmann's (2004) study with more and refined determinants and aggregate data, whereas case selection in the fourth Chapter was made so as to observe behavior of corporate actors on similar projects as well as to be able to analyze alliance formation behavior in Swiss environmental politics.[4]

Moreover, while these two Chapters aim at the understanding of the acceptability of incentive taxes on energy, case selection in the third Chapter followed a somewhat different path. Parting from the research project funded by the Swiss National Science Foundation, it was envisaged to analyze all votes held in Switzerland on the environment since the 1980s. This was done in two distinct steps: while the paper by Sciarini, Bornstein & Lanz (2007) studied a subset of these votes up to 1990, the paper by Bornstein & Thalmann (2007), that is Chapter 4, analyzed all votes on the environment where post-referendum survey data was available. Thus, also the three projects of 2000 which were analyzed beforehand (Bornstein & Lanz 2007, Thalmann 2004). This comprehensive test of voting determinants on environmental referendums was thus an important feature of the publicly funded research project and the present thesis.

Without further ado, the next three Chapters present the three distinct papers, while I conclude with a short synthesis, an outlook on further research and some implications to environmental policymaking.

[4]Unfortunately, an envisaged extension of the analysis in Chapter 4 into the 1970s was not possible due to the unavailability of data.

2 Voting on the Environment: Price or Ideology? Evidence from Swiss Referendums

This chapter is a slightly modified version of a paper written together with Bruno Lanz (Bornstein & Lanz 2007), which was accepted for publication pending revision at Ecological Economics.

Abstract

Studies on preferences for environmental quality usually posit that price and income explain most of the observed choices. However, we argue that conceptions of social norms and the common good are equally important when analyzing environmental voting outcomes and are a significant component of the environmental demand. We study aggregate results of three ballot proposals in Switzerland put to vote in the year 2000 which foresaw different tax schemes on fossil energy. All three bills were rejected by the electorate. We are able to show that regions with producer interests, car commuting habits and elderly population are less supportive of ecological tax reforms, unlike higher education and leftist political affinity that work in favor of the bills. More importantly, our results underline the importance of including variables pertaining to the notion of ideology, both in terms of statistical fit and obtaining unbiased estimates for price and income determinants.

2.1 Introduction

Economists' analyses of environmental demand usually posit that price and income effects explain most of the variance and that the environment can be analyzed as any other good (Kahn 2002, Kahn & Matsusaka 1997). The traditional utilitarian view explains individual decision-making as a weighing of costs against expected benefits for a specific policy. This calculus is seen as guiding the median voter's choice in order for her to receive highest attainable utility (Deacon & Shapiro 1975, Downs 1957). Hence, when analyzing voting outcomes on three energy-taxation bills in Switzerland (see below), we find that at the aggregate level the choice pattern among different regions is to be explained by the structural attributes that make costs and benefits of the projects vary. According to this approach the acceptance for the projects, and in turn the demand for the environmental good, is influenced by the price that each individual has to pay.

Scholars from other disciplines argue, though, that citizens might also follow a 'logic of appropriateness' (March & Olsen 1998) to make a choice consistent with roles of identities, rules, and institutions which shape human behavior. They therefore propagate a view in which individuals engage in social processes in order to arrive at a common judgment on the value of an environmental good (Sagoff 1998).

Furthermore, the advent of the New Left and their subsequent internalization of left-libertarian values, such as the ecology agenda during the 1980s, demonstrates the importance of a vision of society where non-market values receive equal importance (Kitschelt 1989). Hence, we argue that income and price effects explain considerable amounts of the environmental demand function but that the 'ideological' or 'collective choice' component of the common good environment is equally important.

Direct democracy in Switzerland provides for a setting which allows us observing directly binding choices towards the provision of environmental goods. We analyze the acceptability of three different taxes on fossil energy put to vote in September 2000 with municipal-level aggregate data. The price increase for this type of energy source would have entailed financial repercussions on households as well as distributional effects. While two of the three projects were to subsidize renewable energy sources and thus to promote 'green energy', the third bill foresaw revenue recycling via social security contributions. Hence,

this third proposal can be viewed as a reform of the work-related fiscal system. However, all three bills were rejected by Swiss voter.[1]

We contend that the demand for 'green energy' can be understood as a demand for environmental quality which we are able to observe through voting outcomes. In this setting, how do price and income effects fare compared to norms-based and ideological aspects? Or in other words, how can we compare voters' instrumental rationality with an approach which emphasizes the role of social norms (Elster 1989)?

Economists tend to assume that voters do not change preferences and behavior away from selfishness when voting on environmental issues (Deacon & Shapiro 1975). We claim that this is not necessarily the case since there is a strong 'public good' component inherent to environmental regulation which can complement individuals' cost-benefit analysis (Sagoff 1998, Vatn 2005, Hammar & Jagers 2007). In turn, the willingness of respondents to contribute to the public good may bear an important part in the observed choices.

While a better understanding of the demand for environmental goods is the primary objective of this study, a second aspect is to highlight acceptability of climate policy. Indeed, science acknowledges that anthropogenic climate change has become one of the most salient environmental issues in the past decades (Kolstad & Toman 2005, IPCC 2007) and that a mix of instruments, such as emissions taxes, voluntary approaches and tradable permits is suited best to deal with conflicting goals of efficiency and equity (Baranzini, Thalmann & Gonseth 2004). Thus, by studying voting outcomes on the three energy bills we contribute to the growing but still scarce literature on referendums on environmental policy.

Following the introduction, we will explain the three ballot proposals in Section 2.2. Thereafter, we present the theoretical framework and provide for measures of price and income effects in Section 2.3, and ideology effects in Section 2.4. Section 2.5 is concerned with the econometric specification of our analysis and we discuss the estimation results in Section 2.6. The last Section concludes.

[1] Thalmann (2004) analyzed the same bills with individual-level data and with a reduced model.

2.2 The three tax proposals

During the second half of the 1990s environmental interest groups and organizations gathered enough signatures for two popular initiatives to be submitted to the Swiss population.[2] The two popular initiatives, the 'solar initiative' and the 'energy-environment initiative', both aimed at taxing fossil energy and promoting renewable energy. After parliament had drafted two more modest and balanced counterproposals, the second of the two initiatives was withdrawn by its organizers leaving the total number of bills to be voted on at three. The following information stems from the official 'Voting Brochure' distributed to the population before every referendum.

During the political campaign, the so called 'Initiative Committee FEU-SOL' emphasized particularly three issues of the bills citizens should take into account when making their choice: the responsibility for the generations to come, global warming and the increased possibility of natural catastrophes, as well as health related problems from bad air quality such as asthma and bronchitis. They argued that a reduced use of energy and therefore a better environmental quality could be achieved at the cost of small personal sacrifices; this in turn would allow to leave a healthier environment to our children.

The first of the three proposals, named *solar initiative*, would have levied a tax during twenty-five years on fossil and nuclear energy, starting at Swiss Francs (CHF) 0.001/kWh and increasing to 0.005/kWh (1 CHF $\approx$ 0.82 US$). The estimated revenues of CHF 750m per year would have been equally distributed for the promotion of solar energy and for energy conservation. The law would have become effective at the latest three years after acceptance of the initiative. Parliament and government rejected the initiative on the grounds that it favored solar energy disproportionately and neglected the promotion and further empowerment of hydrological power; they presented a counterproposal, the so called *energy conservation package*.

The counterproposal, the *energy conservation package* envisaged a tax of CHF 0.003/kWh during ten to fifteen years on non-renewable energy, starting in 2001. Revenues were to be used for four purposes where they would have

[2]The Swiss political system allows anyone to require a referendum on a bill passed in parliamentary, provided one manages to gather 50,000 signatures within 100 days from citizens who have the right to vote. In order to launch a popular initiative, i.e. an amendment to federal law or the constitution, 100,000 signatures must be collected within 18 months. If the required number of signatures are obtained, Parliament and Government may then issue a voting recommendation and/or a counterproposal to the bill.

been split equally for the promotion of renewable energy, for energy conservation, for maintenance works on hydroelectric plants, and for energy-efficiency programs. The counterproposal was prepared by the Committee for the Environment, Spatial Planning and Energy (CESPE) of the Council of States, i.e. the higher chamber of parliament, and received majority support by both chambers in parliament and by the Federal Council (Government).

The third project put to vote, the so called *green tax reform*, was the counterproposal designed by the CESPE to the energy-environment-initiative. As mentioned above, this second initiative was withdrawn by its organizers after deliberation in parliament showed overwhelming support for this counterproposal. Of the three proposals it would have provided for the highest tax, gradually increasing to a maximum of CHF 0.02/kWh on non-renewable energy. Revenues p.a. were expected to be around CHF 3 billion which would have been used to lower social security contributions for employers and employees (up to 0.65 percentage points). The tax would have entered into force at the earliest in 2004 and in incremental steps, but did not foresee any temporal limitation.

The Federal Council claimed that both the energy conservation package and the green tax reform would have provided for a 10% decrease in CO_2 emissions. This point is important to note since many business representatives claimed that the three bills became obsolete since the Swiss CO_2-law had entered into force only a few months earlier and pursued the same goals.[3] Most importantly, all three proposals provided for full or partial exemption from the taxes for industries heavily dependent on non-renewable energy. Furthermore, the bills foresaw that parliament would be able to fix lower tax levels for energy sources already heavily touched by other taxes, such as gasoline or diesel.

No accumulation of taxes was possible: a subsidiary question asked citizens to indicate which of the two bills, the *solar initiative* or its parliamentary counterproposal, the *energy conservation package* they preferred if both were to be accepted. Had the *green tax reform* been accepted in addition to the other two, then it would have been the only one to become effective. However, this mechanism was not used since all three proposals were rejected by the population. Indeed, the solar initiative was rejected strongly with only

[3] Around 1994 the Swiss government began first hearings and the official consultation procedure on the so called CO_2-law. It entered into force on May 1, 2000 and aims to reduce CO_2-emissions by 10% by 2010 compared to 1990 (see Chapter 4).

31.3% of yes-votes whereas the counterproposal received 45.3% of yes-votes.[4] Finally, the approval rate for the green tax reform was at 44.5%. Figure 2.1 shows the voting results. The surfaces of the communes have been adapted to their populations. In this way, the visual representation of proportions of expressed votes is not distorted by the communes' surfaces (a similar cartogram of Switzerland was used by Schuler *et al.* [2007]).

For the sake of completeness it must be noted that the participation rate of the vote was relatively high at 44.8%. This might to a great extent be due to the presence of yet another initiative, which demanded for a cap of the foreign population in Switzerland to be set at 18%. The '18-percent-initiative' was not only able to mobilize a big portion of voters but also gathered most of the media's attention. It is therefore impossible to disentangle the participation effects for the other votes on the same day from participation rates concerning our objects of interest.

2.3 Measuring income and price effects

As the sections above make clear, Swiss nationals were asked to state their preferences towards a project that would have modified the relative prices of the different energy sources and raised the overall cost of energy. The proposed bills would have reduced the adverse environmental impact of Switzerland's fossil energy consumption by increasing the price of non-renewable energy in favor of other sources of energy. In this context, the environmental good to be decided upon would have been created by the potential reduction of fossil energy consumption and the change towards more environmentally friendly energy sources.

Since we cannot observe the regional price associated with the environmental benefits, we need to proxy for the cost-benefit analysis undertaken individually among the population. To this end, an essential component of the environmental demand is the regional income level; we use the average gross income per tax-payer in thousands of Swiss Francs (CHF). Non-linearities for this parameter are also introduced by adding higher order terms, in line with previous studies (Kahn 2002).

[4] Although both bills were rejected there was an overwhelming support in the subsidiary question for the energy conservation package over the solar initiative with a ratio of nearly 2 to 1.

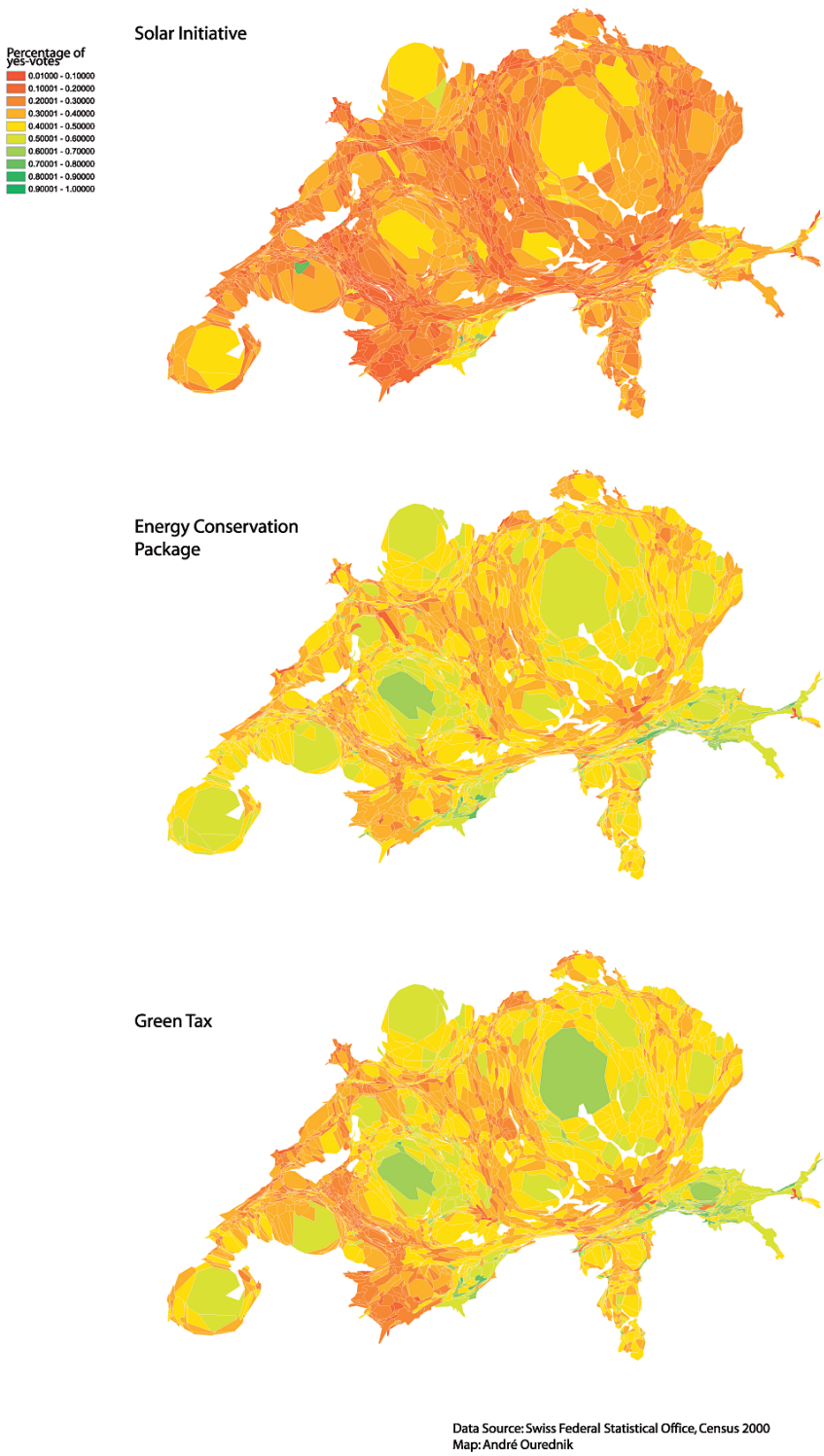

Figure 2.1: Voting outcomes for the three projects under scrutiny

Table 2.1: Simulated output change due to the three taxes on sector-specific production in Switzerland in 2010

	Solar Init.	Energy Cons.	Green Tax
Fossil energy	-1.07%	-1.75%	-6.92%
Electricity	-0.01%	-0.02%	-0.09%
Paper production	-0.03%	-0.05%	-0.20%
Chemicals	-0.04%	-0.06%	-0.23%
Mining industry	-0.08%	-0.12%	-0.47%
Transport	-0.17%	-0.28%	-1.18%
Total	-0.03%	-0.04%	-0.17%

In addition to income, resistance to environmental policy is generally shown to be higher in regions with a larger share of producer interests since enforcement could lead to lower profits, wages and employment (Schneider & Volkert 1999). In order to have a clearer picture of the three proposals, we simulated the respective impacts of the energy taxes on the Swiss economy. This is particularly important since the taxes would have had a differentiated impact on the economic sectors and would have modified the current international competitivity for the Swiss economy. Therefore, voters working or living in regions whose activity depends on vulnerable industrial sectors may have triggered higher refusal rates because of the probability of increased economic costs. Table 2.1 displays the results of simulations undertaken with a Computable General Equilibrium (CGE) model developed by Bernard, Vielle & Viguier (2005).

Figures reported in the table are percentage variations in economic production by sectors relative to the 'business as usual' scenario, estimated for the year 2010. We applied a uniform tax rate for all sectors although the proposals would have exempted the energy-intensive industries partially or completely. Note that we are interested in the relative impact on the different sectors of economic activity rather than with absolute impacts on production. Thus, the CGE calculations will enable us to compare the sectoral employment compositions with the respective voting outcomes.

Table 2.1 is a scenario where one of the three proposals has been accepted and implemented without any other constraints in any other country. Put differently, no country would introduce emission reduction policies such as taxes or tradable permits apart from Switzerland. Thus, the loss in Switzerland is

essentially due to international competition effects as other countries continue to produce without constraints.

In order to measure these effects, we include a measure of the distribution of the active population in the industrial sectors whose output were the most sensitive in the CGE simulations. The data refers to 1998 and is adjusted for commuters to reflect the employment of each commune's inhabitants rather than the communal production (see Anson & Cadot 2004). Despite the exemption accorded to these industries, workers in these sectors can be expected to oppose the bills more strongly, for example because large acceptance rate could trigger stricter legislation in the future.

Another economic effect that was mentioned during the campaign is the direct impact of the bills on the gasoline price. Hence, households relying heavily on private transport should react negatively towards the proposals. We therefore include the proportion of the population that reported to be using a car as their main means of transportation to go to work (Swiss National Census 2000). This is crucial as work-related commuting with a private car represents around half of the daily total mobility in Switzerland (Kaufmann, Jemelin & Guidez 2001).

The classification of some additional measures of the structural composition of each commune is less clear. Especially for education the concern is apparent: economists usually posit that better educated citizens are on the one hand more patient with regards to their entry into the labor market, and on the other hand that they, once in the labor market, belong to the highly qualified and thus better paid wage earners. Consequently, in many studies education proxies unobserved job characteristics. In turn, less educated workers will oppose environmental proposals most notably because they might experience a decline in earnings, for example through intersectoral redistribution (Felder & Schleiniger 2002).

In the present configuration, we have ample evidence of price and income effects with the variables included in our model, so that we are able to treat education as a control variable. Nevertheless, if education is seen as a proxy for the discount rate of voters, it is still expected to have a strong impact since it alters the terms of the individual cost-benefit analysis and has been proven to influence significantly and positively environmental voting decisions (e.g. Deacon & Shapiro 1975, Thalmann 2004, Kahn & Matsusaka 1997, Sciarini, Bornstein & Lanz 2007). We include the proportion of the population with

a relatively high level of education (high school degree, higher professional degree, university degree).

2.4 Identifying ideology effects

A much noted study by Kahn & Matsusaka (1997) emphasizes that the demand for the environment is driven by self-interest where ideology components act merely as proxies for deeper economic interests. But for the topic of study here, the diffuse nature of the environmental benefit makes this approach questionable. For example, the unilateral reduction of Switzerland's CO_2-emissions would have provided only a limited contribution to the effort needed to slow the increase of global CO_2 concentration in the atmosphere. As for any public good, a purely self-interested individual would rather free-ride on the provisions of others than contribute to emissions abatement.

However, it is argued that the demand for resource protection must in part be explained by notions of the common good and cannot be treated solely from an economic self-interest perspective (Sagoff 2003). Human actions are conceived to be rule- or norms-based where these rules associate particular identities to particular situations and comprise a specific conception of self (March & Olsen 1998, Elster 1989).

