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Why does environmental policy in representative democracies tend to be inadequate? A preliminary public choice analysis

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Why does Environmental Policy in Representative Democracies Tend to be Inadequate? A Preliminary Public Choice Analysis

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Why does Environmental Policy in Representative Democracies Tend to be Inadequate? A Preliminary Public Choice Analysis

Abstract

There is a widespread consensus among the most important players in developed countries (voters, politicians, producers, traditional and green interest groups and bureaucracies) that a shift towards an eco-social market economy is essential for sustainable growth. Nevertheless, market-based instruments have not been implemented satisfactorily in environmental policy yet. To identify the reasons for this insufficient implementation in the past decade the Public Choice theory is used. The players' behavior is analyzed in order to show that their incentives for implementing market-based instruments in environmental policy instead of command-and-control measures are surprisingly weak. Knowing the obstacles to implementing market-based instruments provides valuable insights into how to overcome them.

JEL-Code: D23, D62, D72, D73, H23, Q57, Q58.

Keywords: public choice and environmental policies, sustainability, voters, government, interest groups, tradeable permits, green taxes.

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1. Introduction

"A survey of 40 leading US economists in 1998 found that that there is little agreement among them as to which of thirteen national tax and regulatory reforms are desirable public policies, with the exception that all support a proposed 25¢ per gallon fuel tax increase."

Wachs (2003)

At least since the Fourth Assessment Report of the IPCC was released in 2007, the need for ambitious global action to combat climate change is more pressing than it ever was. Nevertheless, the UN Climate Change Conference in Copenhagen, held in December 2009, failed to reach its main objective: a legally binding agreement on an amendment to the Kyoto Protocol that would enable a second commitment period to follow the end of the first commitment period in 2012. The so called Copenhagen Accord of 18 December 2009 was neither adopted nor endorsed by the Conference of the Parties, which simply took note of it. Hence uncertainty about the future of the global climate regime as designed by the Kyoto-Protocol is growing. The greenhouse gas reduction targets laid down in the Kyoto-Protocol are binding only until 2012 and the prospects of setting legally binding targets beyond that date are hard to assess.

As an important player in the Kyoto process, the EU decided to base its climate policy on using market-based instruments in environmental policy. Especially the adoption of Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003, establishing a scheme for greenhouse gas emission allowance trading (EU-ETS) within the Community and amending Council Directive 96/61 EC, has affirmed this major shift in the way environmental policy is implemented and publicly perceived. Due to its amendment by Directive 2008/101/EC, the EU emission trading system (EU-ETS) was even extended by including aviation activities. The latest amendment by Directive 2009/29/EC finally set the course for the time beyond the current Kyoto period, originally based on the assumption that a global and comprehensive post-2012 agreement would be concluded in due time.

But also other instruments, like the car scrapping premium introduced during the recent economic recession in various countries or the discussion about introducing a CO_2 tax in some major European countries, have created more public - and especially political – awareness of the importance of choosing adequate instruments for environmental policy (see Unalan and Cowell (2009) for an overview of environmental governance in the European Union).

One of the main reasons for this wider acceptance is certainly climate change, and particularly the formal statement of IPCC (2007) that "most of the observed increases in globally averaged temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic greenhouse gas concentrations", clarifying that human greenhouse gas emissions are (almost certainly) responsible for climate change. In consequence, the Conference of the Parties in Copenhagen (COP-15) agreed to stabilize

global warming at an additional 2 degrees (despite the absence of binding commitments) and the European Union decided to adapt its CO_2 emissions to reach the 2 degree target. Furthermore, in 2008, the EU climate and energy package was presented, specifying 1) a reduction in EU greenhouse gas emissions of at least 20% below 1990 levels, 2) a 20% share of EU energy consumption to come from renewable resources and 3) a 20% reduction in primary energy use to be achieved by improving energy efficiency (known as 20-20-20 targets, see European Commission (2008b) for details).

Global agreements like the Kyoto protocol and multi-national agreements like the EU-ETS show a basic willingness on the part of governments all over the world to commit themselves to environmentally friendly policies. But this willingness is seemingly not combined with the use of effective and efficient instruments, even though the importance of incorporating environmental goals in the policy of industrialized countries is undisputed in comparison to other purely economic goals like full employment (for a discussion and literature about the effectiveness of European environmental policy see Newig and Fritsch (2009)). This can especially be stated for the Kyoto agreement and for the EU-ETS, neither of which turn out to be successful, due to their design. They rather seem to be motivated by individual choices that differ between countries and are subject to and defined by intra-country strategies (see i.e. Bailey and Rupp (2005)). Out of the EU-27 countries that ratified the Kyoto protocol, only 16 countries have reduced their CO_2 emissions, none of them substantially (see Schepelmann et al. (2009)). Whether any country has actually decreased CO_2 emissions due to its facilities being part of the EU-ETS is still subject to discussion (see Sandoff and Schaad (2009)). The alleged inefficiency of the overall system has eventually led to its redesign; the result will be put to work in the next trading period 2013 to 2020. Furthermore, whether the instruments now in use were introduced for reasons of environmental protection or as a way to raise additional governmental revenues is disputable as well (see e.g. Svendsen et al. (2001) for a discussion of the effectiveness of CO_2 taxation in the OECD).