Indeed, it has been shown that preferences for left-libertarian values drive acceptance of environmental regulation (van Liere & Dunlap 1980, Neumayer 2004) and that political affinity, divided along the distributional axis, is among the variables with the strongest positive impact on environmental voting (Fischel 1979, Anderson & Mizak 2006, Sciarini, Bornstein & Lanz 2007). Consider that the Left adopted essential left-libertarians' claims during the 1980s (Kitschelt 1989) - most notably the ecology agenda - and incorporated them into their respective party programs (Sciarini & Finger 1991, Neumayer 2004). Thus, a left-libertarian vision of society where markets and allocation of resources are not the central premises but where protection of natural resources, feminism, and anti-nuclear politics are equally important in democratic deliberation (Kitschelt 1989, 1994), is supported by roughly 30% of the Swiss electorate. Since we assume left and green voters, as represented by the elected officials, to be decisive for approval, we include the share of votes gained by left and green parties in the national elections 1999.

Furthermore, we employ a measure for what we call 'habitual green behav-

Table 2.2: Five ballot propositions used in the composite variable

Date	Title	Approval
20.02.1994	Referendum on the increase and prolongation of a highway tax	68.5%
20.02.1994	Popular Initiative to protect the Alps from transit traffic	51.9%
27.09.1998	Referendum concerning an incentive tax on trucks	57.2%
29.11.1998	Referendum concerning the financing of public transport	63.5%
12.03.2000	Popular Initiative to cut motorized traffic in half to improve living space	21.3%

ior', measuring a general inclination of each commune towards environmental bills. It is measured as the average communal acceptance rate of the last five environmental ballots voted on at the national level. By using such a measure we control for each commune's specific behavior towards green legislation in the last decade. Thus it provides us with an approximation of what the 'environmental conscience' could be comprised of and serves as our second 'ideological' variable. Table 2.2 recapitulates the five ballot propositions, the date of vote and the respective acceptance rates.

Although all five ballot propositions were concerned with questions relating to traffic in the broadest sense, there are nevertheless remarkable differences between the bills. The two referendums with the highest approval rates (nos. 1 & 4) were contested only minimally by the main political actors. The first dealt with a prolongation of the highway tax charge, whereas the second provided for an infrastructure fund to finance large public transport projects.

The acceptance of the initiative to protect the Alps from transit traffic (no. 2) came very unexpectedly. Moderate and conservative parties, and private and freight traffic interest associations opposed the bill, which has been launched by the ecology movement and only gained partisan support from the Social Democratic Party, the Greens and the Far Left (representing ca. 30% of the electorate). The vote on the referendum on the incentive tax on trucks (no. 3) remained very much contested until the day of the vote. Freight transportation interest groups launched a heavy political campaign in the run-up to the vote, claiming that consumer prices would soar upon introduction of the tax. They were backed up by the conservative right and

some cantonal fractions of the Liberals. Nevertheless, the referendum passed. Finally, the initiative to cut traffic in half (no. 5) had not the slightest chance of approval as its implementation was deemed unrealistic.

We argue that the choice on these five bills was differentiated enough to reflect orthogonal economic interests from the taxes under study. In other words, following the logic of the median voter theorem, we see the costs and benefits of each proposal as differentiated enough to avoid measuring the same choice. Hence the *averaged* variations between the communes provide valuable information on the general stance towards the willingness to contribute to an environmental public good. Note also that the covariance of the averaged voting behavior with the share of left and green voters is 0.27 ($p = 0.000$), which corroborates the elements just reviewed. Finally, the timing of the votes and the fact that the projects were not altogether accepted or rejected prevents the composite variable from being endogenous in the analyzed choice (for a similar application see Weck-Hannemann 1990, Anson & Cadot 2004).

2.5 Econometric specification

As already mentioned, we use aggregate cross-section data to control for household characteristics on municipal level. The large number of communes (nearly 3000) allows us obtaining precise estimates, even in the obvious presence of multicollinearity among variables.

We model the participation and choice on each project as a joint decision by voters. Indeed, the present configuration suggests viewing the three propositions as a simultaneous choice made with the same amount of information. However, as other projects were presented to voters on the same day at the federal, cantonal and communal level, the choice to participate in the three ballots under review is only indirectly linked with the voting decision. In other words, observed outcomes cannot be seen as endogenous, even though the decision is simultaneous.

In order to account for this indirect link, we use Zellner's (1962) Seemingly Unrelated Regression Estimation (SURE), where each of the three projects is modeled by separate equations and the participation as a fourth. Within this model, the four choices are linked through unobserved heterogeneity by allowing for a non-diagonal variance-covariance matrix.

The dependent variables are the logistic transformed share of favorable

answers for each ballot and the mean participation rate in each commune.[5] Formally, we explain the variations of

$$y_1 = ln(\frac{y_0}{1 - y_0}) \tag{2.1}$$

where y_0 is the observed proportion, and y_1 is the logit of y_0. As this model is heteroskedastic by construction, a two step procedure is required in order to obtain efficient estimates and correct expressions for their standard deviations. The endogenous weights can be defined as

$$w_i = [n_i \hat{y}_i (1 - \hat{y}_i)]^{0.5} \tag{2.2}$$

where n_i is the population of commune i and $\hat{y}_i$ is the OLS estimated proportion (Greene 1999).

The estimated relations are summarized by the following equations.

$$y_{ij} = \alpha_j + C_i \delta_j + E_i \gamma_j + I_i \lambda_j + u_{ij} \tag{2.3}$$

$$y_{iP} = \alpha_P + X_i \beta_P + u_{iP} \tag{2.4}$$

Equation 2.3 stands for the three voting decisions. The dependent variables are noted y_{ij}, where i and j index the communes and projects respectively. The control variables, i.e. the proportion of female, young (18-30 years), elderly (60+), French-speaking, education (high school degree or higher), a dummy for communes with more than 20,000 inhabitants as an indicator of urbanity, and a dummy variable for the canton of 'Graubünden', which was found to have many outliers among its communes, are denoted by C_i. E_i stands for the vector of economic determinants, which are income and income squared,[6] employment sectors and car commuters. The ideological variables

[5] We assume that citizens decided to participate in the three ballots or did not participate at all. As there was no substantial variation in the participation rates between ballots, this simplification does not influence our estimation. This assumption is supported by the results of the post-referendum VOX-study (Ballmer-Cao, Eggli, Konishi, Lanszki & Marquis 2000).

[6] Higher order income terms were also used but revealed to be statistically unimportant and were not used in the final specification.

left and green party shares, and habitual green voting behavior, are denoted by I_i. Finally, α_j, δ_j, γ_j and λ_j are the parameters to be estimated and u_{ij} is the error term.

The participation decision is represented by equation 2.4, where we use a different set of explanatory variables, noted X_i. This vector contains a set of control variables together with a dummy for observations in the canton of Schaffhausen (where voting is compulsory) and the average participation for the five preceding referendum days.[7] The remaining notation follows the same canvas as for the choice equations.

2.6 The relative importance of the two approaches

In order to assess the respective impacts of the two approaches we will first present results of the model including control variables and such pertaining to price and income, before commenting on the full model which includes the ideology-related variables, too.

Generally, we find a very similar pattern for the three different tax schemes. This corresponds to the fact that a majority of the citizens either accepted or rejected the projects, with the exception of the solar initiative which received around 10% less yes-votes. Note that for all models estimated, the variance-covariance matrix is statistically different from a diagonal matrix (Breusch-Pagan test, p = 0.000), which confirms the implicit link between the equations.

Environmental demand with price and income effect

The inclusion of socio-demographic and economic variables explains a large portion of the variance. The R^2 is the lowest for the energy conservation package at 42%, whereas the covariates explain 55% of the variance for the green tax reform and 69% for the participation equation.

The impact of the proportion of women voters on the three bills is positive and highly significant, and the impact on the voting outcome is large when compared to other coefficients. While we are unable to account for the effect in its entire scope, some facts can help understand this result. Notably, Switzerland is still shaped by rather traditional role-sharing which emphasizes the

[7] Specification for the participation equation is taken from Weck-Hannemann (1990). This shortcut is not prejudicial for our estimation as we only control for the participation effect.

Table 2.3: Regression coefficients (SURE), logistic WLS, price and income effects only

	Weighted mean	Solar Init.	s.e.	Energy Cons.	s.e.	Green tax	s.e.	Part.	s.e.
Constant	-	-2.062***	0.218	-0.805***	0.189	-0.913***	0.194	-1.852***	0.116
Gender	0.51	2.555***	0.401	1.826***	0.348	2.015***	0.357	-0.183	0.225
Young	0.188	-1.39***	0.263	-0.816***	0.229	-1.089***	0.234	0.244*	0.139
Elderly	0.253	-0.086	0.168	-0.392***	0.146	-0.431***	0.15	-0.478***	0.086
French	0.204	-0.279***	0.021	-0.149***	0.019	-0.531***	0.019	-0.296***	0.012
Graubünden	0.026	0.291***	0.032	0.447***	0.027	0.433***	0.028	-	-
Urbanity	0.251	0.157***	0.030	0.052**	0.026	0.103***	0.027	0.057***	0.0158
Education	0.179	2.402***	0.140	2.274***	0.122	2.277***	0.125	-0.1	0.074
Car commuter	0.431	-1.213***	0.074	-1.067***	0.064	-1.205***	0.066	-	-
Fossil fuels	1.18e-4	-1.052	2.321	-3.272	2.018	-3.023	2.065	-	-
Electricity	0.007	-2.181***	0.466	-0.618	0.406	-1.092***	0.415	-	-
Paper	0.005	-1.476**	0.680	-1.401**	0.591	-0.307	0.605	-	-
Chemicals	0.024	0.971***	0.207	0.218	0.180	0.275	0.184	-	-
Mining	0.036	0.629***	0.192	-0.388**	0.167	-0.015	0.170	-	-
Transport	0.026	1.718***	0.383	0.865***	0.333	0.428	0.341	-	-
Income	23.459	0.028***	0.006	0.007	0.005	0.016***	0.005	0.01***	0.001
Income^2	573.968	-7.5e-4***	1.1e-4	-3.5e-4***	0.92e-4	-4.6e-4***	0.94e-4	-	-
Left-green	0.283	-	-	-	-	-	-	-	-
Env. behavior	0.521	-	-	-	-	-	-	3.653***	0.057
Schaffhausen	-	-	-	-	-	-	-	0.284***	0.036
N		2826		2826		2826		2826	
Adjusted R^2		0.422		0.421		0.552		0.692	

*p≤.1 **p≤.05 ***p≤.01

male bread-winner model and a welfare regime which responded rather late to new social demands, such as a federal maternity insurance which only entered into force in 2004 (Häusermann 2006). Thus, women in Switzerland might be less exposed to the labor market which in turn would make them less vulnerable to economic costs being imposed upon them (van Liere & Dunlap 1980). Secondly, we are led to believe that the concern for an intact environment might be stronger with women as they traditionally are more involved in child-rearing and might therefore show greater conscience towards questions of intergenerational equity and discounting (Hepburn 2006). It will therefore be crucial to see the impact of the ideology-orientated variables on this coefficient to disentangle the effects.

The coefficient for young voters has a negative impact and is highly significant for all three proposals. We thus refute the assumption of younger birth cohorts supporting post-materialist values such as the protection of the environment (Inglehart 1995). However, in the light of a participation rate of only 30% for young voters (Ballmer-Cao et al. 2000) the risk of putting too big an emphasis on this measure is evident. For older voters the picture looks similar: as we expected, our results seem to imply that older age groups did not want to carry costs for future generations as the coefficients are all negative (for the solar initiative the coefficient does not attain statistical significance).

The French-speaking proportion variable is also negative and statistically highly significant. Taking into account societal factors influencing ecological consciousness in Switzerland, we could also imagine this variable to be influenced more strongly by ideological considerations: traditionally, language groups in Switzerland orientate themselves according to their neighboring language homologues (cf. Maddison 2006). In Germany the resistance to nuclear technology in the 1970s laid the groundwork for a strong environmental movement inside and outside the political arena which eventually led to the formation of the Greens (Kitschelt 1986). On the other hand, to this day no powerful ecological party has formed at the national level in France. This might to some extent account for the reasons why French-speaking voters' demand for green policy is smaller than the Swiss-Germans' demand (see also Kriesi 1996).

Additionally, we notice a second regional effect: the coefficient for the dummy variable for the canton of Graubünden is statistically significant and positive for all three bills. Ceteris paribus, communes in this canton were on

average between 6-11% more favorable to the proposals (see marginal effects in the appendix, Table A.1). Graubünden is a mountainous canton, heavily dependent on tourism and one of the largest producer of hydroelectric power. Furthermore, the canton possesses 46% of shares of Graubünden's largest electricity producer, 'Rätia Energie' which is one of the biggest providers and promoters of green electricity in Switzerland. Their ecologically conscious electricity 'PurePower' was launched in the electricity market ahead of other competitors and the company is one of the market leaders in the provision of green energy. Thus, considering the aforementioned, the households' positive stance towards the proposals makes all the more sense. Interestingly, even the cantonal party sections of the populist right Swiss People's Party (UDC) and of the Radical Party (PRD) supported the two counterproposals - in stark contrast to the national parties' voting recommendations.

The coefficients for urbanity are all positive and statistically significant, although with a small effect. It comes as no surprise that urban households are more inclined to vote in favor of green policy as they are less dependent on private mobility (Hammar & Jagers 2007) and value open leisure space higher than people living in rural areas which are often dependent on the exploitation of natural resources to make a living. But as we will see in the following section, this effect will disappear entirely when we include the measures of ideology.

As expected, we can confirm the importance of education when it comes to the acceptance of environmental ballots. The proportion of the population with a higher education is confirmed to have a strong impact on the voting outcome. We mentioned above that education often proxies for unobserved job characteristics (Kahn 2002, Kahn & Matsusaka 1997). But because our model controls for regional employment distribution and the income level, this result seems to indicate the genuine importance of the education level in the willingness to contribute to the provision of environmental goods. Although this finding suggests that more investigation is needed to understand the underlying motivation, we favor the explanation that posits an inherent link between higher education and the discount rate, giving less weight to short term financial arguments raised during the campaign. Thalmann (2004) also suggested that higher education provides for the capacity to evaluate risks and long-term costs of environmental quality.

Turning to the variables related to price and income, we observe that the

use of a personal car as main means to commute has a strong negative impact on approval rates (Hammar & Jagers 2007). Households who rely on their car to go to work demonstrated their unwillingness to pay more for commuting by rejecting the proposals more heavily. So long as public transport does not pose a cheaper or equal alternative to private commuting, these citizens will presumably not alter preferences (Kaufmann, Jemelin & Guidez 2001).

The six economic sectors we included are all traditionally energy-intensive and generally fulfill their role of price proxies well. Notably regions with a larger proportion of workers in the sectors of fossil energy, electricity, paper production and the mining industry opposed the three proposals more strongly. These variables generally display a negative and highly statistically significant coefficient, which can be interpreted as a fear for a general economic degradation in regions where industries depend more heavily on energy production and use. Note that these effects are detected even with the small proportion and variations of the labor force in the respective sectors.

Interestingly, these price effects are observed despite exemption schemes set up in the bills. This could be the sign either of a misunderstanding or a will to manifest a general opposition to policies implying a higher energy price, as workers in these sectors probably felt threatened by the bills - be it a real or subjective threat. This point remains speculative as we are not able to control for the voting motivation. Nevertheless, employment considerations appear to be crucial for the approval of future policy regulating relative prices of energy (Schneider & Volkert 1999, Bornstein & Thalmann 2007).

Two sectors display rather surprising results. First, communes with workforce in the chemical sectors seemed to favor the three projects, although the effect is significant for the solar initiative only. Second, the transport sector variable has a positive impact on the voting outcome and is statistically significant at the one percent level for two of the three projects. A possible explanation lies in the fact that a significant proportion of people working in the transport sector actually work for public transport. Consequently, this variable sends a mixed signal, as a part of the measured proportion has no work-related incentive to refuse the taxes since they could eventually gain from an increased demand for public transportation.

The final economic determinant, also seen as one of the fundamental determinants of the environmental demand, is the citizens' disposable income (Fischel 1979, Kahn 2002, Buchanan & Tullock 1975). In line with the litera-

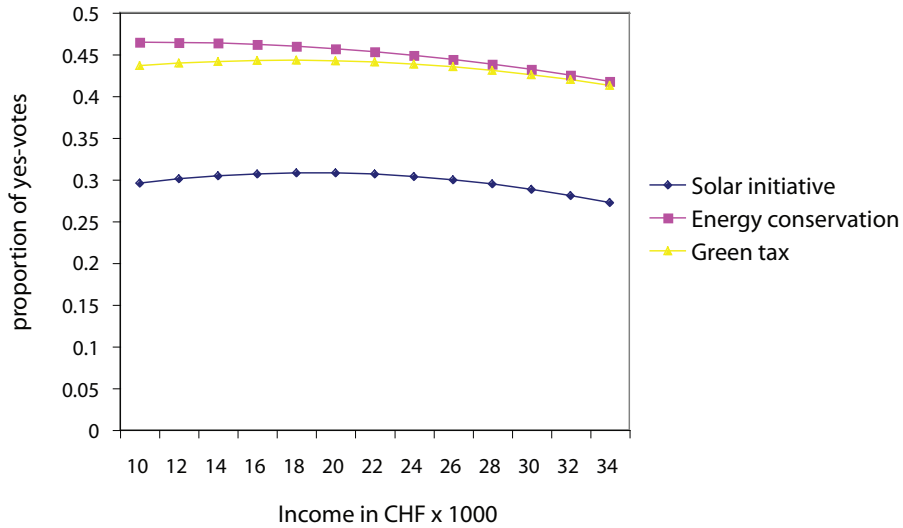

Figure 2.2: Acceptance rates of the bills conditional on income, weighted sample mean

ture, Figure 2.2 shows that our specification for the income variable suggests an inverted u-shaped relationship between the average communal taxable income and the acceptance of the projects. It is often argued that the environment is a normal good, but that the richest households do not necessarily show greater acceptance of environmental regulation either because they must bear a larger share of the burden of environmental protection (Thalmann 2004) or because wealthier people can afford to live in areas of higher environmental quality (Kahn 2002).

When plotting acceptance rates against income we observe that the turning point for approval is situated at a yearly gross income per tax payer of CHF 18,000 to 20,000 for the solar initiative and green tax reform, and between CHF 10,000 and 12,000 for the energy conservation package.[8] Hence, while there were few indications of an income effect at the individual level (Thalmann 2004), in the present setting we detect a statistically significant effect, albeit very small. Hence the marginal effect of income is positive for small income levels but becomes negative for the communes with the highest income level. At the (weighted) sample mean, an increase of CHF 1,000 in-

[8]Note that our income measure has a weighted average of CHF 23,460 and a weighted median of CHF 22,900 (interquartile range CHF 5,740).

creases the probability of acceptance of the green tax reform by 0.2% if the income variable is set at CHF 9,000 whereas it decreases by 0.5% for an income of CHF 40,000 (see the appendix, Table A.1).

Introducing ideology - unraveling the puzzle?

The second model includes our two variables which control for the ideological or 'common good' effect. Because we assume that the decisions contained in these variables reflected different interests from those underlying the choice presently analyzed, we can interpret the results of this specification as if every commune had the same political affinity and residual environmental behavior. Hence, the changes of the coefficients allow us to point out the variables that relate to price and income effects and such that pertain to the notion of the common good.

We first note that the explained variance is relatively high, as we explain between 58% and 68% of the variance of the three outcomes. The adjusted R^2 increases by 17.9% for the solar initiative, by 15.8% for the energy conservation package, by 13.6% for the green tax reform while obviously estimated participation stays the same. Note that participation seems to be explained very well with the variables presented in the equation.

As expected, the coefficient for the main political-ideological variable, the percentage of votes gained by leftist and green parties in national elections is strongly positive and highly statistically significant. This supports our hypothesis on the importance of integrating variables going further than employment and income effects. Furthermore, the average result of the last five nation-wide environmental ballots, proxying for people's green behavior, displays encouraging results. The effect of the predictor is positive and the marginal effect is relatively strong for all three bills. In our opinion, this last point illustrates that there is an environmental awareness inherent to all communes which is not directly measurable in terms of price effects. By proxying the results of a pure ecological ballot with the previous vote choice on environmental ballots allows to control for a general environmental behavior. However, we are aware that the trend does not explain behavior. Directly speaking, one choice does not explain the other. More research would be needed to determine the heterogeneity underlying this variable, but controlling for this effect is fundamental in obtaining unbiased estimates for the other variables.