The aim of our paper is to apply the Public Choice approach in order to discuss why the use of market-based instruments in environmental policy is still limited and why those instruments that are already in place do not bring about the desired environmental results. Earlier papers tackled a similar issue, such as Kirchgässner and Schneider (2002), Schneider and Volkert (1999) and Schneider and Weck-Hannemann (2005). In all these papers the basic Public Choice model is presented and not the more recent empirical and theoretical developments from 2003 on. In our paper we focus on the latest developments and show that in spite of some environmental policy measures (like the EU-ETS) little has been achieved.

In accordance with Public Choice theory we do not treat the state as a uniform body but discuss the characteristics and main interests in environmental policy of the five groups of economic agents - voters, politicians, administrators, producers and interest groups - plus their interactions.

We assume utility-maximizing or selfish behavior for all five groups involved, but also discuss literature findings on allowing for altruistic, pro-social and pro-environmental attitudes when assessing economic agents' behavior.

The paper is organized as follows: Section 2 analyzes the characteristics of market-based and command-and-control instruments and takes a closer look at the EU-ETS and environmental taxes. In section 3 we discuss the Public Choice approach to environmental policy and analyze the motives of voters, politicians, producers, interest groups and public administrators. Section 4 winds up our discussion.

2. Choosing an instrument: market-based versus command-and-control

Basically, three types of market-based instruments are considered in the literature: charges and taxes, subsidies, and tradeable permits. In Smith et al. (1997) deposit-refund systems are listed as a fourth instrument, while Stavins (2003a) ranks deposit-refund systems among pollution charges and lists market friction reductions (market creation, liability rules, information programs) as a fourth type of instrument instead.

For the scope of this paper, we consider market-based instruments that encourage behavior through price signals rather than through explicit directives. They correct prices in distorted markets, existing as well as evolving ones, and internalize environmental externalities at the lowest overall cost to society. Incentives are formulated in such a way that the greatest reductions can be realized by those economic agents with the lowest costs (see Stavins (2003a) and Santos et al. (2006)).

In contrast to market-based instruments are command-and-control instruments that 'dictate' a certain behavior for all economic agents or for a group of agents defined by specific characteristics. The prescribed behavior is mandatory and deviations are subject to punishment.

Command-and-control mechanisms are criticized for being inflexible as they set uniform standards for economic agents, regardless of the individual costs involved (see Stavins (2003a)). Dresner et al. (2006) give a set of reasons for the continued use of command-and-control instruments. They argue that command-and-control instruments are already familiar and that there is a comfort factor involved in knowing that every facility is controlled. Furthermore, they point at the cultural dimension of respecting and obeying the law, which is more apparent under a regulatory regime.

If market-based instruments are superior to command-and-control mechanism from a theoretical point of view, the question why there is an undersupply of them arises. Kirchgässner and Schneider (2002) discuss three general arguments against the wider use of market-based instruments:

Firstly, they argue that there are objections to the basic concept of the neoclassical model as well as the theory of *homo economicus*. Secondly, they point to arguments that market-based instruments might crowd out environmental ethics, which are essential in other policy areas. This argument has been analyzed in a relatively new cross-disciplinary field of economic research that combines insights from economics and psychology. Frey and Stutzer (2007) argue that an environmental policy via command-and-control measures undermines environmental morale because under a regulatory regime individuals' self-determination is reduced and replaced by prescriptions. Environmental morale and motivation are important: they increase the demand for a clean environment or environmentally friendly private goods and products, which according to Frey and Stutzer (2007) is i.e. manifested in hedonic market studies on the housing and labor markets.

Environmental morale can also help to overcome the free-rider problem in public good provision. While this reduces any intrinsic environmental behavior, it also leaves consumers informed about the right way to behave. Whether regulations lead to the crowding out of environmental morale depends on their design: few, easy to understand regulations are to be favored so that consumers are not overly governed and violations are effectively punished. They reason that "a large number of complex, abstract and opaque regulations, on the other hand, are unlikely to improve the environment as environmental morale will be strongly crowded out while threatened punishments are easier to evade". Frey and Stutzer (2007) furthermore find that tradeable permits crowd-out environmental morale. In the case of taxes, differentiations are made: with low taxes, consumers do not feel overly controlled, whereas the crowding-out effect is either small or could eventually become a crowding-in effect. With intermediate or high taxes on the other hand, crowding-out will occur.

Of the various market-based instruments, we focus our discussion on environmental taxes and permit trade systems, as those two instruments are at the center of European environmental policy. In theory, permit trading systems and emission taxes are equally efficient, if the tax rate is set at a level that equals the price of the permit. But current developments show that in practice different problems arise in the political discussion: Why is the EU-ETS not as efficient as it could be? Why are environmental taxes difficult to impose and inefficiently designed when imposed? And finally, why are command-and-control measures still promoted even though their efficiency is – at least from a theoretical point of view – inferior to market-based instruments?

In section 3 we will look into these questions from the point of view of the most important players in developed countries: voters, politicians, producers, interest groups and bureaucracies**.** Before, we highlight the main characteristics of the EU-ETS and environmental taxes that are of importance for our further analysis.

2.1 Permits

Taking into account the important status that the EU-ETS has reached in the meantime, and the political and economic efforts that have been put into the development and ongoing improvement of this instrument, its nature is worth examining. The basic concept of the EU-ETS is a cap-and trade system. The regulator sets an emission cap, where the level of the cap depends on how ambitious the reduction target is. Finally, the participators in the emission trading market – the facilities – receive individual allocations of emission allowances. Practically, two questions arise from this emission trading design that have fundamental influence on the overall system's efficiency: what is the cap and how are the emission allowances allocated? For the purpose of our analysis the second question is of especial importance. Basically, two types of allocation methods are possible: Permits can either be given out at no costs and allocated according to past emission levels (*grandfathering*) or they can be *auctioned* off. Within the EU-ETS the grandfathering option was chosen, at least for the first (2005-2007) and the second (2008-2012) trading periods, even though auctioning permits off is considered the superior allocation method, for which Goers et al. (2010) provide four reasons: firstly, auctions are more cost-effective given transaction costs. Secondly, the revenue raised in an auction can be used to reduce other market distortions, because tradeable permits can create market entry barriers which can be offset if the government recycles the auction revenue by reducing preexisting distortionary taxes. The third argument in favor of auctioning is that greater incentives for firms to develop substitutes for CO_2-intensive technologies are created. Finally, the (probably) substantial revenue that could be raised by an auctioning procedure may provide greater incentives to administrative agencies to monitor compliance. Anger et al. (2008) also argue that the elimination of lobbying influence should be considered as a further benefit of auctioning. Yet another argument in favor of grandfathering is that it may buy the support of the polluting industries involved in the trading system due to the free initial distribution (see Anthoff and Hahn (2010) and Markussen and Svendsen (2005)).

Grandfathering of permits in the EU-ETS has led to perverse economic results: due to extensive lobbying activities more permits than needed were allocated in the first trading period, which led to a vast decline in the permits price (see Goeree et al. (2009)). Furthermore, large emitters charged their customers for the permits and thus received high windfall profits (see Goeree et al. (2009) and Benz et al. (2008)).

It is beyond the scope of our paper to go into details on any other aspects of the EU-ETS, but we refer the reader to work done by Convery (2009), Ellerman and Joskow (2008) and Goers et al. (2010). For the sake of our discussion the most important aspect of the current design of the EU-ETS is that the permit allocation method is not as efficient as it could be, even though the superiority of auctioning over grandfathering was known ex-ante.

2.2 Environmental taxes

The other main market-based instruments currently in use in Europe, and the widening of which is intensively discussed in the European Union, are environmental taxes.

Environmental taxation is not a new idea. As early as 1972 the OECD issued “Guiding Principles concerning International Economic Aspects of Environmental Policies“ in which the Polluter-Pays principle was presented and the idea of internalizing external effects of pollution in market prizes was recommended.

Environmental taxes are discussed as being a policy with which a double dividend could be realized. The double dividend hypothesis states that when taxes which cause distortions in one economic sector are reduced and simultaneously taxes to reduce distortions in another sector are introduced, overall efficiency would rise and unemployment would be reduced. If there is a double dividend and the implementation of incentive-oriented environmental tax policies is not accompanied by tax increases but by a shift in the tax burden, there is no longer a trade-off between fighting unemployment and environmental policy. There is an ever growing body of literature about the double dividend hypothesis: see e.g. Agnolucci (2009) for a recent overview. Patuelli et al. (2005) conducted a meta-analysis of 61 studies and found that an environmental tax reform is more efficient on the environmental side than on the economic side, but their results do not reject the double dividend hypothesis. Anger et al. (2010) find in their meta-regression analysis encompassing 41 studies that employment effects are negatively affected by the stringency of environmental regulation. We reproduce their findings in a highly abbreviated way in Table 1 which shows the ambiguity of outcomes in the literature.

In the introduction we also raised the question of what motives could trigger the introduction of environmental taxes in the European Union. Currently discussed, and strongly supported by the French government, is the introduction of a CO_2 tax to be levied at the European Union’s borders to reduce trade distortions and to safeguard the competitiveness of European industry relative to large Asian producers, especially China. The introduction of an environmental tax is mainly discussed in terms of industries’ competitiveness, not in terms of environmental issues. Evidence for the view that environmental taxes are introduced for budgetary and not for environmental reasons can be found in Ciocirlan and Yandle (2003). They tested their model of the political economy of policy-making using data for the OECD, and found that environmental taxes are set mainly with for the aims of industry competitiveness and increasing revenue, and therefore lack environmental effectiveness. Table 1 shows that for most studies we clearly see a reduction of emissions up to -17% versus the business-as-usual scenario, whereas the employment effect is very modest. Hence the second dividend is empirically quite weak.

Table 1: *Results of studies about the double dividend hypothesis*

Study	Region	Emissions change (% vs. BAU)	Employment effect (% vs. BAU)
Köppl et al. (1995)	Austria	-7	0,4
Capros et al. (1998)	European Union	-18	0,4
Bayar (1998)	European Union	-16	1,3
Ellingsen et al. (2000)	European Union	-14	1
Bosello and Carraro (2001)	European Union	-14	1,3
Hayden (1999)	European Union	-11,5	0,1
Barker and Rosendahl (2000)	European Union	-11,5	1,1
Barker (1998)	European Union	-10	1,2
Welsch (1996)	European Union	-6,5	1,7
Capros et al. (1996)	European Union	-5	0,2
Bossier and Brechet (1995)	European Union	-4,4	0,6
Koschel (2001)	European Union	5	0,6
Welsch (1998)	European Union	8,5	5,4
Buttermann and Hillebrand (1996)	Germany	-17,1	-0,7
DIW (1994)	Germany	-17,1	1,1
Meyer et al. (1997)	Germany	-17	3,3
Meyer (2001)	Germany	-16,9	1,6
Schmidt and Koschel (1999)	Germany	-15,5	0,6
Conrad and Löschel (2002)	Germany	-13,7	0,4
Schön et al. (1995)	Germany	-5	0
Braun and Kitterer (2000)	Germany	-3	1,7
Stephan et al. (2003)	Germany	-2	-0,6
Meyer zu Himmern (1997)	Switzerland	-15,4	0,1
Mauch et al. (1996)	Switzerland	-6,1	0,3

Source: Anger et al. (2010), abbreviated by authors.