Table 2.4: Regression coefficients (SURE), logistic WLS, full model

	Weighted mean	Solar Init.	s.e.	Energy Cons.	s.e.	Green tax	s.e.	Part.	s.e.
Constant	-	-1.984***	0.181	-0.802***	0.162	-0.878***	0.162	-1.85***	0.116
Gender	0.51	0.57*	0.338	0.261	0.301	0.284	0.302	-0.183	0.225
Young	0.188	-1.427***	0.222	-1.123***	0.198	-1.282***	0.199	0.244*	0.139
Elderly	0.253	-0.816***	0.143	-1.134***	0.128	-1.163***	0.128	-0.478***	0.086
French	0.204	0.164***	0.025	0.293***	0.022	-0.091***	0.022	0.295***	0.012
Graubünden	0.026	0.17***	0.027	0.337***	0.024	0.318***	0.024	-	-
Urbanity	0.251	0.039	0.025	-0.032	0.022	0.005	0.022	0.057***	0.016
Education	0.179	0.385***	0.132	0.469***	0.118	0.394***	0.118	-0.1	0.074
Car commuter	0.431	-0.73***	0.063	-0.734***	0.057	-0.812***	0.057	-	-
Fossil fuels	1.18e-4	-1.473	1.932	-2.665	1.724	-2.851***	1.728	-	-
Electricity	0.007	-2.41***	0.387	-0.783**	0.346	-1.283***	0.346	-	-
Paper	0.005	-2.562***	0.57	-1.726***	0.509	-0.948*	0.51	-	-
Chemicals	0.024	0.674***	0.172	-0.06	0.154	-0.01	0.154	-	-
Mining	0.036	-0.163	0.162	-0.842***	0.145	-0.607***	0.145	-	-
Transport	0.026	0.428	0.322	-0.405	0.288	-0.843***	0.288	-	-
Income	23.459	-1.086e-4	0.005	-0.013***	0.005	-0.007	0.005	0.01***	0.001
Income^2	573.968	-1.33e-4	0.9e-4	1.07e-4	0.8e-4	0.57e-4	0.8e-4	-	-
Left-green	0.283	0.675***	0.051	0.170***	0.046	0.381***	0.046	-	-
Env. behavior	0.521	2.743***	0.001	2.647***	0.001	2.67***	0.001	3.652***	0.057
Schaffhausen	-	-	-	-	-	-	-	0.286***	0.036
N		2826		2826		2826		2826	
Adjusted R^2		0.601		0.579		0.687		0.692	

*p≤.1 **p≤.05 ***p≤.01

Most of the 'socio-demographic' coefficients are robust; however, some noteworthy exceptions apply. Remark that the difference between men and women vanishes once ideological variables are introduced, as the coefficient is not statistically significant at the 5%-level. This result points to the fact that the gender question only plays a role when we control for price and income effects - knowing that women in Switzerland are still heavily disadvantaged in the labor market. Because the votes included in the composite variable would have had only a limited impact on the employment market, we conclude that the gender effect of the price model can be attributed to ideological effects (van Liere & Dunlap 1980).

In line with a study by Salka (2001), we find that urbanity effects get cancelled out upon the introduction of ideological variables. Thus, we are able to confirm that differences between urban and rural regions are rooted in more general lifestyle differences linked to demographic and ideological characteristics (for similar findings see Kriesi 1999). In fact, these results support the ideological explanation for gender and urbanity effects rather than the price proxy explanation.

Concerning the price proxies, we also find that the estimated coefficients are robust across specifications. In general, we observe that the price proxies have effects that are more consistent with prior expectations once ideology is introduced. Indeed, almost all industrial sectors show a negative sign or are not statistically different from zero.[9] This supports the assertion that workers in energy intensive sectors followed the *employers'* associations rather than their trade unions in this particular vote for fear of economic losses (Schneider & Volkert 1999). The former gave out a negative voting recommendation, warning of a decrease in production upon implementation of the taxes - an argument of great importance to workers - while the latter were in favor of the taxes aiming to shift the tax burden from labor to energy.[10] Therefore, this result seems to confirm the strong price effect associated with employment considerations.

Although all the price variables have the expected impact, the income effect

[9]The only exception is the coefficient of the chemical industry in the solar initiative equation.

[10]Note that the taxes were rejected heavily by all important employers organizations on the grounds that the CO_2-law, which had entered into force five months earlier, already covered major claims by the ecology movement and that thus these three taxes became extraneous and harmful to the Swiss economy.

virtually disappears from this specification. This result points at a weakness of our approach, since it might be due to the systematic relation between the income level and the choice. Indeed, the inverted u-shaped relationship between income and the acceptance of environmental ballots has been shown to be quite robust, and Kahn & Matsusaka (1997) find that pattern in 12 out of 13 of the projects they study. This was confirmed by running a regression of our composite variable on a quadratic income function and some control variables, as a concave relationship between income and environmental voting is also supported by the data.

On the whole, our results seem to point into a different direction than those obtained by Kahn & Matsusaka (1997) who state that '... while price and income can explain most of the variation, it seems that party preferences can be useful in explaining some of the *residual* variation' (p. 161, emphasis added). On the contrary, following our estimations, non-economic variables seem to explain an important part of the choice. Moreover, the coefficients of the socio-demographic and price variables in this full specification are more consistent with *a priori* cost-benefit arguments, suggesting that not controlling for ideological factors can induce a bias. However, a caveat applies which the above authors assert too: it is not possible to determine whether party proxies for unmeasured price or ideology effects not taken into account. But we highlight the fact that citizens adhering to left-libertarian values have rather pronounced ideas of their belief system: they defend a vision of society where markets and resource allocation are not the central cleavages but where the protection of the environment is equally important (Kitschelt 1989, Carter 2006).

2.7 Conclusion

The objective of this study was to establish whether conceptions of price and income effects are sufficient in explaining the demand for environmental quality or whether it is advised to consider a logic of appropriateness, too. We designed two distinct models; the first one accounts for price and income effects whereas the second one also controls for ideological components of the vote. Whereas the economics profession asserts that ideology merely acts as proxy for deeper underlying price and income effects (Kahn 2002, Kahn & Matsusaka 1997), there are doubts as to whether this conception of man,

which is rooted in cost-benefit analysis, is not too narrowly derived. Sagoff (2003, p. 590) then also contends that ' ... people base their preferences less on what they believe will benefit them than on what they judge is good in itself, meets certain standards or norms, suits the identity or character of their community, or conforms with principles appropriate to the circumstances'. By stressing the importance of social man and collective choice we do not invalidate assumptions underlying neoclassical economic theory (cf. Vatn 2005). Our point is that following a logic of appropriateness might constitute a complementary path to the citizen when he is faced with making a choice; in our case this means making a choice pertaining to resource allocation which implies an increase in the relative price of fossil energy.

In the light of ever-growing global environmental concern, the use of market-based instruments is growing. Nevertheless, the three taxes on no-renewable energy in Switzerland in the year 2000 did not gain popular majority. What happened? Firstly, on the political side, the proposals did not receive unanimous support from major political actors inside and outside the parliamentary arena, especially not the major employers' organizations. However, their support is crucial to the acceptance of ballot proposals (Kriesi 2005, Halbheer, Niggli & Schmutzler 2006, Bornstein 2007). Secondly, the introduction of the Swiss CO_2-law and the vote on the three proposals in the same year made it impossible for the economic milieux to support the ballot proposals, as they argued that the CO_2-law already fulfilled all the claims posited in the proposals. Thirdly, we recognize that the energy-intensive sectors, which would have been exempted from the tax, and the employers' representatives were hostile to the taxes, too - be it because they feared economic losses, stricter legislation in the future or because the design of the tax was not understood correctly. Finally, it appears that the time for incentive taxes was not right: the introduction of an incentive tax as part of the CO_2-law would have been possible in 2004, however, the industry managed to circumvent this legal provision by concluding voluntary agreements with the government (Thalmann & Baranzini 2008). After lengthy obstruction, a rather modest incentive tax on combustibles will enter into force in 2008.

Our analysis uncovers some of the central covariates of the vote by using a SURE model which differentiated between the voting decision and the participation. We used aggregate, municipal-level data. Our results, then, point to the possibility of two, not necessarily mutually exclusive paths in explaining

the popular acceptability of environmental policy. While energy intensive industrial sectors, older people and such commuting to work by car are observed to be less supportive of ecological tax reforms, education and political affinity are balancing the price-related effect for a commodity like environmental quality. In turn, we were able to show that analyses which focus solely on price and income effects might be committing a shortcut which we deem being too extreme. Indeed, our model with ideological variables fares much better than the one including price and income only, both in terms of statistical fit and according to the signs of the price variables. In other words, not including ideological measures could lead to an omitted variable bias.

In the light of a vote which was not only very complex to the electorate (three thinly differentiated bills) but also encountered considerable politico-economic opposition, the refusal of the three bills comes as no surprise. This has little impact on our findings, though, since our goal was to analyze the variability of the responses and show which role price and ideology effects, respectively, have on aggregate voting choice. And to this question, we believe, we are able to provide a satisfactory answer: economic rationality matters in the light of a decision on a project which would have entailed costs to households in order to do something for the common good, but the role of norms and institutions on vote choice is of great significance.

Acknowledgments

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3 'I pay enough taxes already!' Applying Economic Voting Models to Environmental Referendums

This chapter is a slightly modified version of a paper written together with Philippe Thalmann (Bornstein & Thalmann 2007), which is accepted for publication pending revisions at Social Science Quarterly.

Abstract

In traditional cost-benefit analyses citizens' voting behavior on environmental policy can be seen as being influenced by the business cycle. To test this assumption the present study examines the personal, institutional and economic determinants of vote choice on 36 environmental bills from 1983 to 2004. We apply a logistic hierarchical model and confirm the crucial importance of the individual-level variables education, political affinity, car ownership and urbanity. We then classify the electorate into five groups using open-ended survey questions about respondents' reasons for approval or dismissal of the bills. The survey answers let us posit hypotheses referring to the impact of economic conditions on the specific motivation groups. Furthermore, institutional and economic context variables are added on a second level: in summary, we are able to show that a better perception of current economic conditions has a positive effect on the vote. In turn, we prove the negative, constraining effect of deteriorating macro-economic conditions on approval rates. Hence, by applying economic voting models to referendum analyses we advance the understanding of citizens' choice on environmental policy.

3.1 Introduction

Analyses of referendums and elections usually rely on socio-structural data reflecting individuals' characteristics such as political preferences, education and income. While these personal traits and preferences transmit traditional indicators crucial for the vote choice, we cannot neglect that a considerable portion of information is withheld. As it is, we have at our disposal a database of post-referendum surveys from 1983 to 2004, the so called VOX-data, which not only asks for citizens' preferences and characteristics but also requires them to motivate their voting decision. Thus, making use of citizens' stated voting motives in the survey provides a unique opportunity to learn more about people's underlying motives beyond party ID and other usual suspects. We use this information to create a typology of the electorate which is rooted theoretically in the literature of economic voting and in the Public Choice tradition.

The voter typology was established mainly for the following reasons: first, we believe that there are hidden arguments which can be captured neither with micro- nor with macro-level variables. Having direct access to people's motives on acceptance or rejection of proposals therefore enriches our model on environmental vote choice. Second, our arguments laid out in the theoretical part which we use to define the groups, challenge the common public choice approach often used in environmental voting analyses. We are able to show that cost-benefit analysis is an important though not the preponderant factor on citizens' choice many scholars believe it to be.

Several, though not many, papers analyzed environmental voting outcomes (e.g. Deacon & Shapiro 1975, Kahn & Matsusaka 1997, Fischel 1979, Thalmann 2004). In the public choice tradition, they sought to discriminate personal characteristics that could explain why some voters expected to gain from an environmental proposal while others did not. Similarly, general election outcomes in Western democracies have often been explained advancing monetary, i.e. economic arguments as being crucial to the vote. Almost no attention has been paid to how economic conditions affect support for ballot propositions, though (for an exception see Bowler & Donovan 1998, chapter 4). Indeed, research has shown that voters' choices in elections are heavily influenced by retrospective evaluations of economic conditions (Kramer 1971, Kinder & Kiewiet 1981) and that a differentiation between pocketbook and

sociotropic voters is advisable, i.e. between those who care about personal economic welfare vs. those who care about national economic predicaments (Kinder, Adams & Gronke 1989, Sanders 1991).

Moreover, not only do referendums pertaining to environmental issues entail a personal monetary factor, but they do also, in the view of many voters, have a considerable impact on national economic performance upon approval. As Switzerland has known very slow economic growth since the early 1990s and unemployment rates have been soaring to finally stabilize at rather high levels today, we expect these effects to have a crucial impact on approval. This motivates our choice to apply economic voting models to environmental referendums.

However, many voting analyses neglect the crucial impact the context exerts on individual decision making. Only few scholars have included aggregate data on a second level to augment the traditional individual-level model (Jones, Johnston & Pattie 1992, Kriesi 2005, Sciarini, Bornstein & Lanz 2007). By modeling contextual characteristics in multilevel models we are able to control for institutional and economic factors going beyond preference-based assumptions.

Following this introduction, Section 3.2 will outline the theoretical framework. A description of the five motivation groups is given before turning to the hypotheses. In Section 3.3 we undertake the classification of the electorate and discuss first results thereof. Consequently, the econometric model and the data used for the study are introduced in Section 3.4. Section 3.5 presents the estimations' results and their interpretation, before concluding the paper in the last Section.

3.2 Voting motives

Switzerland practices a high level of direct democracy and is characterized as a 'consensus democracy' (Lijphart 1999).[1] Its citizens are called, on average, three times a year to vote on several proposals of amendments to the Constitution or new laws. They often bear directly or indirectly on government finances, spending and public management.

Singling out the policy domain of environmental protection and sustain-

[1]For recent English-language explanations, see Trechsel & Kriesi (1996) and Kriesi (2005).

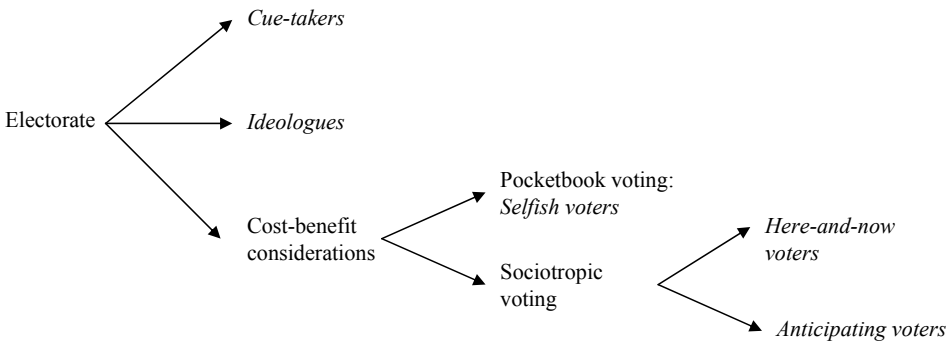

Figure 3.1: Classification of the electorate into voter groups

ability allows refined hypotheses-testing using the open-ended survey responses in the VOX-data. To this end, we define the five motivation groups which are rooted in the economic voting literature and in the public choice tradition. A simple graph illustrates our model of decision-making on environmental ballots.

The literature repeatedly stresses the fact that voters do not possess general attitudes that are structured across different issues to form so called 'constrained belief systems' (Converse 1964). Nevertheless, the concept of political ideology seems to have survived even the most intense critics. Anyhow, scholars acknowledge that the citizenry's ability to make reasoned choices is rather limited (Luskin 1990). As a way out of this cognitive ability-trap citizens are believed to reason their decision in part by relying on heuristic cues and shortcuts (Sniderman, Brody & Tetlock 1991). These can be based for instance on risk aversion which implies a general tendency of opposing change, thus voting *no* on ballot propositions (Bowler & Donovan 1998). Often, badly informed voters will also follow an interest group's voting recommendation or an industry's position to emulate the behavior of citizens disposing of greater political knowledge (Lupia 1994). Others have argued that political parties serve as a reliable and not very costly shortcut to decision-making (Downs 1957), but voters might also follow their government's recommendations when casting a vote (Kriesi 2005). Moreover, it is generally accepted that the elites play a major role in individuals' opinion formation process: voters will *inter alia* base their choice on the direction of the debate in the public arena, where unanimity of the elite's position towards a project greatly enhances the probability

of a vote in the same direction, this especially for citizens disposing of high political awareness (Zaller 1992). In the Swiss context, the negative influence a polarized elite has on acceptance rates is underlined by various studies (see e.g. Sciarini 2006, Sciarini, Bornstein & Lanz 2007). But not only the division of the elites is detrimental to approval of projects at ballots, but also the fact that people express difficulty in responding to the question at hand, i.e. when their understanding of the project is limited they tend to reject the proposal (Sciarini & Marquis 2000). Following this discussion we can define the first group of our typology, namely the *Cue-takers*. They follow their 'gut feeling' or short-cuts and cues such as voting recommendations given by the authorities or by their reference political or environmental organization.[2]

Additionally, we claim that ideological voters' convictions need not be overruled by concerns for the associated costs; a significant part of the electorate will follow an ideological position when voting even if it is based only on a simple slogan, void of sophisticated reasoning. Thus, our second group, the *Ideologues* decide on moral or political principles or slogans and are in favor of any environmental policy without consideration for costs. Then again, they could also oppose any government intervention aiming to protect the environment on ideological grounds.

As aforementioned, much of the literature on environmental referendums was carried out in the public choice tradition. The approach, which is the economist's model of rational choice and is deeply rooted in utilitarianism, emphasizes the role of cost-benefit analyses (CBA) on individual decision-making (Kirchgässner & Schneider 2003, Deacon & Shapiro 1975, Kahn 2002). When voting on ecological issues, economic concerns may become predominant and might even overrule the pro-environmental conscience if the costs associated with the project appear as being too high. The discrepancy between expressed preferences and actual behavior is particularly striking in environmental policy. Diekmann & Preisendörfer (1992) call this paradox the 'low-cost situation': actions towards protecting natural resources will only be taken when implied costs for the behavioral change are rather low.

Since our main motive of research is concerned with the impact of changing micro- and macro-economic conditions on citizens' environmental voting

[2]For clarification purposes we describe the cue-takers in a very narrow sense of the term, in that the other motivations groups which base their choice on evaluations of the economic situation are not defined as following a cue. We are aware of the danger of excluding reasoning based on perceptions of the economy from the cue-taking process.

behavior we situate our analytical framework mostly in the economic voting literature. Although this strand of literature has been applied mainly to parliamentary and presidential elections, we extend the arguments to test how well the approach fares when studying referendum outcomes. While many scholars differentiated mainly between the two categories of 'pocketbook' vs. 'sociotropic' voters, we engage in a more detailed partitioning of the electorate. Kinder, Adams & Gronke (1989) made a similar point when noting that voters worry about the future, the past or the present respectively; or that some worry about unemployment while others are concerned with inflation.

Kinder & Kiewiet's (1981) seminal paper clarified some central concerns that are of crucial importance to our analysis: first, we admit that pocketbook voting is an easily understood concept, 'which asserts that political preferences reflect in a direct and immediate way the economic circumstances of private life' (Kinder, Adams & Gronke 1989, p. 492). However, this does not make it less pertinent in any way: drawing on common sense, it remains a strong argument that citizens following pocketbook considerations watch their *personal* financial situation closely and, upon this, reward or punish the incumbent party.[3] The sociotropes, on the other hand, make a decision based mainly on the *nation's* past economic performance. In recent years, the sociotropic hypothesis has received wider attention and support, while on the other hand most studies confirm that it would be wrong to discard the possibility of voters making decisions with a view to their pocketbooks since 'pocketbook voting will be more likely among those citizens who see their own problems as having social or collective causes ... ' (Kinder & Kiewiet 1981, fn. 56).[4]

Secondly, it is important to note that the distinction between the two types of voters is not equivalent to a distinction between a self-interested and an altruistic choice. Nor does it mean that sociotropes are well-informed and undertake a sophisticated analysis of macro-economic policy (Kinder & Kiewiet 1981, Markus 1988), since public opinion research has repeatedly

[3]Some researchers have even argued that personal self-interest, expressed for instance through voters' opinion on their own future economic prospects, outweighs objective indicators of the state of the economy such as unemployment, inflation, interest and exchange rates (Sanders 1991).

[4]Although several authors have argued that the difference between pocketbook and sociotropic voting is artifactual (Kramer 1983) and that the pocketbook hypothesis has not been able to gain much hard evidence (Lewis-Beck 1988, Kinder & Kiewiet 1979), we contend that the affective reactions to the two differ considerably as underlined by Conover & Feldman (1986). Therefore, we will test for both the impact of personal *and* collective economic grievances on environmental voting choices.

shown the electorate to be indifferent and not very savvy about political life (Luskin 1990, Converse 1964); rather, they base their judgement on a rough evaluation of national economic conditions.