2.3 Permits, taxes and command-and-control measures

From sections 2.1 and 2.2 we conclude that there is an ambiguity between a) knowing about the superiority of market-based instruments, taxes and permit trading systems, in terms of efficiency, b) and the competing interests of all economic agents involved. Before turning to those competing interests, we discuss the instruments' characteristics from a global point of view to find answers to the three questions we asked above.

Firstly, we have to ask why command-and-control measures are still favored in environmental policy. Kirchgässner and Schneider (2002) identify two reasons: the high economic efficiency of market-based instruments, and distributional concerns.

The first argument of high economic efficiency is based on the situation a single firm faces with the introduction of market-based instruments: while the economic efficiency of these instruments for the whole economy can be reasonably assumed, it is debatable whether the single firm can realize minimum costs. Felder and Schleiniger (2002) argue for example that

if a tax design involves no refunding scheme all polluters will favor a command-and-control regime over taxes. But, assuming there is a refund system and emission levels are heterogeneous among polluters, then refunding depends on the individual polluting level of each facility. Uniform refunding would therefore lead to redistribution from large to small polluters. In consequence, smaller polluters may prefer taxes, while larger producers may still prefer command-and-control measures. The theory of lobbying behavior (see section 3.3) points out that smaller well organized interest groups are relatively more successful in lobbying than lobbyists representing larger interest groups. In a world with a few large emission polluters and a large number of small polluters, there will be a marked tendency for the policy outcome to be a command-and-control mechanism, even if taxes or other market-based instruments would both be more efficient and/or effective (see Svendsen et al. (2001)).

Furthermore, within a command-and-control regime there is leeway for negotiations between the regulating authority and the individual firm (see Oates and Portney (2003)). Assuming asymmetric information between the authority and the firm, the firm certainly has superior bargaining power. In one-on-one talks the firm can also exercise pressure by threatening to shed employees or to relocate. Another argument is the federal structure of many European countries in which legislative power is split between regional governments and central government. Regulating power at least partially lies with the federal states and their authorities, while the central government exercises tax jurisdiction. In such a case the familiarity between a firm and the relevant regional government is certainly greater than the familiarity between the firm and central government, which will also increase individual firms' bargaining power. Overall, Kirchgässner and Schneider (2002) conclude that regulation will be less strict with a command-and-control regime than with market-based instruments.

The second argument of Kirchgässner and Schneider (2002) is that distributional consequences arise under either a command-and-control regime or market-based instruments. We assume a firm has identical characteristics under a command-and-control mechanism and in a situation in which market-based instruments are used. Under a regulatory regime, pollution for the firm is free. With market-based instruments pollution comes with a cost when taxes are imposed and when permits are auctioned off, but is also free of costs when permits are allocated by grandfathering. Regulation would be preferred to market-based instruments, and grandfathered permits would be preferred to other market-based instruments or permit allocation methods, because both exhibit an additional rent in comparison to taxes and auctioned permits. Grandfathering additionally creates entry barriers to markets, which is another benefit for existing firms (see also Stavins et al. (1997)).

Lai (2008) furthermore argues "that imposing an emission standard will restrict output, which in turn will raise the price of the commodity under consideration, thereby increasing the profits of existing firms." In contrast to that an emission tax would raise additional budget for the government, which is why firms generally prefer an emission standard to an emission tax. Oates and Portney (2003) point out that one reason why "the use of taxes to discourage

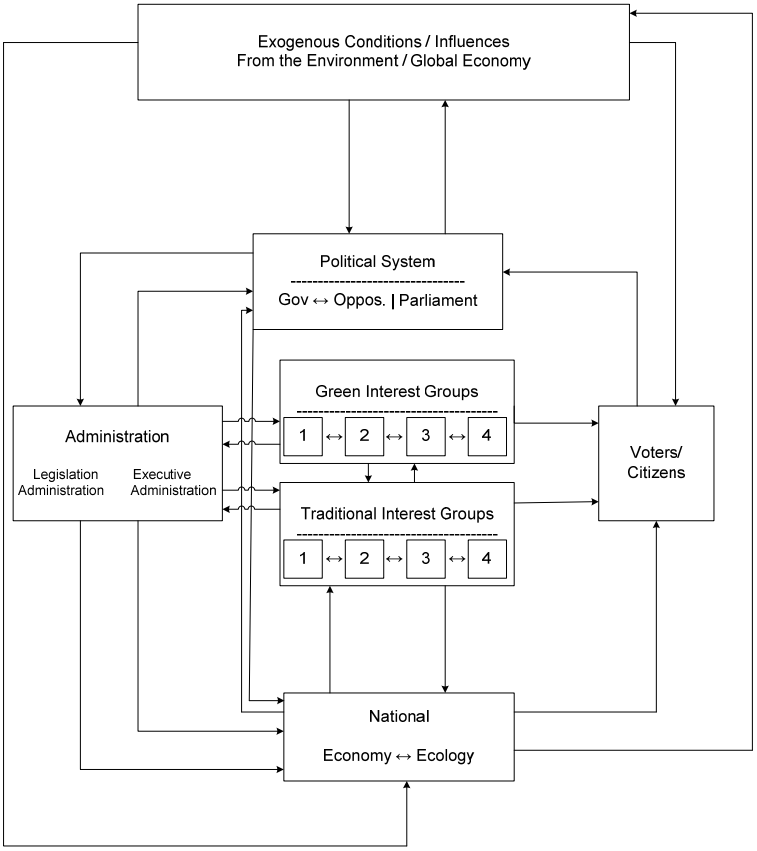
polluting activities and the introduction of systems of tradeable emission allowances are now more than just ideas appearing in textbooks on the subject" is that the shortcomings of command-and-control mechanisms have become more apparent over time. For example the tightening of control of polluting activities gets more expensive over time, which makes it more worthwhile to look for alternatives (see also Rondinelli and Berry (2000) for a discussion of the costs of command-and-control measures in the US).