Thirdly, sociotropic voting can be led completely by self-interest when a voter takes the nation's health as a retrospective indicator of how her own personal welfare is attributable to the governing party's politics. Defined in this way, it is obvious that the difference between the two types of voters is not one of motivation but of information. Furthermore, a recent study confirmed the almost equal size of the effects of sociotropic and pocketbook predicaments on vote choice in Sweden (Jordahl 2006). According to that analysis, pocketbook voting accounts for a slightly smaller impact on the decision than the sociotropic variables. We thus claim that the third group of the electorate, the *Selfish voters*, compare the costs and benefits of a proposal mainly for themselves emphasizing for instance tax hikes, reduced mobility or, on the other hand, a cleaner environment.

Moreover, turning to the differentiation between retrospective and prospective voting, we argue in line with Erikson (1989) that a retrospective view of economic conditions is more easily accessible to the average voter than forecasting what effects a future politician's policy would have on her personal welfare (cf. Kinder, Adams & Gronke 1989, Fiorina 1981). In other words 'their [the voters'] prospective choices are rendered retrospective through the auxiliary assumption that the most obvious and reliable way to form rational expectations about the future is by evaluating the parties' actual past performance in office' (Achen & Bartels 2004, p. 7; see also Achen 1992).[5]

Some objections to this disqualification remain, though. Especially the work by MacKuen, Erikson & Stimson (1992) asserts the importance of looking into the immediate economic future. They argue, although also finding partly support for the retrospective argument, that the electorate is anticipating and foresighted rather than myopic. Lewis-Beck (1988, pp. 118-125) finds partial evidence for the prospective voting claim, but urges to apply caution since impacts of retrospective economic evaluations cannot be ignored. We expect the fourth category of voters, the *Here-and-now voters* to compare the current costs and benefits of a proposal from a sociotropic point of view, emphasizing

[5]Note however, that we are unable to make this distinction for the pocketbook voters too, as data provided by the survey organizers is not detailed enough. In other words, we classify the sociotropic voters into retrospective and prospective voters, but we do not undertake the task for the 'selfish voters'.

for instance impacts on employment, budget, or international competitiveness.

For some sociotropic voters though, we do not negate the possibility of *prospective* voting as discussed above (MacKuen, Erikson & Stimson 1992, Lewis-Beck 1988). Indeed, prospective sociotropic voting is very likely in environmental policymaking, as a majority of the ballots' issues were linked directly or indirectly to questions of sustainability and the security of our future. Extending the argument somewhat, we contend that these citizens do not only think of national future economic prospects, i.e. growth, but also about general questions linked to sustainability and the future of the natural habitat - our legacy to our descendants - when making a choice. Our last group therefore, the *Anticipating voters*, is believed to compare the future costs and benefits of a proposal from a sociotropic point of view too, but emphasizing long-term impacts of government policy, i.e. issues linked to sustainability, land use changes or the impact of a proposal on the future national economic development.

Table 3.1 provides an overview of the five groups, their theoretical underpinnings, and some examples of responses given. Note that in each group voters can decide to approve or reject an environmental proposal depending on how they assess its consequences along their priorities and on how they weigh those priorities. Therefore, all groups comprise yes- and no-voters.

Personal determinants of voting choice

Most empirical studies undertaken in the context of environmental protection found a voter's education and her political preferences to be the most important determinants when voting on the environment. Early studies in the 1970s, conducted with aggregate voting data and post referendum survey data in the United States, showed that environmental projects at ballots were strongly disapproved by voters with conservative political views (Deacon & Shapiro 1975, van Liere & Dunlap 1980) but embraced by those with higher education (Fischel 1979). Those results were confirmed by later empirical studies in the American and Swiss contexts, as is also shown in Chapter 2 of this thesis (see also Kahn & Matsusaka 1997, Thalmann 2004, Sciarini, Bornstein & Lanz 2007).

While the above predictors are uncontested by research, other factors such as the voter's age and urbanity have been more elusive to interpretation. One might expect younger voters to be more supportive of environmental

Table 3.1: Description of the voter typology

Name	Characteristics	Examples of Responses
Cue-takers	Shortcuts to decision making; heuristic cues; imitation of better-informed citizens; follow preferred party's or government's vote recommendation	I followed family's advice; cast my vote according to the Federal Council; used my preferred party's position as help; recommendation of friends/others
Ideologues	Simplistic and/or moral reasoning with ideological backdrop; usage of slogans; very pronounced pro- or contra-position: no concern for costs of proposals with regard to national economic conditions or public sector budget	I am for the environment; important to protect the Alps; too bureaucratic; polluter-pays-principle; Confederation should stop spending
Selfish voters	Pocketbook voters; concerns for personal economic prospects and financial situation; personal cost-benefit analysis: prevalence of self-interest	I pay enough taxes already; proposal goes too far; less congestion; modest financial contribution; personally harmed; I am for cost-transparency
Here-and-now voters	Sociotropic voters; compare costs and benefits of proposals for a short time frame with regards to national economic condition; past economic experiences are decisive for vote choice	Proposal is harmful to competitiveness; Confederation needs more money; proposal could endanger job security; no incentive to tourism; unequal distribution of costs on society
Anticipating voters	Prospective sociotropic voters; evaluate consequences of proposal on future living conditions; immediate and long-term economic future crucial for choice	I am concerned about the future/depletion of resources; concern about economic growth; promote renewable energy vs. renewables are not yet technologically ready; leave intact environment to descendants; we need more roads to cope with ever-increasing traffic

ballots because they are more concerned by long-term environmental changes or because they share post-materialist values, but these assumptions were usually refuted by empirical studies in the Swiss context (Bornstein & Lanz 2007, Thalmann 2004). Nevertheless, we will control whether respondents giving a voting motivation in terms of prospective voting react differently when it comes to votes on nuclear power - a typical post-materialist argument. We believe these questions to be particularly salient to anticipating voters since they are hard to grasp in terms of a single life-span (i.e. half-life of waste) and call upon post-material ideals (Inglehart 1977, Kitschelt 1986, 1989).

Furthermore, urban voters might be more favorable to environmental policy because they are more exposed to nuisances and they value the leisure-value of open spaces. On the other hand, urbanity is correlated with other voters' characteristics such as political affiliation, higher education and income (Salka 2001). Finally, a variable pertaining to private transport shall control for utilitarian arguments. We know that people possessing one or several cars are less likely to accept environmental proposals (Thalmann 2004, Bornstein & Lanz 2007), be it because they appreciate mobility more or because of the associated leisure. Consider the fact that citizens *not possessing* a car - around 25% in Switzerland - do either make a considerate choice against private transportation and for the environment (about one third) or do not possess one due to exogenous factors (i.e. scarce financial situation, prevalence of public transport in urban areas, health-related reasons etc.). The latter comprises about one fifth of the car-free group; the rest of the car-free people are rather ambivalent with respect to the reasons of not possessing a car (Müller & Romann 1999).

Hypotheses

After testing assumptions on personal determinants of environmental voting and on the motivation groups in a single-level model, economic and institutional predictors on level-2 are incorporated. This will allow for more detailed hypotheses testing, namely the possibility to test cross-level interactions. The following set of hypotheses will be tested.

H1 - Motivation groups Compared to the ideologues (reference category) we expect the following effects for the motivation groups:

1a. Selfish and here-and-now voters will show pronounced negative effects towards the proposals.
1b. On the other hand, anticipating voters will show a positive effect.
1c. Cue-takers should vote in line with their government, i.e. rather against the projects.

H2 - Context Institutional and economic time-series predictors:

2a. Effects for the 'change in consumption climate' coefficient should be positive implying that a better economic business cycle promotes people's willingness to pay for the environment.
2b. The contrary applies for the measure of general economic conditions: rising gasoline prices are expected to decrease ballot support.
2c. For proposals which received unanimous support by the Swiss elites we expect a higher probability of approval.

H3 - Interactions Cross-level effects between individual and contextual predictors:

3a. Selfish voters making their choice dependent on the change in the consumption climate will be incited to vote more strongly in favour of the proposals as the consumption climate soars.
3b. Similarly, when the here-and-now voters take into account general economic conditions their rejection of the projects will be offset when gas prices are lower.
3c. The anticipating voters' probability of approval of nuclear power initiatives will be higher than that of the other groups.
3d. Voters using shortcuts will vote even more strongly against the proposals when the elites are divided.

3.3 Data and first results

The VOX surveys

Since 1981 a representative telephone survey has been conducted within three to four weeks after each national vote (hereafter 'VOX survey'). Each survey interviews approximately 1,000 adults following a uniform blueprint augmented by questions specific to each vote. For this study, we pooled the data

from 19 VOX surveys bearing on 36 environment-related policy proposals put to vote over the last 21 years (see the list in the appendix).[6] The proposals were voted upon during only 19 weekends, as it is usual in Switzerland to vote on several different proposals together. Our selection of the projects follows closely the Swiss Statistical Office's classification of popular votes into thematic groups, using the group 'Environment & Living Space'. We excluded votes bearing on genetic engineering, as they pursued very particular and sometimes fundamentalist goals regarding the human being and the state of nature. For most proposals, voting yes was voting in favor of some environmental improvement; the two objects for which that was not the case were recoded accordingly.

The standardization of the surveys results in a stacked dataset, in which a respondent's project-specific vote together with her background characteristics constitute a case. In the VOX surveys, respondents were asked about each specific project that was put to vote on the same day. Consequently, each individual contributes as many cases to the stacked file as there were proposals on the ballot on a given voting day (Kriesi 2005, p. 20). For the present study, there were initially a total of 36,514 observations dispersed over 38 votes. Eliminating respondents who did not participate in the popular vote and those who did not answer all personal questions reduces the sample to 18,815 observations.

The sample is further reduced to 14,989 observations by missing answers to the motivation question and by ambiguous answers that did not allow allocating a respondent to any group. This led to another problem: after inspection of descriptive data, we found that two of our votes of 1984 pertaining to alternative energy sources and an exit from nuclear power were badly biased. Instead of having around 45% of respondents approving the measures, we suddenly found our respondents approving the projects with almost 90%. Unreliability in the early VOX surveys is known to be an often encountered problem, especially with respect to the motivation questions. Thus, we decided to discard these two votes which reduced the final sample size to 14,633 respondents for 36 votes.

[6] Due to missing data we were able to test only 36 of 38 projects in our model. See the remarks below for further details.

Voter typology using stated motives

The question in the VOX survey about voters' motives for casting a ballot in favor or against the proposal of the day has not yet been used extensively for scientific research. It is the only open question in the survey, which might explain some reluctance towards exploitation.[7] We do not dispose of the answers themselves but their recoding by the survey organizers, often just a word or two. That prevents us from making all the distinctions we might think of. Many voters cannot be allocated to any group because they did not answer the motivation question or their answer was coded in an ambiguous way.[8] Additionally, attributing voters to groups was a difficult task as some proposals pursued very narrow and issue-specific goals.

Table 3.2 shows how the voters were allocated to the motivation groups outlined above. As indicated, we lost roughly 20% of our sample size due to missing and incomplete data. The largest group is that of here-and-now voters with 30% of the electorate, closely followed by the ideologues (28%) and the anticipating voters (27%). The selfish voters represent only 11% of the sample, but that might be related to our *a priori* that voters concerned by high prices or employment loss worry not primarily for themselves and are therefore classified as here-and-now voters. Anyway, adding them to the motivation groups of here-and-now and anticipating voters, yields nearly 70% of respondents who based their vote on considerations of costs and benefits of the proposals.

Comparing voters who supported and opposed the environmental proposals shows clearly that more supporters are anticipating voters and more opponents are selfish voters. The other groups are about equally well represented among supporters and opponents. Next we checked the personal composition of the groups in terms of gender, education, linguistic region, urban/rural location and political preferences. No category of voters was over-represented in any of the groups.

Only education makes a small difference among those who did not answer the motivation question or gave an answer that the interviewers could not interpret: 6% of the voters with university education did not answer the moti-

[7] An exception is the study by Marquis (2004). He used the answers for a different purpose, though, namely to relate citizens' answers in the survey to the arguments voiced by political parties and associations in political advertisements in Swiss newspapers.

[8] Kinder & Kiewiet (1981) experienced similar problems when coding open-ended questions in the American NES, e.g. aggregation of issues which do not belong together.

Table 3.2: Distribution of respondents according to voter typology in absolute numbers and percentage

	Pro env.	Contra env.	Total
Ideologues	2,314	1,753	4,067
Selfish voters	511	1,088	1,599
Here-and-now voters	2,269	2,133	4,429
Anticipating voters	2,304	1,638	3,942
Cue-takers	248	348	596
	7,673	6,960	14,633
Ideologues	30.2%	25.2%	27.8%
Selfish voters	6.7%	15.6%	10.9%
Here-and-now voters	29.9%	30.6%	30.3%
Anticipating voters	30.0%	23.5%	26.9%
Cue-takers	3.2%	5.0%	4.1%
	100%	100%	100%

vation question and 14% gave an undeterminable motivation, against 11% in each group at the other extreme, that of voters with only compulsory school education. Leaving out respondents whose motivation answer cannot be used from the sample for future analysis should not bias our results.

Voters with university education were less often allocated to the selfish group (7% against 13% for voters with minimal education) and more often to the ideology group (31% vs. 24%). There is no evidence that voters with lower education more readily follow heuristic cues or shortcuts. As regards gender and place of residence, there is no statistically significant difference in the proportions of women and men allocated to each voter group or between city and countryside dwellers, nor between inhabitants of the German, and the French- and Italian-speaking cantons.

Finally, regarding political preferences, voters who place themselves on the left belong more often to the anticipating voters and the ideologues (30% each) than voters on the right (24% and 27% respectively). It is interesting to note that left partisans seem to be the ones concerned most with problems linked to environmental degradation in the future. Right partisans are a little more often allocated to the here-and-now (33%) and the selfish voters (12%)

than voters on the left (28% and 8% respectively); hence, leftist voters seem to follow arguments for their own financial well-being less than voters on the right when deciding on environmental projects. Voters in the centre and non-partisans are in between.

3.4 The econometric model

Dependent and explanatory variables

The dependent variable is approval or rejection of proposals favorable to the environment. All answers in the survey database were coded accordingly. Most individual-level explanatory variables in the VOX database were contrast coded (dummy variables) with 0 being the reference category. This is the case for the variables 'male' (0=female), 'urban' (0=living in rural area), 'car' (0=owns no car) and 'latin' (1 if living in French- or Italian-speaking, 0 in German-speaking part of the country). Education is an ordinal variable scaled from 0 to 3 for compulsory school, apprenticeship, high school diploma, and university degree. The corresponding value labels are 'compulsory' (reference category), 'apprentice', 'maturity', 'university'. The reference category for the age-predictor is the group of the 18 to 29 year-olds, with the other groups being 30-44, 45-59, and 60+.

The partisanship variable was based on two questions regarding party identification and self-positioning on a left-right scale. The multiplicity of political parties in Switzerland is reduced to three families: the conservative right (Swiss People's Party, Swiss Democrats and other parties of the radical right), the moderate right (Christian Democrats, Radicals, Liberals and other small parties), and the left (Social Democrats, Greens, Workers Party and other small left parties). The three names are accordingly 'conservative', 'moderate', 'left'. Voters who do not identify with a party but position themselves clearly on one side of the left-right scale are added to the corresponding category. We select the non-partisans as the reference category.

A general measure of economic conditions close to the voters' interests is the change in consumption climate from the preceding quarter (ΔCC). The indicator's values were attributed to each voting weekend. It is based on a consumer confidence survey held every three months in Switzerland among a representative sample of 1,000 citizens who are asked general questions about their consumption behavior in the near future and past (data from seco/State

Secretariat for Economic Affairs). For a narrower measure of economic conditions related to environmental policy, we use the price of gasoline, measured as a yearly average and deflated by the consumer price index ('gas price'). Both variables were standardized with mean 0 and standard deviation of 1 to facilitate comparison.[9]

The difficulty of decision-making on a specific proposal is measured through a familiarity variable from the VOX database. Respondents were asked whether they had found it rather hard or easy to make up their mind regarding the proposals on the ballot. It is called 'difficult'. The institutional setting of a vote is represented by a dummy variable that defines votes where the elites took a unanimous supportive stance towards the proposal ('consensus'). This was never the case for popular initiatives since they usually call for radical solutions with the goal to put an issue on the agenda; in general these are very seldom approved. In the time frame of this research only six out of 81 popular initiatives were accepted, three of those being included in our data set. We also included a dummy variable for all votes pertaining to nuclear power ('nuclear'), since they evoke a very peculiar argumentative pattern in the public debate and should play an important role for voters with a long-term perspective on society.

Finally, according to the above description, the motivation groups are called 'selfish', 'here-and-now (HAN)', 'anticipating', 'ideologues' and 'cues', whereby the ideologues figure as the reference category.

A hierarchical model

Hierarchical models have been used only rarely to examine the impact of geographical and other contextual characteristics on individuals' voting choices (Jones, Johnston & Pattie 1992, Bühlmann 2006, Sciarini, Bornstein & Lanz 2007). For the present purpose, a two-level logistic random intercept model is chosen so as to investigate processes operating at different levels at the same time. The model suits our hypotheses best as we can test for variances on the individual and contextual level as well as for cross-level interactions. Thus, it allows testing the assumption that voters' choices are influenced not

[9] Measuring the objective state of the economy via the lagged unemployment rate was not possible due to Pearson's correlation of $r = 0.494$ with the consumer confidence predictor; likewise, the correlation for GDP and consumer confidence was $r = -0.280$ (values significant at the 0.01-level, two-tailed test).

only by their personal characteristics, but also by the context which they are embedded in, which implies that errors are clustered and not independently distributed (Steenbergen & Jones 2002).

Furthermore, we are able to overcome the problem of ecological fallacy by modeling both the citizen and her context. Hence, instead of relying on a pooled cross-sectional analysis we use the hierarchical structure where we add time-series economic variables on level-2 to cross-section data on level-1. Kramer (1983, p. 93) criticized earlier research on economic voting and the use of cross-sectional individual-level data as being ' ... hopelessly contaminated. It depends only tenuously on the true parameter value and in general is so badly and unpredictably biased as to be essentially unrelated to the underlying individual-level relationship we are trying to estimate'. We believe his position to be somewhat extreme, especially in the light of his earlier work (Kramer 1971; for a further discussion, see Kinder, Adams & Gronke 1989). Thus, we can overcome some of the most important problems linked to micro-level data by incorporating macro-level data into the model simultaneously.

As the dependent variable in our multilevel model is discrete, either approval or refusal of environmental protection measures, we apply a logistic hierarchical regression. The model has the following structure: the lower-level consists of the individuals who are nested within the ballot proposals on level-2. The formal representation of the model follows closely Snijders & Boskers (1999, pp. 207-226). Y_{ij} denotes support or refusal of an environmental proposal by individual i on level-1 nested in level-2 context j. Predictor variables are denoted by X_1 to X_r taking values x_{hij} $(h = 1, ..., r)$.[10] The logistic random intercept model expresses the logit of P_{ij}, the probability of supporting the proposal, as the sum of a linear function of the explanatory variables and a random deviation U_{0j} that depends on level-2 context:

$$logit(P_{ij}) = \gamma_0 + \sum_{h=1}^{r} \gamma_h x_{hij} + U_{0j} \tag{3.1}$$

The random deviations U_{0j} are assumed to follow a Normal distribution with zero mean and a variance of τ_0^2.

[10]The difference between level-1 and level-2 variables is irrelevant for parameter estimation. Therefore, all variables on level-1 and level-2, *including cross-level interactions*, can be represented mathematically as x_{hij} (Snijders & Bosker 1999, emphasis added).

The hierarchical logistic regression can also be formulated as a threshold model where the dichotomous outcome Y is then conceived as the result of an underlying non-observed continuous variable. The underlying variable is denoted by $\breve{Y}$. We state that Y is 1, if $\breve{Y}$ is larger than the threshold, and 0, if it is less than the threshold. As we are working with unobserved entities let the threshold be 0. Thus, for the unobserved variable $\breve{Y}$ we have a random intercept model of the following form

$$\breve{Y}_{ij} = \gamma_0 + \sum_{h=1}^{r} \gamma_h x_{hij} + U_{0j} + R_{ij} \tag{3.2}$$

where the cumulative distribution function of the level-1 residual R_{ij} is a logistic function with mean 0 and variance of $\pi^2/3 \approx 3.29$. By assuming that R_{ij} has this distribution, model (3.2) is equivalent to (3.1).[11]

All models were estimated with the multilevel software package MLwiN 2.02 using the Reweighted Iterative Generalised Least Squares (RIGLS) algorithm, 2nd order PQL. Second-order penalized quasi-likelihood (PQL) estimates provide a considerable improvement over 1st order marginal quasi-likelihood (MQL) estimates as the latter tend to be biased downwards (Rasbash, Steele, Browne & Prosser 2004).

3.5 Results

Single-level model

The results for the single-level model confirm our hypothesis about the positive effects of higher education, urbanity and left partisanship. As can be seen from Table 3.3, the direction of the signs and the statistical significance of the coefficients confirm our assumptions. The left and green partisans and those having attended university vote more strongly in favor of the proposals. The positive effect for women implies that gender does have an impact on green voting. We suspect that this could be linked to motherhood questions,

[11] Following Snijders & Bosker (1999) we define a threshold model so as to be able to calculate the proportion of explained variance using McKelvey & Zavoina's R^2_{MZ} given by

$$R^2_{MZ} = \frac{\sigma^2_F}{\sigma^2_F + \tau^2_0 + \sigma^2_R}$$

where σ^2_F is the variance of the linear predictor for Y, the intercept variance is $var(U_{0j}) = \tau^2_0$, and σ^2_R has a logistic distribution (Snijders & Bosker 1999, p. 225).

whereby women might recognize more strongly the long-term impact of depletion of resources with regards to our descendants. Urban dwellers, too, have a higher probability of accepting the ballot propositions whereas those possessing one (or several) private car(s) have a smaller probability of voting yes. The predictor measuring people's difficulty when making a choice is not statistically significant though. In line with earlier studies, the age coefficients have a negative sign, suggesting that the older voters are less supportive of environmental policy (Thalmann 2004, Bornstein & Lanz 2007). Furthermore, the probability of support for environmental policy in the French- and Italian-speaking regions is lower than in the German part of the country, an effect frequently observed in Swiss referendums (Kriesi 1999).

The single-level model in Table 3.3 also includes the motivation groups, with the group of the ideologues serving as the reference category. We observe that, compared to the ideologues, the probability that selfish voters and cue-takers approve environmental proposals is weaker. The two groups representing sociotropic voting confirm our expectations partly: while voters reasoning in short-term cost-benefit analyses are less likely to approve the proposals, the coefficient does not attain statistical significance for the anticipating voters. We will comment in more detail on these effects when discussing the full model below. However, it becomes clear that not all expectations formulated in hypothesis 1 can be confirmed.

Adding the motivation group indicator into the vote equations is mainly designed to better understand the consequences of belonging to those groups rather than to raise the predictive power of the model. Indeed, in separate tests not shown here, we found the proportion of explained variance to increase only minimally upon introduction of the groups into the model. Remember that each group comprises yes- and no-voters. There are only 32% of voters in favor of the environment in the selfish group against 57% in the reference group of the ideologues, and 58% in the group of the anticipating voters. Thus, the clearly significant and very large negative coefficient for 'selfish' means that, when their personal characteristics are taken into account, voters who weigh the benefits and costs of environmental proposals for themselves tend to reject them more frequently than the ideologues. The same is true for the here-and-now voters, but in lesser magnitude. The anticipating voters then react more positively to the proposals, although the difference is not statistically significant, a finding which is in line with the high percentage of

yes-voters in that group. However, belonging to the cue-takers leads to voting more often against the environment, which is most likely due to the lop-sided elite configuration for a majority of the ballot propositions: all initiatives and three referendums (N = 24) faced opposition by the national government, major employers' organizations and the three liberal-conservative government parties. Furthermore, we know from the survey responses that most of the cue-takers mentioned following the government's or a party's recommendation when making a decision.

Two-level model

Adding level-2 contextual explanatory variables allows testing our hypotheses on the economic and institutional effects on vote choice. The variables' coefficients confirm our *a priories*. The results are displayed in Table 3.3 as well. While the coefficients of the individual determinants hardly change, we note some mixed effects for the institutional and economic predictors.

First, we note that only the coefficient for the oldest voters attains statistical significance and is negative, indicating that when contextual effects of the vote are accounted for, young and middle-aged voters are influenced less by their age. Furthermore, more complex proposals diminish the probability of voter approval, thus confirming earlier findings that projects which were not understood by the electorate or comprehended with considerate difficulties only faced a tough challenge at ballots (Zaller 1992, Sciarini, Bornstein & Lanz 2007).

The two measures of current economic conditions, the change in consumption climate and the deflated gasoline price, show mixed effects. As aforementioned, we were able to test neither for unemployment nor for GDP growth since the two exhibited high correlations with our measure of current economic conditions. Nevertheless, the effect of a higher gas price is clear-cut, namely it lowers probability of approval. Our expectation that the citizenry is inclined to vote in favor of the projects when they perceive the change in consumption climate positively is also confirmed. A caveat applies though: for the selfish voters this is not the case. This will be discussed below when interpreting the cross-class interaction terms.

We note, finally, a positive effect for ballot propositions which gained unanimous support from the Swiss elites. Inversely, this implies that the left, which

Table 3.3: Support for environmental proposals at Swiss ballots; hierarchical logistic regression[†a]

		Single-level		Two-level	
Level-1	Level-2	Coefficient	s.e.	Coefficient	s.e.
Constant		0.751**	(0.090)	0.066	(0.168)
Age: 30-44		-0.098*	(0.058)	-0.039	(0.063)
Age: 45-59		-0.128*	(0.059)	-0.105	(0.065)
Age: 60+		-0.196**	(0.060)	-0.123*	(0.067)
Apprentice		0.161**	(0.055)	0.152**	(0.060)
Maturity		0.301**	(0.062)	0.310**	(0.069)
University		0.431**	(0.076)	0.560**	(0.086)
Male		-0.161**	(0.037)	-0.239**	(0.040)
Urban		0.080*	(0.037)	0.132**	(0.041)
Latin		-0.297**	(0.043)	-0.255**	(0.047)
Left		0.905**	(0.047)	1.065**	(0.053)
Moderate		-0.151**	(0.045)	-0.188**	(0.050)
Conserv.		-0.657**	(0.064)	-0.691**	(0.071)
Difficult		-0.042	(0.041)	-0.128**	(0.046)
Car		-0.718**	(0.050)	-0.768**	(0.055)
Selfish		-0.942**	(0.065)	-1.051**	(0.078)
HAN		-0.157**	(0.046)	-0.288**	(0.057)
Anticip.		0.055	(0.048)	0.297**	(0.066)
Cues		-0.602**	(0.093)	-0.492**	(0.130)
	ΔCC			0.278**	(0.112)
	Gas price			-0.236**	(0.095)
	Nuclear			0.348	(0.369)
	Consensus			1.476**	(0.212)
	Selfish*ΔCC			-1.217**	(0.066)
	HAN*gas p.			0.065	(0.048)
	Anticip.*nucl.			0.855**	(0.160)
	Cues*consens.			-0.432**	(0.203)
var(U_{0j})				0.314**	(0.077)
corr. pred.[b]		64%		69%	
R^2_{MZ}		0.15		0.28	

[†] * p≤.05 ** p≤.01

[a] N = 14,633; extra-binomial distribution 1.009** (two-level model only)

[b] Cut value at 0.5

in environmental referendums always opposed the established parties and organizations in the centre and on the right, has great troubles passing green ballots if they do not receive support from the bourgeois parties, organized business and employers organizations. Thus, all hypotheses pertaining to the context level are confirmed. It remains to see how the determinants fare when put in interaction with the separate motivation groups.

As mentioned above, group membership must be regarded less as an element to increase the predictive power of the model, but rather in terms of discriminating what sort of considerations play a role for voters' choice after controlling for socio-structural characteristics. We note that the coefficients from one equation to the next remain robust, but that there is improvement in that the coefficient for the anticipating voters is now statistically significant. Selfish voters, as expected in our hypotheses, have a greater probability of rejecting the proposals. This is also true for the anticipating voters. In accordance with our hypothesis, voters who are farsighted when making a decision will rather approve of the environmental proposals. This effect is statistically significant at the 1%-level, as are all effects for the motivation groups in the full model. Finally, voters following cues, rather vote against the proposals, thus following the majority of the elites' voting recommendations in our case. Thus, expectations outlined in hypothesis 1 can be confirmed for the full model whereas for the single-level model this is not the case. Finally, we shall test the hypotheses pertaining to motivation groups put in interaction with contextual determinants of the vote choice.

First, we test the pocketbook voting hypothesis by checking how the selfish voters' choice is influenced by the recent change in the consumption climate: the group's already impressively lower probability of accepting environmental measures is further reduced. Thus, voters deciding about a proposal on the basis of its impact on their personal financial situation are even more likely to reject environmental proposals in times of improving consumer prospects. This goes clearly against our assumptions of the beneficial effect of the change in the consumption climate; we might want to interpret this effect as a preponderance of material values, i.e. the increased availability of consumer goods when pocketbooks are full, over immaterial environmental values. This finding is supported by Halbheer, Niggli & Schmutzler (2006) who contend that voters, in their role as consumers, reject environmental proposals when it entails a restriction of their consumer sovereignty.

Next, we test the sociotropic hypothesis by creating an interaction effect between the here-and-now voters and the gas price. The interaction effect does not attain statistical significance suggesting that the burden of paying more for gas is equally constraining to all voters. This finding has direct repercussions on the above result, namely, in that voters, in their role as consumers, react very sensitively to any kind of financial burden placed upon them (cf. Deacon & Shapiro 1975). Thus self-interest seems to prevail for the pocketbook voters and macro-economic changes are having effects across the entire electorate.

Closely linked to the post-materialist hypothesis, the dummy for nuclear stands for the four initiatives requesting an exit from nuclear power (two in 1990; two in 2003). In each year, one of the two initiatives asked for a total exit while the second, voted upon on the same weekend, asked for a ten-year ban on further construction of nuclear power plants. The moratorium was accepted in 1990 but not in 2003. This must be seen in the light of two events: first, the catastrophe in Chernobyl just a few years earlier was still present in people's minds at the time of the first vote and raised fears about further nuclear accidents. Second, fierce protests all over the country in the 1980s orchestrated by a very well organized anti-nuclear movement in Western Europe raised citizens' awareness regarding the nuclear question (Kriesi & Jegen 2001, Kitschelt 1986). However, the coefficient for 'nuclear' alone is not significant. But we expect anticipating voters to be particularly sensitive to the preservation of a sound environment to their descendants and to be concerned about nuclear power and waste storage. The positive sign of the interaction effect confirms our expectations. Hence, while this group is more likely to approve anti-nuclear initiatives this does not hold true for the other groups as the nuclear-dummy is statistically insignificant.

Lastly, we test whether voters who indicated that they follow the government's or their family and friends' advice are particularly sensitive to the institutional setting. It appears that the cue-takers' support *decreases* in mainstream situations, i.e. when elites back a proposal unanimously. This result is surprising. We are led to believe that the Swiss system, grounded in consociationalism, raises the possibility of a protest vote in times where the elites tend towards a consensus-oriented position. In other words, these voters might be dissatisfied with the bargaining in parliament which led to a 'lackluster compromise' and therefore abstain from supporting this type of coalition. Thus, in conclusion we must reject parts of hypothesis 3 as the self-

ish voters did not react favorably to the increase in their consumer prospects nor did the here-and-now voters react differently to the proposals compared to the rest of the electorate.

3.6 Conclusion

The main purpose of this paper was to analyze economic determinants on environmental voting and how they evolve over time. To this end, a rich decision making model for voters was built, leading to hypotheses about personal and aggregate determinants of votes. We used citizens' answers to a survey question asking for their personal vote motive to create a typology of the electorate. Building on the economic voting literature we were able to show that citizens do reason in terms of personal costs and benefits, but that other arguments such as preservation of natural habitats or economic competitiveness are equally important.

The analysis started out with a single-level model of the kind frequently used to test individual-level predictors of support for environmental protection measures (Kahn & Matsusaka 1997, Thalmann 2004). We found the usual suspects to have the expected sign and to be statistically highly significant. Thus, assumptions posited in the 1970s on the positive effect of voters' higher education, leftist political affinity and urbanity still hold true. It appears that citizens in the German-speaking part of Switzerland are more environmentally conscious than their French- and Italian-speaking compatriots, and that the male breadwinner is less concerned with environmental protection. We contend that citizens without a car support the proposals more than car owners but leave it up to speculation whether this is due to an endogenous 'environmental conscience' or rather financial and other exogenous considerations.

A multilevel random-intercepts model allowed testing for a variety of hypotheses pertaining to individual, institutional as well as economic time-series effects on vote choice. We controlled for the institutional setting, more exactly, the elites' position regarding the ballot propositions and found that objects which polarize the elites have a considerably lower chance of approval. This holds true for all motivation groups with the exception of the cue-takers. For them we suspect a certain reluctance to support a parliamentary compromise which rallies all major elites in favor of the bill.

We obtain mixed results on the influence of micro- and macro-economic

predictors on environmental vote choice. On the one hand, it holds true that the change in the consumption climate has a direct influence on vote choice implying that in times where voters feel more confident about their own consumption they are inclined to vote in favor of environmental bills. Note though that this effect does not apply to the selfish voters: we find that they are rather more hostile to environmental policy and even reinforced in their disapproval when in interaction with the change in consumption climate. We assume material considerations to play a preponderant role for these voters. Moreover, we get a clear indication that the willingness to pay for the environment decreases when the citizenry is touched by higher gas prices. Although Swiss voters accepted a voluntary increase of the mean price of gas in 1993 in order to subsidize road construction and maintenance, they reacted very sensitively to market price fluctuations as shown by our analysis.

Notwithstanding a big number of studies focusing on the relationship between election outcomes and economic conditions, evidence on the impact of evaluations of the economy on referendum votes is still scarce (cf. Bowler & Donovan 1998). Anyhow, we assert that economic voting models can be applied very well to referendum elections and that they are thus beneficial to the understanding of environmental voting behavior.

Acknowledgments

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4 Alliance Formation in the Pre-Parliamentary Phase in Switzerland: Towards a Re-Configuration of the Environmental Policy Space?

This chapter is a slightly modified version of a paper (Bornstein 2007), which is accepted for publication pending revisions at the Journal of Public Policy.

Abstract

The present study analyzes the formation of alliances of corporate and collective actors in the pre-parliamentary phase in Switzerland. Drawing on data gathered in the so called consultation procedure, an expert survey submitted to parties and interest associations, the paper tests hypotheses pertaining to the alliance formation behavior of the actors involved. As the environment, a typical New politics issue, has risen on political agendas lately and is believed to cut across partisan lines, I expect actors to engage in cross-cutting alliances. Responses were coded on nine different items measuring actors' degree of consent on the bills. Multidimensional Scaling was employed so as to visually represent actors' pre-parliamentary alliances. Results showed that the market vs. state antagonism proves hard to overcome and that there is thus only limited occurrence of cross-cutting alliances. Indeed, the environmental policy space proves to be very stable due also to the consociationalist structure of the Swiss polity.

4.1 Introduction

Debates surrounding climate change and environmental protection are increasingly gaining in salience in political discourse in advanced industrial democracies. In April 2007, the UN Security Council devoted a day-long debate to the impact of climate change emphasizing its economic, social and humanitarian costs. However, policymaking in order to protect natural resources and the habitat faces the obstacle of a trade-off between increased environmental protection and economic performance. Thus, the conflict line in environmental politics in advanced industrial democracies traditionally runs between the interventionist-friendly Left and the Right defending the primacy of economic growth and security (van Liere & Dunlap 1980, Sciarini & Finger 1991). In Switzerland, this conflict line has, under the influence of interest groups' lobbying, obstructed effective ecological policy in the past (Bornstein & Lanz 2007, Thalmann & Baranzini 2008). Hence, environmental politics in Western democracies is often referred to as being structured by an ecology vs. economy antagonism (Kriesi 1999, Jasper 1990), i.e. a distributive conflict over the allocation of scarce resources.

Anyhow, Kitschelt (1994) contends that the left-right scheme of socialist electoral competition is gradually being replaced by a left-libertarian vs. right-authoritarian conflict dimension due to the emergence of left-libertarian parties, i.e. ecology parties, which oppose the primacy of economic growth, defend new forms of political and labor market participation, and advocate non-material goods such as personal freedom, gender equality, quality-of-life issues and environmental protection (Inglehart & Flanagan 1987, Kitschelt 1994). Furthermore, higher education and rising levels of affluence in advanced industrial democracies (Inglehart 1977), coupled with weakened party ties (Dalton 2000), are thought to undermine the Old Left's traditional axis of electoral competition. In the wake of the Green parties' electoral success and direct competition with social democratic parties, parts of the Old Left were forced to adopt essential left-libertarian claims such as the environment, too (Kitschelt 1989). This shifting of electoral competition and the changing of values over the last thirty years might also give rise to new alliances in Swiss environmental policy between the left and parts of the moderate right (Häusermann 2006, Kriesi & Jegen 2001).

Thus, this study pursues two goals: firstly, to analyze the respective al-

liances corporate and collective actors engage in during the pre-parliamentary phase, and secondly, to test the structure of the environmental policy space with regards to the presumed left-right divide.

I analyze four pre-legislative drafts of bills which aimed at the introduction of market-based instruments in environmental policy. To this end, I study corporate and collective actors' written responses given during the official consultation procedure, i.e. in the pre-parliamentary phase, from 1990 to 2004.[1] I make use of Multidimensional Scaling (MDS) in order to spatially map actors' positions on the pre-legislative drafts.

Following the introduction, Section 4.2 elaborates in more depth the argument of the a new conflict line in Swiss environmental policy. Section 4.2 reviews prior research on environmental policymaking and the institutional setting in Switzerland. Section 4.3 presents the data and methods used. Results are presented and discussed in Section 4.4, whereas Section 4.5 concludes.

4.2 Changing conflict lines in environmental policy

In the past, environmental policy has been mostly driven by ecology parties and the New Left in Western democracies, whereas the policy domain has not figured prominently on conservative parties' political agendas (Carter 2006, van Liere & Dunlap 1980). The clear distinction between the pro-ecology and the pro-economy camps might be undergoing changes, though (Kriesi & Jegen 2001). Kitschelt (1994) showed that in European Social Democracy the traditional distributional axis has been challenged by the advent of a conflict line opposing authoritarian to libertarian values, which led to a shifting of the main political competition along the left-libertarian vs. right-authoritarian axis. The left-libertarian parties such as the ecology parties or other small alternative movements (Kitschelt 1989) were at the heart of the new configuration of electoral competition - developments, which were closely coupled to value changes and the weakening of party ties in advanced industrial democracies (Inglehart 1971, Flanagan 1982, Dalton 2000). It is now widely accepted that left-libertarian issues such as ethnic tolerance and gender politics have risen to the top of political agendas of left parties, which was in part

[1] In Switzerland's direct democratic system, an official consultation procedure of three months permits all interested parties, organizations and citizens to express themselves on the first legislative draft of a new law, which is usually prepared by an expert commission and/or a Federal Office (Sciarini 2006, Papadopoulos 2001).

due to the left-libertarians electoral success in social democracy (Inglehart & Flanagan 1987, Kriesi 1999, Neumayer 2004). Hence, Kitschelt (1994) claims that class conflicts no longer constitute the main foundation for electoral competition. However, left-libertarians' belief systems remain closer to socialist ideas, whereas authoritarian parties defend the primacy of the market over redistributive resource allocation and are thus to be found closer to traditional capitalist politics.[2]

Another reason for the emergence of left-libertarian parties in the 1970s and 1980s must be seen in their frustration with capitalist politics' emphasis on income growth and economic security which neglected the preservation of collective goods such as an intact natural environment. At the same time, increasing levels of affluence and education of post-World War II societies went hand in hand with the transition from a low skilled blue-collar workforce to more highly educated white collar occupations (Kitschelt 1994). Using data from the World Value Surveys, Flanagan & Lee (2003) demonstrate the high correlations between environmental issues and left-libertarian values: left-libertarians are more willing than authoritarians to accept taxes to prevent pollution or to support pro-environment measures at the cost of jobs.