At the beginning of section 2 we posed three questions. The first one addressed the notion that existing permit trade systems are not as efficient as they could be, because grandfathering the permits instead of auctioning them off is only the second-best solution. We saw from the general point of view that we took throughout this section that interest groups seem to have an intrinsic motivation to support grandfathering, an argument that we will look at in more detail in sections 3.3 and 3.4. The second question, "Why are environmental taxes difficult to impose and inefficiently designed when imposed?" can be answered either in terms of politicians' with competing interest who want to increase governmental revenue or with a more specific resistance towards taxes. We will discuss these aspects in sections 3.1 and 3.2. The final question, why command-and-control measures are still promoted, will also be tackled in the following section.

3. The Public Choice approach to environmental policy

We now turn to the economic agents and discuss - according to Public Choice theory - the motives or interests in environmental policy of voters, politicians, public administrators, producers and interest groups. Figure 1 shows the interdependence of all of these parties and that in any policy process the outcome of negotiations is one of all parties' competing interests. In environmental policy, being a policy that ought to preserve the common public good "the environment", these interactions are of great importance, as our analysis will show.

Figure 1. *The interaction of economic agents from a public choice perspective*



Source: developed by authors

The main focus of the following Public Choice analysis is discussing the different points of views of all agents involved on command-and-control versus market-based instruments. But not only is the choice of the instrument of uttermost importance for successful environmental policy, also the fundamental points of view of the agents matter.

In relation to climate change mitigation, Llewellyn (2010) discusses eight different intellectual positions of opponents of a stronger environmental policy.

Firstly, he argues, that there is a group of people who generally sees no need for any emission reduction policy and secondly, some believe that any action comes to late anyway.

Both arguments can – in his opinion - be overcome by establishing the credibility of the science (see also section 3.1 about trust and credibility issues).

Thirdly, there is concern, that emission reductions and economic growth are incompatible. The next two positions he describes, target the costs of emission reductions: on the one hand, some argue that emission reductions are too costly and on the other hand they have to be borne ‘up-front’ (see section 3.1 for a discussion of price-elasticities and social discount rates). Furthermore, emission reduction targets are considered unrealistic by many and cannot be achieved due to a lack of political will. Lastly, there is no first mover advantage involved with imposing environmental policy.

With these fundamental arguments in mind, we will now turn to analyzing the individual position of the actors involved.

3.1 The voters

Citizens'/voters' sensitivity towards environmental issues has continuously increased throughout recent decades. One indicator for this is that voters attach more and more importance to the use of renewable energy sources. Wüstenhagen and Bilharz (2006) show that in Germany within the period 1984 to 2003 the public attitude towards energy sources has shifted notably from nuclear power to renewable energy sources (wind, solar). While in 1984 only 17% of respondents expected wind energy to significantly contribute to Germany's energy supply, in the following three decades the figure increased, to 42% in 2003. Public opinion analysis undertaken by the European Commission shows that 50% of European Citizens consider climate change a serious problem (see Table 2). In yet another survey for the European Commission, 97% of respondents considered environmental protection very or fairly important (see European Commission (2008a)).

***Table 2**: Results of Eurobarometer survey, January/February 2009*

In your opinion, which of the following do you consider to be the most serious problem currently facing the world as a whole? Firstly? Any others? - % EU				
Rank	Problems	2008	2009	%-change
1	Poverty, lack of food and drinking water	67%	66%	-1%
2	A major global economic downturn	24%	52%	117%
3	Climate change	62%	50%	-19%
4	International terrorism	53%	42%	-21%
5	Armed conflicts	38%	39%	3%

Source: European Commission (2009b)

But when asked about the overall most important issues for Europe at the moment, those surveyed put unemployment, the economic situation and crime at the top of the list, while environmental and energy issues did not even enter the top 10 (see Table 3) they ranked 12th and 13th. The European Commission's statistics raise the question where this two-facedness among voters comes from and whether the under-provision of market-based instruments in developed democracies is after all still due to a lack of concern among voters, due to their competing interests or other factors. The literature proposes a number of explanations for the voters' behavior, which we will discuss below.

The comparatively new Happiness research literature provides evidence that environmental pollution negatively affects individual well-being (see Welsch (2006) and Welsch (2009)), which supports the view that the general public has an intrinsic motivation to act in an environmentally friendly way. Halla et al. (2008) analyze the relationship between citizens' satisfaction with the quality and performance of the economic and political system they live in and environmental quality. They find that "[…] both a focus on environmental policy and higher environmental quality (in terms of lower emissions, in particular, of CO_2, and less traffic) increase satisfaction with democracy in statistically and economically

important ways." But they also report that a rise in public environmental expenditure tends to decrease average satisfaction, which they interpret as a confirmation for the public good characteristics of environmental policy and environmental quality. Furthermore, Layton and Levine (2003) show empirically that the public's willingness to pay to prevent small negative impacts on the ecosystem is insignificantly different from zero but significantly positive with larger impacts.

***Table 1**: Results of Eurobarometer survey, October/November 2009*

What do you think are the two most important issues facing (OUR COUNTRY) at the moment?		
Rank	Issues	Answers in %*
1	Unemployment	51%
2	Economic Situation	40%
3	Crime	19%
4	Rising prices/inflation	19%
5	Healthcare system	14%
6	Immigration	9%
7	Pensions	9%
8	Taxation	8%
9	The educational system	7%
10	Housing	5%
11	Terrorism	4%
12	The environment	4%
13	Energy	3%
14	Defense/foreign affairs	2%

*Source: European Commission (2009a), * multiple answers possible*

A lack of information about market-based instruments in environmental policy, especially energy taxes, is found in several studies (for France see Deroubaix and Leveque (2004), for Ireland see Clinch and Dunne (2006); for Germany see Beuermann and Santarius (2006)). One line of arguments in the discussion about why market-based instruments are not satisfactorily incorporated in environmental policies is that this lack of information on the voters' side is too costly to be overcome. Understanding the complexity of environmental issues requires higher education, interest and time to learn, therefore acquiring information is subject to high opportunity costs (see also Anthoff and Hahn (2010)). But Klok et al. (2006) report that participants in a Danish focus group argued that "they could not accept something they did not understand".

However, Owens and Driffill (2008) argue that information about "the need for, or characteristics of, controversial developments has not notably delivered acquiescence on the part of local communities. On the contrary, it can fuel distrust […]". If only information can raise acceptance for new instruments but information also triggers distrust in specific projects, the key target issue according to several studies is seeking trust, as voters may simply not trust their governments. Studies for a number of European countries show that

voters especially either do not trust their governments to use the extra taxes responsibly or see no reason for any additional tax.

In a study for Ireland, Clinch and Dunne (2006) report that voters are on the one hand suspicious and distrustful of their government when it comes to tax policy and on the other hand already feel overtaxed. Deroubaix and Leveque (2004) report that the participants in their French focus groups suggested "that politicians always thwart the allocation of taxes". Even stronger is a study result for Denmark in which focus group participants suppose that environmental taxes are just another way for obtaining public revenues and that their environmental effects were only fake (see Klok et al. (2006)). A similar response is reported by Dresner et al. (2006) for the United Kingdom.

Another aspect of this trust issue is that voters believe they alone have to bear the costs. This line of argument does have substance. Especially if price elasticity is low, the tax burden can be transferred from producers to consumers (which – in most cases – would offend the polluter-pays principle). But if price elasticities are high, the tax burden will be borne by producers as well as workers. Ghalwash (2005) reports own-price elasticities of Swedish households of -1.80 for an electricity tax, of -1.83 for a district heating tax and of -1.58 for an oil tax. Graham and Glaister (2005) report price elasticities for gasoline demand in the range of -0.6 and -1.0. For Spain, Romero-Jordán et al. (2010) estimated the price elasticities of transport fuels at -0.32 to -0.75. Finally, Brons et al. (2008) also find mean short-run and long-run price elasticities of −0.34 and −0.84, respectively, for demand for gasoline in a meta-study of 43 studies. Price elasticities for gasoline demand, for which a large body of literature is available, tend to undermine the fear that environmental taxes may at least partly be borne by voters alone (see Table 4).

Table 2: *Price-elasticities*

Source	Electricity tax	District heating	Oil tax	Gasoline/ transport fuels
Ghalwash (2005)	-1.8	-1.83	-1.58	
Graham and Glaister (2005)				-0.6 to -1.0
Romero-Jordán et al. (2010)				-0.32 to -0.75
Brons et al. (2008)				-0.34 to -0.84

Source: see reference list

When it comes to compliancy with a specific tax regime, Feld and Frey (2002) point out that a rationale voter would try to evade taxpaying as being caught is unlikely and fines tend to be small in comparison to what can be gained from tax evasion. The fact that taxes are paid nevertheless can be explained with tradition and especially with trust. Feld and Frey (2002) show for Switzerland that the more far-reaching political participation rights are, the higher tax morale is.

Another aspect brought out in this discussion is that voters are more likely to accept a policy they are familiar with, as is the case with regulation, in contrast to market-based instruments. Dresner et al. (2006) point out that "familiarity breeds affection: those being controlled regard it as 'tolerable' while an alternative approach might not be seen as such". A position also supported by Brännlund and Persson (2010) who find, that people generally dislike the word "tax" and are more willing to accept a policy that even though actually being a tax is labeled differently. That terminology itself may have a considerable influence on acceptance is also shown in Clinch and Dunne (2006) who propose to relabel taxes as charges, since 'tax' is considered a 'bad' word.