Moreover, while prior research suggested that 'beliefs about specific environmental issues seem to fit together on a single dimension ... ' (Pierce & Lovrich 1980, pp. 260-261), i.e. on an ecological preservationist dimension, scholars contend that in contemporary political competition the environment cuts across the traditional left-right partisan alignment (Carter 2006). Hence, new alliance patterns might be evolving which transcend the 'old' distributional dimension. It is reasonable to assume that the environmental issue now figures prominently on the political agenda of liberal-conservative parties as programmatic national partisan differences in environmental policy are fading in the light of new global environmental challenges such as anthropogenic climate change. Nowadays, science acknowledges that anthropogenic influence on climate change due to increasing Greenhouse Gas (GHG) emissions has become one of the most salient environmental issues in the past decades (Kolstad & Toman 2005, IPCC 2007). Therefore, parties failing to absorb the environment into their political agenda may be seriously at risk as voters

[2] I agree with Finger & Hug (1992, p. 290) that libertarians need not by definition be left (Kitschelt 1988, p. 197).

might shift their partisan loyalties (Carter 2006). It should therefore prove increasingly difficult for liberal-conservative parties not to respond to demands of the electorate concerning the protection of natural resources.[3]

Finally, in early environmental policymaking direct regulation was preferred over taxes since it was believed that short-term gains for the regulated industry prevailed (Buchanan & Tullock 1975). However, the economic instruments propagated as of the late 1980s provided for a mechanism which in theory assured cost-neutrality to administration and avoided redistributive politics - arguments considered crucial for the acceptance by bourgeois parties (Felder & Schleiniger 2002, Schneider & Volkert 1999).

Institutional framework in Switzerland

While there is a scarce but growing literature on referendums in Swiss environmental politics (Halbheer, Niggli & Schmutzler 2006, Bornstein & Thalmann 2007, Sciarini, Bornstein & Lanz 2007, Thalmann 2004, Bornstein & Lanz 2007), there are to date only few studies analyzing coalitional patterns in the environmental policy domain (e.g. Thalmann 1997). Recently, two studies analyzed the elaboration of the Swiss CO_2-law. Thalmann & Baranzini (2008) opted for a descriptive-analytical approach, which highlighted the pressure group politics employed by business during the making of the CO_2-law. Ingold (2007) relies on expert interviews so as to reconstruct the actor configuration during the elaboration of the CO_2-law with Social Network Analysis.

Likewise, Kriesi & Jegen (2001) studied the actor configuration in the Swiss energy domain with expert interviews. They start from the assumption that the policy field is dominated by two camps, namely the 'pro-growth' vs. 'pro-ecology' coalitions, but that new coalitional patterns evolve which transcend the bipolar configuration. They conclude that: 'Some key members of the parliamentary committees in the energy policy domain representing parties from the center-right, parties which are typically part of the pro-growth coalition, have joined the pro-ecology coalition. ... New forms of alliances have taken shape as a result' (Kriesi & Jegen 2001, p. 284). Thus, the left-right cleavage in energy policy seems to be weakening.

Yet, despite the above evidence the left-right divide proves to be extremely

[3]This point is crucial considering that the Radicals (PRD) recently drafted a position paper on abatement and mitigation measures in climate policy; the same party which fought ferociously against a CO_2-tax in parliament (see NZZ 02.07.2007, p. 7).

powerful in environmental politics. This goes back to the days of the formation of green and alternative parties out of social movements and grassroots ecological movements in the late 1970s and their subsequent reinforcing of the traditional Left's bargaining power (Kriesi & Jegen 2001, Ladner 1989, Hug 1990). Corroborating this claim for Switzerland, Sciarini & Finger (1991) showed that the Social Democrats (PSS) and the Greens exhibit very similar values on a left-right self-declaration scale and that their positions basically unite on an ecology-economy axis (see the appendix for abbreviations).[4] Likewise, Neumayer (2004), using data from the Manifesto Research Group, was able to show that traditional left-wing and left-libertarian parties in Western societies indeed are more supportive of green policy. In addition, analyses of environmental voting behavior in Switzerland corroborated the significant and large positive effect of left and green partisanship on citizens' vote choice (Bornstein & Lanz 2007, Sciarini, Bornstein & Lanz 2007, Thalmann 2004).

The picture in parliament seems to be quite similar. Schwarz (2006) studies roll-call votes in the National Council, the lower chamber of parliament, from 1996 to 2005. He is able to show that the left-right axis remains the decisive conflict line. The coalition on the left of the Greens and the Social Democrats (PSS) is the most homogenous uniting in almost 90% of all roll-call votes. Though, when it comes to environmental issues the Christian-Democrats (PDC) join the left-green coalition in almost 50% of the cases, whereas the Radicals (PRD) and the Swiss People's Party (UDC) in turn unite in nearly 70% of green votes (see also Kriesi 2001). Hence, empirical evidence points to a rather marked ideological conflict in parliamentarians' and citizens' voting behavior. Note, however, that Kriesi (2001), Kriesi & Jegen (2001) and Häusermann (2006) found considerable divergence in the camp of the bourgeois actors regarding energy policy and modernizing social policy, respectively.

Finally, outside the parliamentary arena, interest groups, labor unions and employers associations usually ally with established parties to obtain desired policy outcomes. Kriesi (2001) remarks that the 'double loyalties' of members of parliament towards the party and the interest associations they adhere to are equally strong (cf. Linder 2006, Mach 2006). Thus, it follows that in the

[4]Thus, these findings run counter to Kitschelt's (1994, p. 290) observation that the PSS does not advocate left-libertarian values; on the contrary, the PSS integrated New Politics issues such as the environment in their political agenda as of the late 1980s (Kreuzer 1990, Sciarini & Finger 1991, Finger & Hug 1992).

Swiss polity, organizational interests are tied very closely to party politics. Scharpf's (1997) game-theoretic, Rational Choice approach to public policy states that actors are constantly under institutional constraints which guide their choice to a certain extent. I follow his concept, in that I conceive actors as being collective and corporate actors such as political parties, labor unions, government ministries etc. rather than individuals. All in all, around 40 of the most important actors in Swiss environmental politics will be taken into account.

Hypotheses

Summarizing, I test whether the structure of the environmental policy space. Actors are believed to position themselves vis-à-vis the proposals with regards to the market logic and the ecological dimension, i.e. the nine items coded for every issue (see following Section). As a consequence thereof, cross-cutting alliances in environmental policy might become more feasible.

H1 If it holds true that the Old Left adopted new politics issues due to the rise of the ecology party, the Old and New Left parties should be forming alliances with each other and with the trade unions and ecological movements.

H2 If it holds true that the environment is a cross-cutting issue and that economic instruments garner approval by bourgeois actors more easily, cross-cutting alliances between the bourgeois parties and employers with parts of the left will be formed.

Anyhow, if we are able to observe changes in environmental political competition, do they represent a new stable alliance pattern or are they due to issue-specific reforms only? I test the above assumptions and present results thereof in Section 4.4. But first I provide some brief information on data and methods in the following Section.

4.3 Data and methods

Case selection

As the aim of this paper is to study the formation of alliances in environmental policy, cases were chosen which represent not only issues which are high

Table 4.1: The six reform issues under study

Year	Code	Reform issue
1990	LPE1.1	Principle of introducing incentive taxes
	LPE1.2	Incentive taxes on VOCs, heating oil and Diesel containing more than 0.1% of Sulfur, and fertilizers
1994	LCO1	Stabilization of CO_2-emissions
1996	LCO2.1	Voluntary agreements to reduce CO_2-emissions
	LCO2.2	Incentive tax on fossil fuels
2004	LCO3	V3 - Climate penny on motor fuels and subsidiary incentive tax on heating oil

on political agendas in Western societies, i.e. emissions reductions, but also such which use economic instruments in environmental policymaking. Furthermore, data availability was evidently the second criteria for case selection. Unfortunately, it was impossible to go back further in time to be able to assess the formation of alliances for a longer time frame since data was unavailable to come by. Furthermore, as the four reforms pursue a very similar goal, it is a most similar cases design which facilitates comparison across issues and time.

The data in the analysis stems from four consultation procedures pertaining to the Law on the Protection of the Environment (LPE) and the CO_2-Law (LCO). Four consultation procedures on the policy packages took place between 1990 and 2004. Two policy packages contained two issues while the other two only consisted of one issue. I thus studied six reform issues; the issues are listed in Table 4.1. The pre-legislative drafts aimed at introducing market-based instruments to mitigate emissions of pollutants (see also Thalmann & Baranzini 2008, Ingold 2007). Three out of the four packages were subject to an optional referendum, whereas the last package in 2004 addressed the enforcement of the CO_2-law and was not subject to a referendum. In the following, I will briefly comment on the policy packages; the full description of each package is given in the appendix.

The *Revision of the Federal Bill on the Protection of the Environment (LPE1)* in 1990 became necessary, firstly, in order to conduct major revisions on regulation regarding environmentally damaging activities and pollutants, and secondly, so as to integrate market-based instruments into the law. The

Federal Bill on a CO_2-Tax (LCO1) in 1994 was the first of three consultation procedures pertaining to the CO_2-law. The bill aimed at stabilizing CO_2-emissions by introducing incentive taxes on fossil energy sources and partially earmarking the revenues for energy-efficiency measures. The *Federal Bill on the Reduction of CO_2-Emissions (LCO2)* of 1996 was a revised version of the pre-legislative draft of 1994. It relied on Voluntary Agreements (VAs) between the industry and government in order to lower CO_2-emissions by 10% of 1990 levels by 2010. An incentive tax on fuels and heating oil was only envisioned as a subsidiary measure should targets be missed. Revenues were to be restituted completely to the economy and the population. In the *Consultation Procedure on the Measures regarding Compliance with the CO_2-Law (LCO3)* in 2004, four different measures (V1 - V4) were proposed by public administration to fulfill the obligations of the CO_2-law. The present analysis pertains to V3, which was later implemented. It propagated VAs between the economy and government, the so called climate penny on gasoline, and only foresaw an incentive tax on heating oil if reduction targets were at risk. Revenues from the climate penny were to be earmarked for emissions abatement in Switzerland and abroad while those from a tax were to be fully redistributed.

The data used in this paper stems from the actors' written responses to the bills submitted to consultation. For each policy package 30-40 actors were retained. Each bill was coded regarding nine different items. I assign the value of 1 when the actor claimed a stricter proposal, 0 when the actor supported the measure as proposed, and -1 when the actor claimed a smaller or more voluntary agreement. For every reform issue a separate coding template was prepared in order to account for the drafts' different designs. However, it was not always possible to code a position on all nine items due to an item missing in the bill. This was the case for one of the issues in 1990, on the principle of introducing incentive taxes (without Exemption, Gradualism, Level), and on one of the issues in 1996, namely the possibility of concluding VAs (without Gradualism, Revenue recycling). The nine items are the following:

Intervention / Timing: Is there an environmental problem which demands federal state intervention. If so, when?
Instrument: How should state intervene: VAs, command-and-control regulation or taxes?
Scope sector: Which sectors should be covered?

Scope pollution: Which damaging liquids or gases should be covered?
Level: Should the level of the incentive tax / emissions reduction be higher or lower?
Gradualism: Should the incentive tax / emissions reduction be gradually increased?
Revenue recycling: Should revenues be (partially) earmarked or redistributed?
Neutrality: Should measures be neutral with regards to public spending ratio?
Exemption: Should energy-intensive companies be exempted from the tax?

Multidimensional Scaling

I analyze the data with Multidimensional Scaling (MDS) in Stata 9.2 in order to visualize actors' proximities in space based on their responses to the nine items. MDS aims at uncovering the hidden structure in the data, such that the distances between points match the dissimilarities in terms of their policy preference. In other words, the larger the dissimilarity between the actors' positions the further apart they should be in the spatial map (Kruskal & Wish 1978). As MDS has some similarities with Factor Analysis/Principal Component Analysis (PCA) both methods were tested. Results from PCA were largely identical in that results showed that two dimensions accounted for most of the part of the variance explained. However, as visual representation of the results from MDS is simpler to interpret, I showed results from MDS only.

The graphs should be read as follows: the distances between the actors represent the similarity of their policy preference as coded in the responses to the consultation procedure. Those actors being close together thus form an issue alliance. I highlighted the alliances with ellipses for greater clarity. Table 4.2 gives information on the number of actors for each reform issue and the Kruskal's Stress coefficient, which measures the badness of fit. A lower value implies a better fit of the model. From Table 4.2 we can observe that the Stress statistic ranges between 0.12 and 0.2, which implies that the fit is good for all issues analyzed (Mead 1992). In classical MDS distances between points are treated as Euclidean distances. This yields dissimilarity δ_{rs} between rth and sth objects where a dissimilarity of an object with itself is zero, i.e. $\delta_{rr} = 0$ (Cox & Cox 2001, p. 9).

All actors were included in the models. In order to allow for greater clarity the smaller and less influential actors were not included in the plots, given that

Table 4.2: Kruskal's Stress statistic for all reform issues

Reform issue	N	Kruskal's Stress
LPE1.1	31	0.1235
LPE1.2	31	0.1452
LCO1	38	0.1621
LCO2.1	38	0.1526
LCO2.2	38	0.2093
LCO3	33	0.1638

both their weight in the policymaking process and their veto player capacities are rather small (Hug & Tsebelis 2002). This is especially the case for the many small environmental groups who lack resources and usually refrain from formulating a consultation response using instead the consultation answer drafted by larger organizations such as the WWF. The same applies to smaller energy and sectoral employers organizations. Papadopoulos (2001, p. 42) argues that the greater an actor's referendum power, the more consideration is usually given to his suggestions formulated in the consultation procedure.

4.4 Results

In the following the results from MDS pertaining to the formation of political alliances during the pre-parliamentary phase are presented.

The revision of the LPE in 1990 encountered opposition mainly due to its attempt at introducing incentive taxes, whereas all the other amendments to the law passed more or less uncontested. The results are plotted in Figure 4.1 and show that opposition to the first reform issue, on the principle of incentive taxes in ecological policy, came from the bourgeois and conservative parties, and major business and employers organizations. They requested more voluntary agreements between the economy and the federal administration, or other economic instruments such as emissions trading, which were perceived to exert less strain on the economy. On the other hand, the PSS, the Greens and trade unions embraced the instrument as a complement to direct regulation, but wished for partial or full earmarking of revenues from a potential tax. Hence, a distributional left-right split manifested itself on the principle of introducing incentive taxes in ecological policy.

Nevertheless, on the second issue of the policy package, actor constellations

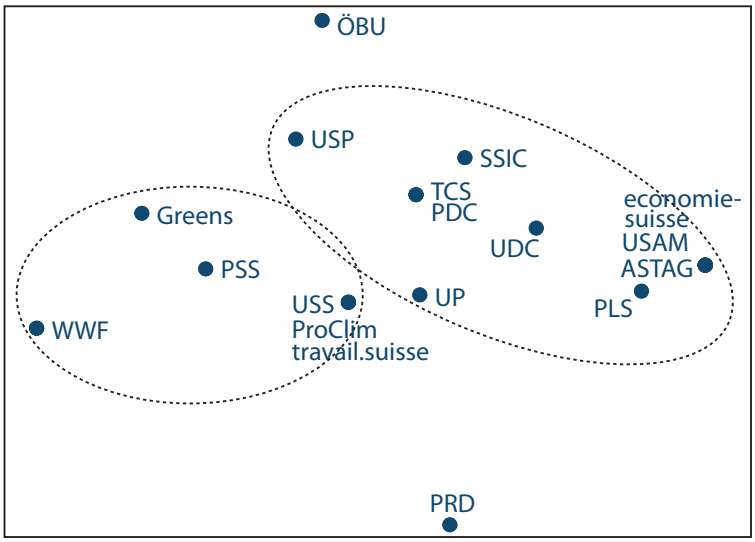

Figure 4.1: Multidimensional Scaling of actors' positions on the 'Principle of introducing incentive taxes' in 1990

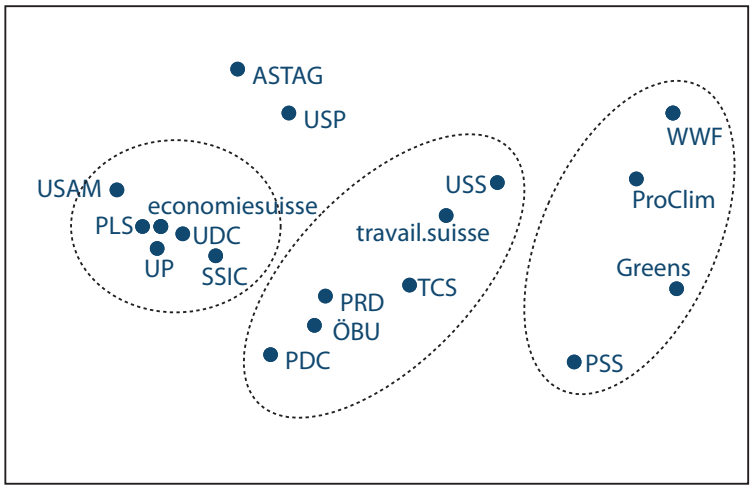

Figure 4.2: Multidimensional Scaling of actors' positions on 'Incentive taxes on VOCs, heating oil and Diesel containing more than 0.1% of Sulfur, and fertilizers' in 1990

were no longer split along the distributive divide (see Figure 4.2). A mixed alliance of bourgeois parties united with the ecologically aware sectoral employers organizations and labor unions to form a third block between the two poles.[5] The cross-cutting alliance encompassed actors usually not favorable to pro-ecology demands such as the PRD and the TCS, for whom cost- and budget-neutrality, respectively, favorable conditions for private mobility, are crucial. However, as we will see below, this issue did not touch their interests directly. The trade unions reacted reluctantly to the issues or even regarded them as being superfluous and refrained from supporting the Left. Hence, the Left camp was split as to whether and how to introduce incentive taxes on these pollutants since marginal abatement costs seemed too high with respect to the stipulated reduction targets.

Following the consultation procedure, the Federal Council introduced incentive taxes on VOCs, and heating oil and Diesel containing more than 0.1% of Sulfur. The bill foresaw full redistribution of revenues to the population and firms. The tax basically had no consequences since the revision of the regulation on air quality in 1993 aimed at a lowering of Sulfur in Diesel and heating oil to 0.05%. A measure which the oil-importing industry, the bourgeois parties as well as private traffic organizations had agreed to. This meant that basically no economic contraction could be expected for the sectors in question. Furthermore, under the strong pressure of the farmers' lobbies the tax on fertilizers was abandoned; however, the Federal Council received the legal competence to implement an incentive tax on fertilizers should it deem fit.

Nevertheless, in the message accompanying the law's final draft delivered to parliament on June 7, 1993, the FC undertook a rather positive assessment of the consultation procedure, stating that a very big number of actors wished to introduce economic instruments as a complement to direct regulation but that divergence remains almost only over the question of the use of revenues (Conseil Fédéral 1993, p. 1411-15). This is only partly true, since a rather large number of consulted actors claimed that it is too early to conceive of incentive taxes as complementary instrument to direct regulation in ecological policy (see also the large negative value for the item 'Intervention / Timing'

[5] ÖBU and the SSIC must be regarded as 'brokers' in the business camp in favor of a progressive climate policy forced to manage the split between a business-oriented approach which at the same time does not neglect environmental concerns (cf. Ingold 2007).

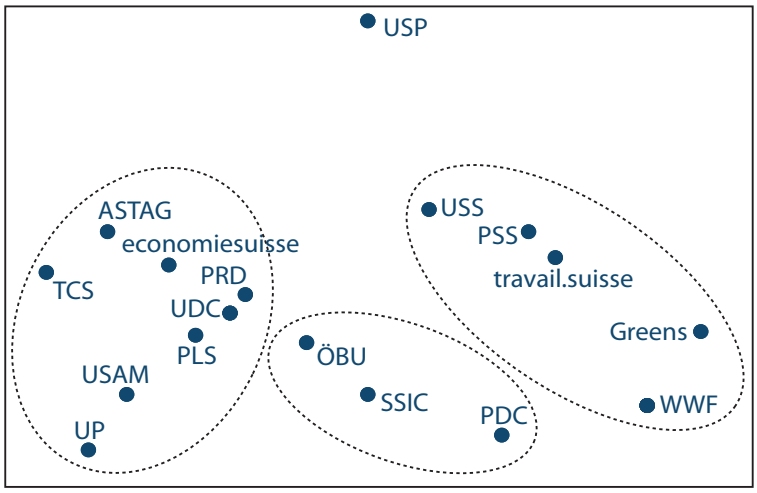

Figure 4.3: Multidimensional Scaling of actors' positions on the 'Stabilization of CO_2-emissions' in 1994

in Table 4.3).