Kirchgässner and Schneider (2002) argue that voting out of self-interest is possibly a major obstacle to any kind of environmental policy. An interesting data set that allows the analysis of individual characteristics of voting behavior was gathered in Switzerland in the year 2000, when Swiss citizens voted on three proposals for taxes on fossil energy. Thalmann (2004) analyzed the data and found that political affinity and education played a role in voter behavior. Both citizens with an affinity to green and left-of-center parties and citizens with higher education had higher rates of participation in the vote and also of approval of the tax proposals, whereas income – ceteris paribus - did not significantly influence voting behavior.

In another analysis of the votes on the three Swiss proposals, Bornstein and Lanz (2008) found that socially accepted norms and ideology do play a role in the referendum outcome and that price and/or income effects are not the only factors taken into account by voters.

From the values of social discount rates given in the literature it appears that voters care more about the here and now than about the future: In an overview of relevant papers, van der Bergh (2009) reports values varying between 3 and 6%, where any social discount rate above 0% implies that a higher weight (importance) is given to early generations than to generations in the distant future (see Howarth (2001) for a discussion). Layton and Levine (2003) calculate a public discount rate of nearly 1%. Even though there is an ongoing dispute in the literature about the use, morality and size of social discount rates, especially in view of the costs of fighting climate change (see Ackerman et al. (2009)), there is a widespread tendency to assume that voters at least to some extent attach more value to the present then to some unknown future. Most interestingly, Halla et al. (2008) find that parents worry significantly more about CO_2 emissions than citizens without children, which is another argument in favor of a non-zero inter-temporal discount rate.

Summing up our discussion, we find three main issues that may explain why voters do not explicitly vote for the environment: firstly, the provision of the public good 'environment' allows free-rider behavior, secondly, the time delay between costs and benefits of environmental policies (especially CO_2 emission reduction) is difficult to explain and non-zero social discount rates diminish the future's importance and finally, other more urgent issues, like unemployment or security, are of higher priority than less tangible environmental issues.

3.2 The Politicians

We now turn to analyzing the behavior of politicians and their positions concerning the introduction of market-based instruments. The main questions that need to be discussed are whether politicians are intrinsically motivated to engage in environmental policy, and whether they favor market-based instruments or command-and-control mechanisms.

The standard political economy approach assumes self-interested behavior of utility-maximizing politicians, where utility is gained by being re-elected (see Mueller (2003)) and by reaching certain ideological policy goals. If re-election is the maximizing condition, a politician will promote a certain policy only if the median voter demands it and is willing to pay for it (see Maux (2009) for a formal discussion of the median-voter model and Böhringer and Vogt (2004) for an empirical discussion of how the national median voter's willingness to pay determined the outcome of the Kyoto negotiations). Weck-Hannemann (2008) argues that politicians are intrinsically motivated to implement instruments that are in line with their political ideology and increase their power or their personal income. Whether or not they can follow their own inclinations or have to comply with the median voter's demands depends on how stringent the re-election constraint is. Then again, List and Sturm (2006) argue that the re-election constraint may be valid only for major political topics like overall government spending or income distribution, it may be less important for secondary issues like environmental policy: a view that is also supported by Franzese (2002).

The question whether or not the re-election criterion is an important factor in a politician's decision to engage in environmental policy can also be discussed in connection with the partisan hypothesis, to the effect that the re-election constraint is stringent only in election times, but does not influence the politician's decisions throughout his term (see Tellier (2006) and Franzese (2002) for a review of empirical studies of partisan cycles and Maux (2009) for a formal approach to the partisan model).

According to Frey and Schneider (1978) the governing party that aims to stay in power will seek to please the median voter only if its self-perceived re-election chances are low. If its self-perceived re-election probability is high, it will undertake policies in line with its ideology. As we stated above, politicians want to be re-elected, to have power and to receive benefits. What does that mean for a politician's intrinsic motivation to pursue environmental policies? Firstly, as our discussion in section 3.1 showed, voters value the environment but do not have complete information about environmental issues, their importance and the toolkit of instruments that can be used. They also fear being overly burdened financially. Furthermore, following the argumentation of List and Sturm (2006) environmental issues may be of only secondary interest to the median voter, but if secondary issues do not influence the median voter's election decision, there may be voters who attach extraordinarily high importance to such issues. A politician may therefore be inclined to pursue this secondary policy in order to receive additional votes. Furthermore List and Sturm (2006), who empirically analyzed U.S governors' public spending and environmental policies, found that "in states with a large

group of green voters […] governors advance less environmentally friendly policies once they face a binding term limit." They also "[…] observe the opposite pattern in states with a small environmental constituency, where governors advance much greener policies once they can no longer be re-elected." They interpreted their results as support for their theory that politicians reverse policies they have pursued only to attract additional voters, and conclude that secondary policy issues like environmental policies are strongly influenced by elections.

Weck-Hannemann (2008) also points out that politicians are not completely tied to the median voter's demands, because rational voters acquire political information only up to the point where the marginal cost of acquiring additional information equals the marginal benefits. As the single voter's influence on an election outcome is marginal, this benefit from acquiring information is marginal, too. In consequence, with uninformed voters, politicians can pursue their own goals. This lack of information on the voters' side offers scope for interest groups to influence politicians according to their own motives (see section 3.3).