The Revision of the LPE was adopted in parliament in 1995, but by 1994 government had submitted a new bill into consultation pertaining to incentive taxes on fossil fuels. This strategy offered the bourgeois and conservative actors the possibility to attack the constitutionality of the 1994 project. As shown in Figure 4.3 they formed a grand alliance against the bill. Aside the constitutional argument, the points of contention regarded the earmarking of revenues for energy-efficieny measures, the disproportional restitution of revenues to the population, and the competitive disadvantages Swiss companies would face when doing business with Europe, since the majority of EU-countries had not yet introduced comparable legislation. The bourgeois bloc's opposition to a Swiss *Alleingang* (unilateral solution) and, in consequence, the referendum threat loomed as an ever-present veto point over the legislator. Indeed, the TCS openly threatened government in the concluding section of its consultation reply of September 22, 1994: 'Should parliament approve the Federal Council's CO_2-proposal, then the TCS would be forced to launch a referendum'.

The alliance in the political center of SSIC, PDC and ÖBU would be rather powerless did it not ally with its traditional partners further to the right. The moderate actors supported the draft's general provisions, but were

against the earmarking of revenues. But the conservative Right isolated the political center since the grand alliance of employers, road traffic organizations and conservative parties took an opposite position on the draft, since they rebuked any incentive tax. The PDC took a somewhat ambivalent position as they opposed earmarking for domestic energy-efficiency measures but not for such obtained in Eastern Europe. The green-left alliance fully supported the government's project as the partial earmarking of revenues would be used to mitigate damages from pollution, whereas the trade unions favored the draft since they anticipated a gradual transfer of social insurance contributions from labor to energy. However, the heavy refusal of the project by the majoritarian politico-economic milieux, coupled with the referendum threat, coerced the administration to modify the bill and re-submit it to consultation in 1996.

The revised draft provided for Voluntary Agreements (VAs) and a tax only if VAs proved insufficient. All revenues of the potential tax would be redistributed to the population and the firms. Due to the law's non-binding character and the delegation of power to parliament to decide on the level of the tax, political consensus among the bourgeois and conservative actors was easily obtained, as shown in Figure 4.4. VAs offered business a little constraining tactic to circumvent a tax (Baranzini, Thalmann & Gonseth 2004). However, this amounted to a typical situation where government achieved the desired result by providing greater flexibility to the industry (Bernauer & Caduff 2004, Daley 2007) to the detriment of a stringent CO_2-policy. The conservative Right signaled opposition even to VAs doubting the necessity of any additional legislative activity regarding mitigation of CO_2-emissions, whereas the Left took a stand against VAs for the opposite reasons: they doubted that reduction targets could be obtained with VAs.

The second issue in the policy package, the subsidiary incentive tax raised more differentiated concerns (Figure 4.5). The conservatives, the bourgeois actors and the employers organizations had been consulted during the elaboration of the draft, which garnered their approval of VAs but not of the incentive tax. This was somewhat surprising, since the tax design was cost-neutral since it abstained from earmarking of revenues and had no negative competition effects on external trade. However, for the farmers, the PDC and the trade unions this would suffice - they signaled general agreement of the draft and thus a small cross-class alliance took shape. Yet, this alliance remained without consequences as the government submitted the project nearly unchanged

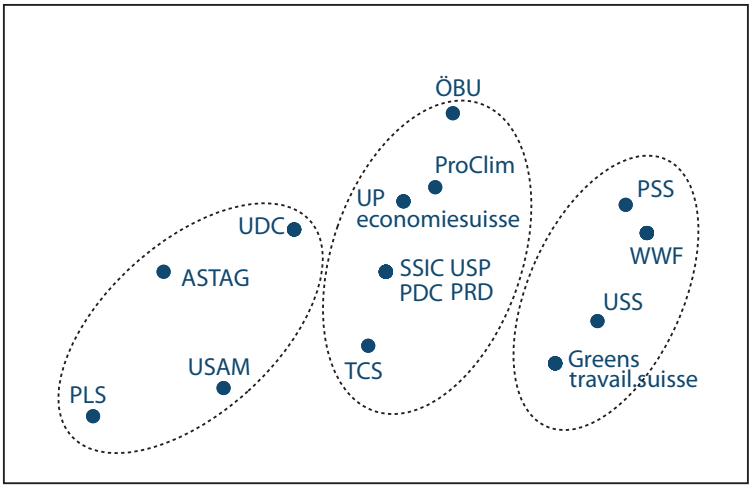

Figure 4.4: Multidimensional Scaling of actors' positions on 'Voluntary agreements to reduce CO_2-emissions' in 1996

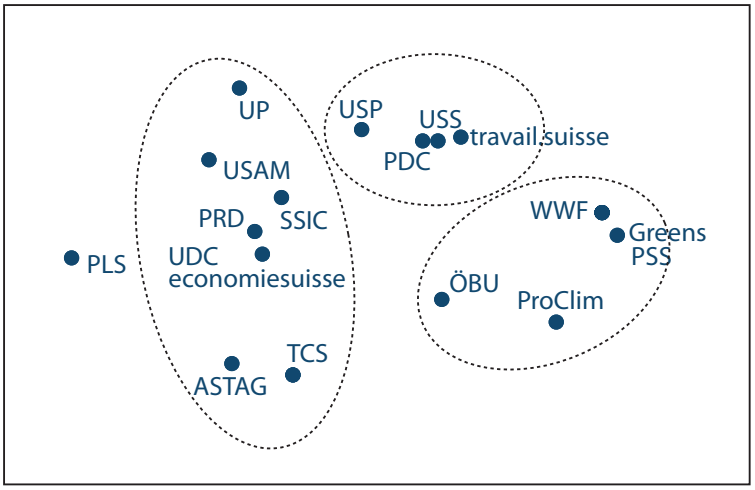

Figure 4.5: Multidimensional Scaling of actors' positions on 'Incentive tax on fossil fuels' in 1996

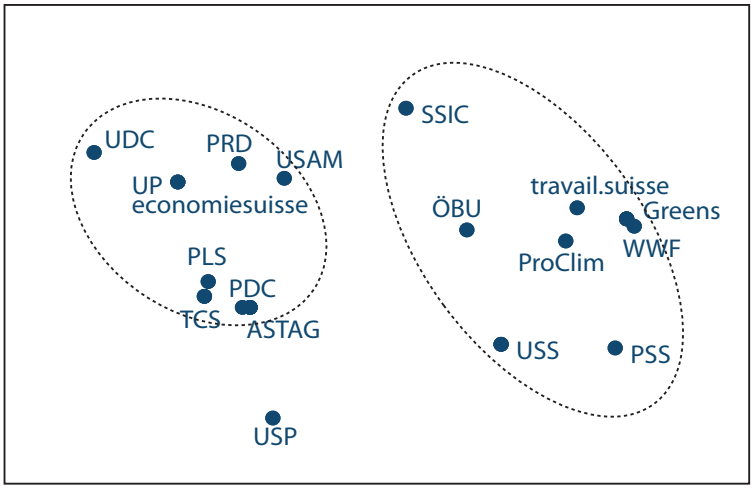

Figure 4.6: Multidimensional Scaling of actors' positions on the 'Climate penny on fuel and subsidiary incentive tax on heating oil (V3)' in 2004

into parliament and therefore an incentive tax would enter into force only as *ultima ratio* (cf. Thalmann & Baranzini 2008). Against this powerful bourgeois alliance the Left's demand of a higher tax level and earmarking of revenues form emissions abatement remained unheard.

Finally, in 2004, the FC submitted four alternatives (V1 - V4) to consultation to comply with the emissions reductions target set in the CO_2-law. An overwhelming majority of bourgeois and conservative actors favored V3 and V4, whereas the Left favored V1, which foresaw a mandatory incentive tax on CO_2-emissions. V3 envisioned the so called climate penny and a subsidiary incentive tax, whereas V4 relied on the climate penny only. Figure 4.6 shows that a left-right divide ensued. However, some actors' behavior was strikingly inconsistent. This applies especially to the PDC who reverted back to the conservative camp and in the aftermath to the consultation, obstructed the law's implementation in parliament (Neue Zürcher Zeitung, November 9, 2005, p. 11). But also employers, traffic organizations and the oil-processing industry, who had supported the 1996 project with the subsidiary tax, now asked for the climate penny only (V4). They but half-heartedly supported V3 as a 'worst-case' scenario. Should V3 enter into force they hoped that parliament would adopt a low tax rate in case a tax became necessary (Thalmann & Baranzini 2008). Yet, the economy was not unified either. While orga-

nized business, under the leadership of economiesuisse, were clearly against a CO_2-tax, SSIC and ÖBU were in favor of the tax since companies, which had already concluded VAs with government would be exempted from the tax. Thus, would the tax not enter into force, firms would not be able to capitalize on their pre-calculated gains. Hence, the Left allied with ecology-friendly employers organizations so as to demand for stringent enforcement of the CO_2-law but were defeated by the larger liberal-conservative alliance.

Discussion

The proposals in 1990 and 1994 evoked rather clear reactions along the distributive dimension. Subsequently, bourgeois and conservative actors pressured administration to change the bill's paragraphs in question and to allow for VAs. The policy adjustment by government showed that the design of climate policy is heavily subject to organized business' rent-seeking (Pashigian 1985, Bernauer & Caduff 2004). Furthermore, mitigation of pollutants is feasible if, and only if, reductions targets are not set too ambitiously and full restitution of revenues is provided; however, this proved not sufficient in 2004.

This finding is further underlined by Table 4.3, where deviations from zero of each of the nine items is shown. As 0 stands for agreement on the bill, negative values accordingly imply an actor's demand for more laxity of the bill. Although the six issues are pooled over 14 years, this does not pose a problem since, in separate analyses not shown here, the results for every single issue is largely the same as it is when pooled over time. It is shown that the choice of the instrument and the moment of intervention (first two items) were items which provoked meaningful reactions by all actors involved. However, the most contentious items were clearly those relating to the use of the revenues and the design of the bills regarding economic competitiveness (last three items). This confirms the claim, that the majority of the actors involved in environmental policymaking, were mostly concerned about the bills' impacts on trade and competition.

Thus, when in 1996 public administration invited the economic milieux to partake in the preparation of the pre-legislative draft, it relied, in consequence, heavily on voluntary measures. In 2004, however, the incentive tax stood not the slightest chance against the oil industry's climate penny. This again underlines the stronghold of interest groups on policymaking when the

Table 4.3: Mean values for the nine dimensions pooled over all reform issues

Dimension	N	Mean
Intervention/Timing	209	-0.182
Instrument	209	-0.220
Scope sector	209	0.053
Scope pollution	209	-0.033
Level	178	0.017
Gradualism	140	0.028
Revenue recycling	171	-0.310
Neutrality	209	-0.282
Exemption	178	-0.169

policy has tangible effects on the fuel economy (Stigler 1971, Kirchgässner & Schneider 2003). Finally, in the parliamentary arena, the market vs. state forces fought a harsh battle in 2005 and 2006 on the implementation of an incentive tax on heating oil, which became compulsory according to the CO_2-law. After lengthy parliamentary debates and concessions by government, parliament decided on March 20, 2007 to introduce the tax as of January 1, 2008.[6]

There is limited evidence of cross-cutting alliances on some reform issues, but this seems to be the case only for measures where administration and bourgeois actors had either bargained an agreement beforehand or where tax levels were set so low that no economic contraction could be expected. However, the main conflict revolves around a capitalist-socialist politics dimension. Hence, political competition in Swiss environmental policy is shaped by a left-right configuration where, akin to Sciarini & Finger's (1991) findings some twenty years ago, the authors showed that the environmental issue was integrated into the left-right dimension rather than the latter being cross-cut by a new 'ecological' conflict line (see also Finger & Hug 1992). They argued that this was most likely not going to change since the Greens' position on social, economic and environmental issues points to a marked left-right cleavage.[7]

Thus, the first hypothesis is confirmed since in the objects under study,

[6]See the parliament's website for further information http://www.parlament.ch/f/do-co2-umsetzung (retrieved on July 11, 2007)

[7]Furthermore, in separate analyses not shown here, I undertook Factor Analysis of parties' voting recommendations on environmental issues (1990-2004). The results showed that the PSS and the Greens load on the same dimension. And lastly, spatial mapping of party positions by Hug & Schulz (2007) underline this finding.

the left and the green actors formed a unified camp which in most of the issues opposed the conservative and bourgeois actors. However H2 is not verified, except for two cases. But as I argued above, the cross-cutting alliances were rather an issue-specific phenomenon and do not point to a new stable pattern of alliance formation. Hence, traditional conflict lines in Swiss environmental policy might remain unchanged due to large center and right-wing party shares in parliament, and extra-parliamentary alliances with regulated industries. These factors help foster a polity where liberal market forces and associated interest groups often get their way against a minoritarian Left (Mach 2006). Indeed, while the Left's capacity to mobilize is rather high due to alliances with movements on the far left, their ability to overturn policy where stakes are high to business and its interest groups is restrained. Consequently, the veto power capacities of collective and corporate actors in the political center and on the right (Scharpf 1997, Linder 2006) delegates the government's role towards a simple mediator watching over checks and balances in the Swiss direct democratic system (Trechsel & Sciarini 1998). This sort of policy adjustment by government to the demands of a strong politico-economic camp is all but unusual for Switzerland.

4.5 Conclusion

The goal of this study was to test hypotheses pertaining to the formation of cross-cutting alliances in environmental policy. To this end, I analyzed four policy packages aiming at introducing incentive taxes into current law between 1990 and 2004. Based partly on research pertaining to a re-structuring of electoral competition in advanced industrial democracies, I set up hypotheses regarding the alliance formation behavior of corporate and collective actors. I claimed that the growing salience of environmental and climate change issues at the outset of the 21st century should force traditional bourgeois actors to embrace these issues more consequently in their political agendas and thus make cross-cutting alliances more feasible. And lastly, the increased use of economic instruments should make ecological policy more acceptable to these actors. Thus, the capital-labor divide should be weakened as actors would engage in cross-cutting alliances.

Using Multidimensional Scaling, I was able to uncover the underlying conflict dimensions in Swiss environmental policy. The analyses show that the

main political conflict stems from the distributive axis, with its inextricable link to economic competitiveness and unregulated markets. Although value changes have undoubtedly taken place in Switzerland too, making room for post-materialist issues such as the environment, gender equality or new social needs (Häusermann 2006), there is only limited evidence of a cross-cutting alliances in Swiss environmental politics. Bargaining of organized business, political parties and other interest associations with government before and during the pre-parliamentary phase led to a compromise acceptable to the regulated industries - to the detriment of a stringent CO_2-policy (e.g. Pashigian 1985, Daley 2007, Thalmann & Baranzini 2008).

Thus, at the heart of my analysis two facts can be stated: firstly, and foremost, the capacity of left and green actors to broker overarching alliances with bourgeois actors remains constrained, and secondly, the question of revenue use remains primordial to the design of green taxes. Thus, at the international level, these considerations from the Swiss experience must be taken into account too, when regulators attempt at introducing mitigation and abatement measures at the national or sub-national level (e.g. Daugbjerg & Pedersen 2004, Hammar & Jagers 2007).

Anyhow, the left-right divide in environmental policy might be changing in times to come as adverse effects of pollution such as climate change are being felt and discussed more intensely. Heightened media coverage and more frequent occurrence of natural disasters might further spur society's awareness of environmental degradation. These developments - albeit to the detriment of our habitat - might help in overcoming traditional conflict lines in environmental politics. Slowly but surely a change of paradigms can be observed in Switzerland, for example by the founding of a new 'Greenliberal Party'. Indeed, the party actively advocates a coexistence of a liberal belief system with environmental protection by implementing economic instruments instead of direct regulation. Thus, electoral competition might finally adapt to the salience of the environmental issue, even if the latter is characterized by uncertainty and distributional effects. For, awareness amongst Western publics is growing that humans are in part responsible for environmental problems and that consequences - for the environment, society and economy - may become very costly if nothing is done (McKibbin & Wilcoxen 2002, Kolstad & Toman 2005, IPCC 2007). Hence, it is not yet too late for the greening of political competition and the economy.

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5 Conclusion

The starting point for my research was twofold: on the one hand I analyzed voting behavior on environmental issues and citizens' demand for the public good environment, on the other hand I focused on corporate and collective actors' rent-seeking and alliance formation behavior during the preparliamentary phase in Switzerland. Guiding this research was the underlying assumption of a divide between the willingness to enforce natural resources protection and the costs imposed by such policies. Each of the thesis' three constituting Chapters analyzed ecological policymaking from a different perspective, however, all three put their emphasis on the acceptability of green policy either by the people or by collective actors such as interest groups and political parties.

The research project, from which this thesis partly originated, was concerned with citizens' opinion formation processes regarding votes on environmental issues. Based on prior research by Philippe Thalmann and Pascal Sciarini on referendum voting, opinion formation, and the acceptability of environmental policy, this thesis seeks to further shed light on these processes in direct democracy. While part of the research concentrated on John Zaller's opinion formation model, the three contributions to this thesis adopted a more rational choice approach to policymaking. However, we proposed a rational choice model in Chapter 2 expanded by the notion of the logic of appropriateness, while in Chapter 3 different variants of the self-interested voter theorem were developed. Chapter 4 showed that a majority of collective actors favors policy which maximizes short-term benefits and avoids costs in the short run for voters and organized business. Thus, I conceive of principals as well as agents undergoing a trade-off between costs and benefits when making a choice on the environment. The results presented here corroborate the aforementioned economy vs. ecology polarization in environmental politics.

In Chapter 2 we contended that the demand for the environment should not only be explained by price and income effects but also by shared normative notions of appropriateness and ideological preferences for the collective good environment. Economists tend to regard voters as undergoing cost-benefit analyses when making a decision at ballots in order to maximize personal utility. We do not contradict this conventional wisdom but plead for an in-

tegration of socially constructed views and concepts. Especially in the case of environmental policy this is deemed to be crucial: the emergence of left-libertarian and ecology parties in advanced industrial democracies must also be seen in the light of citizens' frustration with capitalist politics' emphasis on economic growth, security and unregulated markets. Moreover, scholars claim that citizens will follow rules and norms which are socially constructed and cater to the public good rather than to individual maximization of profits. We thus adopted a sociological institutionalist view, which guided us throughout the analysis of the three projects on fossil energy taxation. As we showed, the three projects were all rejected by the electorate. However, different tax schemes and modes of revenue recycling yielded slightly different results for the three projects.

Our results thus question the pervasiveness of the price and income argument put forth by economic inquiry. Although price and income effects explain a sizeable portion of the variance, when introducing predictors pertaining to ideological considerations, we increase the predictive power of the models considerably. Not only do our estimations corroborate previous results on environmental voting but the variables pointing to the ideological components of the vote are highly significant and robust too. We therefore argue that scholars should include variables going beyond price and income effects when analyzing votes on environmental issues. It thus seems reasonable to conceive of citizens as being led not only by cost-benefit considerations but also by perceptions of what is normatively appropriate for society at large when making a choice on a public good such as the environment.

Thus, we found ample evidence that traditional cost-benefit analyses might not suffice to explain voters' decisions at ballots. In Chapter 3 we followed this argument but refined it by classifying the electorate into five different voter groups based on open-ended survey questions on respondents' reasons for approval or dismissal of the bills. The motive to dig deeper into these vote considerations was twofold: on the one hand it presented a unique opportunity to learn more about voting arguments captured neither by micro-level nor by macro-level data, on the other hand we challenged and expanded the conventional public choice approach often used for analyses of environmental votes. The voter typology was derived by theoretical considerations and backed up by explorative inquiry into the survey responses. We were guided

by the concept of economic voting, which states that voters will re-elect the incumbent when they perceive economic performance to be satisfactory.

In general, we found that a better perception of the nation's welfare increases the acceptability of environmental proposals at ballots. Additionally, voters react very sensitively to hikes in the costs of living; they are thus more likely to rebuke green policy proposals when they believe to bear higher personal living costs. However, we also found that for some voters having full pocketbooks does not necessarily further the cause of environmental protection; the contrary is true: when these citizens feel confident about their personal spending situation material considerations seem to prevail. This result is very interesting in that it points to the long-standing debate on whether higher income classes are more likely to support environmental policy - a debate which is far from being resolved. Hence, the analysis showed that it is fruitful to apply models of economic voting to referendums in direct democracy, especially as we were able to gather information on voters' reasons for their respective decisions.

Finally, Chapter 4 analyzes environmental policymaking under the influence of strong interest associations in the pre-parliamentary phase. I claimed that the environmental policy space might be changing and that the consequence thereof would be new forms of alliances. As aforementioned, the antagonism between further protection of the environment and the allocation of resources is especially marked in this policy field.

The actors' responses to the four bills which had been submitted to consultation proved very insightful. With the help of visual representation of corporate and collective actors' relative agreement to the bills, I was able to demonstrate, contrary to expectations, that the traditional conflict lines in Swiss environmental policy are very robust. Thus, cross-class alliances only took place very rarely as the respective left-right camps were defined by strong cohesion. Only for two cases did I find deviations from the socialist-capitalist politics dimension. But these were cases were either bargaining had rendered the bills utterly tame or where consensus was established on the uselessness of incentive taxes in the specific policy domain due to prior regulation. For, the overcoming of traditional conflict lines in environmental policy in Switzerland is complicated by rent-seeking by strong organized business vis-à-vis a weak federal government and a polity characterized by corporatist structures and

consociationalism.

Finally, this also sheds light on the linkages between the referendum phase analyzed in Chapters 2 and 3, and the pre-referendum phase studies in Chapter 4. Using the answers from the answers to the consultation procedure, it becomes clear why the three projects in 2000 were doomed to fail: temporal overlapping of several policies and a tax scheme deemed unfavorable to the economy hindered the projects' chance of success. Secondly, the insight gained from the pre-parliamentary phase regarding business support is crucial and has also been underlined in a recent work (Halbheer, Niggli & Schmutzler 2006). Thus, in referendum as in pre-referndum phases, chances of approving environmental policy is drastically reduced when the economy refrains from giving its consent.

Moreover, moving away from a solely Swiss perspective, it is imaginable to conceive of similar research questions in a comparative framework, too. As recent developments and negotiations in global climate policy have shown, increased cooperation and the inclusion of developing countries into international treaties is called for. From this outlook, two strands of research could be pursued extending the present work.

Firstly, the most obvious avenue to continue on would be a comprehensive comparison with additional countries. In the present study, the interest lay on Switzerland, which is especially suitable for voting behavior analyses since it disposes of the most comprehensive provision of direct democratic instruments. However, it is possible to study referendums on the sub-national context where they are becoming more frequent. A comparative design would permit to put the results obtained in Swiss environmental referendums in perspective and thus, to learn more about citizens' stated preferences and their opinion formation processes when making a choice on green issues. Secondly, in the same vein, a more comprehensive comparison of emission abatement policies in countries is advisable. It would be particularly interesting to compare the design and enforcement of green policy in other advanced industrial democracies; and, since this will become crucial, the scope might also be extended to the developing world. In the same manner as done here, the hypothesis of a shifting of conflict lines and the re-configuration of the environmental policy space could be tested.

In a nutshell, the thesis brought about two major results: firstly, Swiss

citizens' voting behavior is not only influenced by price and income effects but also by 'ideological' preferences and a logic of appropriateness. Adhering to principles which emphasize redistributive politics, equality and the regulation of markets, fosters the approval to environmental protection measures at national ballots. However, voting behavior is not immune to changes in macro-economic performance nor to citizens' own financial predicaments either. Approval therefore rises as the country's and the individual's perceived welfare increase. Secondly, environmental policymaking is constrained by a sustained conflict line opposing socialist to capitalist politics. Pressure group politics and the facile access of organized business to the parliamentary arena impede the effective overcoming of the distributive conflict in Swiss environmental policy.

Thus, by accounting for the extensive rights and obligations direct democratic institutions entail, I was able to highlight the special role attributed to the people to act as a veto player. This has far-reaching implications to policy from a normative point of view. While the people prevented the introduction of an incentive tax on fossil energy at national ballots in the year 2000, bourgeois and conservative parties, and organized business pressured government to refrain from a compulsory incentive tax in the CO_2-law just a few years earlier. Furthermore, Swiss citizens, in their role as voters, seem reluctant to support environmental policy in times of lackluster economic performance and when they perceive their personal financial situation to be dismal.

Despite a recent study's results, which showed that Switzerland is among the countries with the highest environmental concern (Franzen 2003), I underlined the difficulty in implementing environmental policy in Switzerland. However, the lessons that emerge from the present research, point at necessary conditions to be met in the design of future policy. Three insights emerge from this thesis; namely that information, timing and competitiveness concerns are crucial to environmental policymaking. Evidently, none can be addressed without taking into account the other two, thus, they are mutually dependent.

Firstly, information: in the year 2000 all bills were rejected although two of them had been prepared by parliament and had thus garnered wide support across party lines. Especially surprising in this respect is the rebuttal of the bills by the industrial sectors we analyzed, since all of these energy-intensive industries would have been exempted from the taxes. It seems that this mes-

sage did not get across to blue-collar voters. Thus, this calls for intensified information efforts by public authorities in the light of very complex and only thinly differentiated green ballots. However, this alone cannot account for the defeat of these projects. Instead, we must address the second crucial issue, namely timing.

Timing must be understood in two ways; firstly, timing related to how and when the projects relating to incentive taxes were presented (ch. 2 & 4), and to how proposals fare in the light of economic circumstances (ch. 3). As aforementioned the bills put to vote in 2000 coincided with the entry into force of the CO_2-law. Hence, unlucky timing, cited numerous times in the consultation answers, was one of the main reasons why business gave a negative voting recommendation for the three projects. However, public administration had its hands tied as to the date of the vote on the bills, since they had been launched by the ecological movement. This parallel policymaking effort was finally counter-productive. But timing also seems to be a crucial factor as regards the people's willingness to spend on the environment according to the business cycle. As I showed, citizens are more likely to spend on the environment when their economic situation looks brighter. This implies, on the other hand, that government and administration can, to a certain extent, try to put environmental projects before the people during times of economic upswing, as during the last two years. It goes beyond conventional wisdom that environmental issues fare better in public opinion when the threat of an economic downturn is distant and unlikely.

Finally, the question of economic competitiveness looms over the legislator's head when designing public policy in general, and environmental policy in particular. I proved the claim that questions relating to competition and external trade are primordial to a majority of political and societal actors involved. This is on the one hand shown by the statistics in Table 4.3, and on the other hand, by the harsh dismissal of the 1994 project by the bourgeois and conservative alliance. The project not only foresaw earmarking of revenues and the exemption from the tax only for highly energy-intensive industries, but also neglected emission certificates and was highly restrictive on emission reductions abroad. Thus, cost-neutrality and more effective pollution control abroad remain crucial to the regulated community - not taking these elements into account will make the passing of environmental policy (and economic instruments in environmental policymaking) virtually impossible.

The lessons learnt from the Swiss experience show that environmental policy faces tough-to-overcome obstacles even in times of increasing awareness of environmental issues such as anthropogenic climate change and in the light of a healthy global economy. Seldom has public opinion reacted so fiercely to global pollution as it has in the last few years. But policymakers and firms are slow to adapt to environmental exigencies. Indeed, these results seem to point to a rather pessimistic picture: the implementation of stringent environmental policy is not only hindered by strong business actors refusing market intervention - even if earmarking is avoided - but also by the voters, who in their capacity as veto players prevent green policies when economic confidence is low. Thus, in direct democracy, instruments need to be defined very precisely and information about the bills must be clear, transparent and reach voters if they are to accept such policy. Additionally, environmental policy must not impact on citizens' or the country's economic conditions and must avoid earmarking of revenues. Yet, electoral logic in the light of surging global environmental concern and changing constituencies might provide remedy in the not so distant future given that the issue succeeds in occupying developed countries' agendas as intensely as it has in recent years.

A Appendix to Chapter 2

Table A.1: Marginal effects estimated at the weighted sample mean

	Price model			*Full model*		
	Solar Init.	Energy cons.	Green tax	Solar Init.	Energy Cons.	Green tax
Gender	0.54%***	0.45%***	0.5%***	0.12%*	0.06%	0.07%
Young	-0.29%***	-0.20%***	-0.27%***	-0.30%***	-0.28%***	-0.32%***
Elderly	-0.02%	-0.10%***	-0.11%***	-0.17%***	-0.28%***	-0.29%***
French	-0.06%***	-0.04%***	-0.13%***	0.03%***	0.07%***	-0.02%***
Graubünden	6.12%***	11.06%***	10.64%***	3.59%***	8.34%***	7.84%***
Urbanity	3.31%***	1.29%**	2.53%***	0.82%	-0.80%	0.12%
Education	0.51%***	0.56%***	0.56%***	0.08%***	0.12%***	0.1%***
Car commuter	-0.26%***	-0.26%***	-0.30%***	-0.15%***	-0.18%***	-0.2%***
Fossil fuels	-0.22%	-0.81%	-0.74%	-0.31%	-0.66%	-0.70%***
Electricity	-0.46%***	-0.15%	-0.27%***	-0.51%***	-0.19%**	-0.32%***
Paper	-0.31%**	-0.35%**	-0.08%	-0.54%***	-0.43%***	-0.23%*
Chemicals	0.20%***	0.05%	0.07%	0.14%***	-0.01%	0%
Mining	0.13%***	-0.10%**	-3.68e-3%	-0.03%	-0.21%***	-0.15%***
Transport	0.36%***	0.21%***	0.11%	0.09%	-0.10%	-0.21%***
Income	0.60%***	0.18%	0.40%***	-2.29e-3%	-0.31%***	-0.17%
Income^2	-0.02%***	-8.55e-3%***	-0.01%***	-2.80e-3%	2.65e-3%	1.40e-3%
Left-green	-	-	-	0.14%***	0.04%***	0.09%***
Env. behavior	-	-	-	0.58%***	0.66%***	0.66%***

*p≤.1 **p≤.05 ***p≤.01

B Appendix to Chapter 3

Table B.1: List of all popular votes under scrutiny from 1983 to 1992[a]

Date	VOX	Name of project	Pro in %
27.02.1983	191	PR concerning the reorganisation of customs on gasoline and fuel	53%
27.02.1983	192	PR concerning a constitutional article on energy[b]	51%
26.02.1984	211	PR concerning an incentive tax on heavy freight transportation	59%
26.02.1984	212	PR concerning the introduction of a vignette for highway use	53%
06.12.1987	341	PR concerning the concept of RAIL 2000	57%
06.12.1987	343	PI for the protection of the moors - Rothenthurm-Initiative	58%
01.04.1990	391	PI 'Stop the concrete - for a restriction on road construction'	29%
01.04.1990	392	PI 'for a region Morat/Yverdon without highways'	33%
01.04.1990	393	PI 'for a region Knonauer Amt without highways'	31%
01.04.1990	394	PI 'for a region Bienne/Soleure without highways'	34%
23.09.1990	401	PI for an exit from nuclear power	47%
23.09.1990	402	PI for a construction ban on nuclear power plants	55%
23.09.1990	403	PR on constitutional amendment 'energy article'	71%
23.09.1990	404	PR: Federal law on road traffic	53%
03.03.1991	412	PI for the promotion of public transport	37%
17.05.1992	442	PR: Federal law on the protection of the waters (GSchG)	66%
17.05.1992	443	PI 'for the salvation of our waters'	37%
27.09.1992	461	PR on the construction of a New Rail Link through the Alps (NRLA)	64%

[a] PR: Popular Referendum; PI: Popular Initiative.

[b] Although accepted by a popular majority, the project was not adopted since it did not gain the majority of the people and the cantons which is required for constitutional amendments.

Table B.2: List of all popular votes 1993-2004 continued[a]

Date	VOX	Name of project	Pro in %
07.03.1993	481	PR on the Federal Decision on the increase of fuel price	55%
06.06.1993	491	PI '40 training grounds are enough - env. protection in the army'	45%
20.02.1994	521	PR on the increase and prolongation of a highway tax (Vignette)	69%
20.02.1994	522	PR on the increase and prolongation of a highway tax for trucks	72%
20.02.1994	523	PR on an option for an introduction of a performance-related highway tax for trucks	67%
20.02.1994	524	PI to protect the Alps from transit traffic	52%
27.09.1998	641	PR concerning an incentive tax on trucks	57%
29.11.1998	651	PR concerning the financing of public transport	64%
12.03.2000	695	PI to cut motorized traffic in half to improve living space	21%
24.09.2000	711	PI 'Solar Initiative'	31%
24.09.2000	712	PR/Counterproposal: Energy Conservation Package	45%
24.09.2000	713	PR: Constitutional article: Green tax reform	45%
04.03.2001	733	PI for maximum speed of 30 km/h within city limits	20%
02.12.2001	752	PI 'For a secure pension system - tax energy instead of labour!'	23%
18.05.2003	813	PI 'One Sunday per season without cars'	38%
18.05.2003	822	PI 'Energy without nuclear power!'	34%
18.05.2003	823	PI 'MoratoriumPlus - For an exit from nuclear power'	42%
08.02.2004	831	PR: Counterproposal to the PI of October 3, 2003 'Avanti - for secure and efficient highways'	37%

[a] VOX nr. 351, 361, and 381 were not used because of missing data for some variables.

C Appendix to Chapter 4

Table C.1: All actors used for analysis with respective abbreviations

Abbreviation	Actor name
ACS	Automobile Club Suisse
ASLOCA	Swiss Association of Tenants
ASTAG	Swiss Association of Road Freight Transportation)
ATE	Association Transport & Environment
AVES	Action for a Reasonable Swiss Energy Policy
AVIA	Federation of independent oil importers
economiesuisse	Swiss Business Federation (formerly Vorort)
-	Swiss Energy Forum
FRSP	Fédération Romande des Syndicats Patronaux
-	Greenpeace
HEV	Swiss Association of Real Estate Proprietors
-	SwissHoldings - Federation of Industrial and Service Groups
LITRA	Information Service for Public Transport
ÖBU	Swiss Association for Ecologically Conscious Management
PDC	Christian-Democratic Party
PES	Greens
PEV	Protestant People's Party
PLS	Swiss Liberal Party
PRD	Radical Party/Free Democratic Party
ProClim	Forum for Climate and Global Change
-	ProNatura/Swiss League for the Protection of the Environment
PSL	Automobile/Freedom Party
PSS	Social Democratic Party of Switzerland
SAB	Swiss Association for Mountainous Regions
SSIC	Swiss Society of Chemical Industries
swissmem	Swiss Association of Machinery Manufacturers
TCS	Touring Club Suisse
travail.suisse	formerly Swiss Christian Trade Union (CSC)
UCS	Union des Centrales Suisses d'Electricité
UDC	Swiss People's Party
UDF	Federal Democratic Union
UP	Union Pétrolière/Petrol Union
USP	Swiss Farmers' Association
UPSA	Professionnal Swiss Union of Automobile
USAM	Union of Small Swiss Employers
USS	Swiss Federation of Trade Unions
UTP	Trade Union of Transport
VKMB	New Small Farmers Initiative
VSA	Swiss Federation of Public Sector Employees
WWF	World Wildlife Fund

Table C.2: Design of the four pre-legislative drafts

Policy Package	**Consultation Procedure**	**Law in force**	**Goal**	**Instrument and tax level**	**Estimated revenues**	**Recycling scheme**	**Special Provisions**
Revision of the Federal Bill on the Protection of the Environment (LPE1)	June 20 - October 31, 1990	July 1, 1997	Introduction of market-based instruments on pollutants	Incentive taxes on Volatile Organic Components (VOCs), heating oil and Diesel containing more than 0.1% of Sulfur; and on fertilizers	Tax on VOCs and heating oil: CHF 300m; tax on fertilizers: CHF 120m	Full redistribution of revenues from VOCs; earmarking of tax on fertilizers for eco-projects related to agriculture	-
Federal Bill on a CO_2-Tax (LCO1)	March 29 - September 30, 1994	-	Stabilization of CO_2-emissions at 1990 levels by 2000	Incentive taxes on fossil fuels; tax levels in 1996/1998/2000: CHF 12.-/24.-/36.- per t CO_2	Revenues by the year 2000: CHF 1,300m	One third to be earmarked for environmental and energy-effficiency projects; two thirds redistributed to the economy (1/4) and the population (3/4)	Exemption of energy-intensive industries
Federal Bill on the Reduction of CO_2-Emissions / CO_2-Law (LCO2)	October 23 - December 20, 1996	May 1, 2000	Reduction of CO_2-emissions by 10% at 1990 levels by 2010	Two reduction schemes based on VAs: heating oil: -15%/-18%; fuels -5%/0%. Subsidiary tax only, level in 2000 on heating oil: CHF 30.- per t CO_2, on fuels CHF 210.- per t CO_2	Revenues from heating oil in the year 2000: CHF 500m; from fuels CHF 2,500m	Full restitution to economy and population	Incentive tax only if reduction targets missed; exemption of firms from later tax if they concluded VAs with government; Joint implementation (JI) allowed
Consultation Procedure on the Measures regarding Compliance with the CO_2-Law (LCO3)	October 20, 2004 - January 20, 2005	-	Reduction of CO_2-emissions by 10% at 1990 levels by 2010	V3: heating oil -15% with incentive tax of CHF 35.- per t CO_2; fuels -8% with VAs and climate penny of CHF 0.01 per liter of gasoline	Revenues from tax: CHF 600m, from VA: CHF 70-115m	Earmarking of revenues from climate penny for emission-reduction measures in Switzerland and abroad via Clean Development Mechanisms and Joint Implementations; full restitution of revenues from subsidiary incentive tax to population and economy	Four different measures (V1 - V4) proposed by public administration; V3 based on VAs; subsidiary incentive tax only if reduction targets missed

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Education

10.2004 - 10.2007	**Docteur ès sciences** *Three Essays on the Acceptability of Environmental Policy in Switzerland* *Swiss Federal Institute of Technology Lausanne (EPFL), Switzerland*
10.2006 - 04.2007	**Visiting scholar** *Department of Political Science* *University of Geneva, Switzerland*
1998 - 2003	**University degree licentiatus philosophiae** *Media and Communication Studies, Political Science, and History* *Master thesis: The EU on the Road to a Common Asylum and Migration Policy* *University of Zurich, Switzerland*
2000 - 2001	**Visiting academic semester** *Institut d'Etudes Politiques de Bordeaux, France*
1992 - 1996	**Cantonal high school diploma Type B - Latin** *Gymnasium Münchenstein/Basel, Switzerland*

Professional experience

10.2004 - 10.2007	**Scientific research assistant & Project Manager** *Research Lab on the Economics and Management of the Environment* *Swiss Federal Institute of Technology Lausanne (EPFL), Switzerland*
05.2004 - 08.2004	**Teaching and research assistant** *Institute of Communication and Media Studies* *University of Berne, Switzerland*
11.2002 - 04.2004	**Research assistant** *Institute of Political Science* *University of Zurich, Switzerland*
08.2001 - 11.2001	**Internship Public Relations** *Trimedia Communications AG* *Zurich, Switzerland*
11.1997 - 04.1998	**Salesman and front-desk employee** *Intrawest Corporation (Ski sports)* *Whistler, BC, Canada*
02.1997 - 05.2001	**Office and front-desk manager (part-time)** *BMP Translations AG* *Basel, Switzerland*

Languages

German	Mother tongue
English	Mother tongue
French	Fluency written and spoken (Level C2)
Spanish	Good knowledge written and spoken (Level B1)
Italian	Basic knowledge spoken (Level A2)
Serbo-Croatian	Elementary knowledge (Level A1)

Computer skills

Operating systems	Windows, Mac OS X
Software	MS Office, LaTeX, FileMaker, SPSS, Stata, Adobe CS3, MLwiN

Publications

Bornstein, N. 2007. Alliance Formation in the Pre-Parliamentary Phase in Switzerland: Towards a Re-Configuration of the Environmental Policy Space? *Under review at the Journal of Public Policy.*

Sciarini, P., N. Bornstein & B. Lanz. 2007. The determinants of voting choices on environmental issues: A two-level analysis. In *The dynamics of referendum campaigns. An international perspective*, ed. C. H. de Vreese. London: Palgrave Macmillan.

Bornstein, N. & B. Lanz. 2007. Voting on the Environment: Price vs. Ideology? *Under review at Ecological Economics.*

Bornstein, N. & Ph. Thalman. 2006. 'I pay enough taxes already!' Applying economic voting models to environmental referendums. *Under review at Social Science Quarterly.*

Extracurricular activities

Extended voyages in Eastern Europe (Serbia, Montenegro, Bosnia and Herzegovina, Croatia, Hungary), Latin America (Cuba, Mexico, Guatemala) and Southern Europe

Member of the EPFL Delegation at Harvard World Model United Nations 2007 in Geneva http://worldmun.org/2007/

Profound interest in German, Swiss and French literature from Naturalism to post-WWII

References

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