We find that politicians may be intrinsically motivated to implement environmental policies especially to improve their chances of re-election. From this the second question arises: if politicians pursue environmental policies, do they favor market-based instruments or command-and-control measures? There are four arguments in favor of market-based instruments. Firstly, we can reasonably assume that politicians are better informed about market-based instruments and their comparative efficiency advantages over command-and-control measures.

Secondly, market based instruments like taxes increase – compared to command-and-control measures like standards - the government's revenue, which provides leeway for reducing other taxes or for financing other projects that may be of primary interest to the median voter and thus increase the chances of re-election.

Thirdly, environmental taxes or permit systems may be easier to explain to the public than other taxes because they can be labeled as punishment for polluters (see Kirchgässner and Schneider (2002)). And finally, as Anthoff and Hahn (2010) point out, politicians may favor market-based instruments, as they have some control over defining winners and losers from a specific policy.

We now turn to arguments in favor of command-and-control measures: Firstly, a utility-maximizing politician is also likely to pursue a policy that leads to immediate and noticeable utility gains for the median voter, while its costs are as invisible as possible. In contrast to market-based instruments, command-and-control mechanisms have the advantage of less visible costs (see Oates and Portney (2003) and Weck-Hannemann (2008)), and can probably be supplied at lower cost (see Stavins et al. (1997)).

Secondly, as discussed above, politicians will favor policies that improve their re-election prospects, so they will try to please either voters or interest groups. Both of these (see sections 3.1 and 3.3) may favor command-and-control measures. Voters are more familiar with these instruments and interest groups have more leeway to pursue their own interest under a command-and-control regime (see Oberholzer-Gee and Weck-Hannemann (2002)).

Thirdly, as Stavins et al. (1997) and Oates and Portney (2003) argue, command-and-control measures may serve as market-entry barriers to new firms – standards for new products tend to be more stringent than for existing ones – and are therefore favored by existing firms and by politicians who want to protect these firms.

In conclusion, after arguing that a self-interested politician may not be intrinsically motivated to promote market-based instruments over command-and-control measures, but reacts to the other agents' interests, the question arises whether such a policy - if put in place - will be carried out efficiently. From our discussion so far, it follows that the design of a specific policy is strongly influenced by interest groups whose motivations we will discuss in the following.

3.3 The affected producers and interest groups

To assess the influence of interest groups on the outcome of negotiations about the introduction of market-based instruments in environmental policy, two aspects of lobbying power need to be considered: firstly, the lobbyists' strategy can aim at preventing an instrument's use, and secondly, if prevention is impossible, they can alter a policy's design according to their individual preferences. Lehmann (2003) goes on to distinguish between four categories of lobbyists which differ according to the services they offer:

- service functions, i.e. the provision of specific (and often exclusive) services for their members
- lobbying functions, i.e. attempts to influence decision-making processes from outside
- decision-making functions, i.e. attempts to influence decisions from within
- implementation functions, i.e. participation in policy implementation

The importance of organized interest groups derives from the need of detailed expert knowledge for reaching educated decisions in environmental policy. At the moment, more than 2,700 organizations and individuals are accredited as lobbyists at the European Parliament (accrediting is voluntary not mandatory); 53% of them are «in-house» lobbyists and trade associations active in lobbying. Coen (2007) defines a lobbyist as an "organisation or individual that seeks to influence policy, but does not seek to be elected" and points out "that lobbying is a familiar if not always welcome reality in western politics, and that most political scientist and policy-makers recognise that public and private interests have a legitimate and important role to play in the policy process". That about 15,000 Commission and European Parliamentary officials face 20,000 lobbyists in Brussels may serve as an indicator showing that lobbying activities have to be considered a major influence on any political activity.

We argue that producers prefer command and control measures over market–based instruments in environmental policy (see section 2.1 and 2.2), which may go far to explain

their restricted use. We furthermore argue that green interest groups also favor command-and-control measures and have a weaker position in the policy making process. In the following we analyze whether from these propositions the restricted use of market-based instruments can be explained.

We assume that the lobbyists' information is equally reliable; then the question arises which characteristics of a group will make them more successful in pursuing their individual goals. Firstly, producers' lobbyists will have more financial backing than environmental advocacy groups. Most interestingly, the so called Green-10, composed of the ten major environmental advocacy groups (BirdLife International, Climate Action Network Europe, CEE Bankwatch Network, European Environmental Bureau, European Federation of Transport and Environment, Health and Environment Alliance, Friends of the Earth Europe, Greenpeace Europe, International Friends of Nature, and WWF European Policy Office), receive substantial funding from the European Commission (excluding Greenpeace which policy is not to accept financial support from governments, the EU or industry). The importance of any interest group's budget is shown by Eising (2007). He calculates within a regression model encompassing data from 800 interest groups, that the probability to have weekly contact to the European Commission is 50 % higher if an interest group has a budget of 7.5 million euro compared to an interest group without a budget.

Secondly, with environmental issues, especially pollution control and alternative technologies, there is a strong information asymmetry between producers' lobbyists and environmental lobbyists.

Thirdly, Oates and Portney (2003) reckon that environmental interest groups object to market-based instruments in environmental policy on philosophical grounds. In their line of thinking, permits and environmental taxes are interpreted as "rights to pollute" and are therefore immoral. Stavins et al. (1997) add that environmental interest groups furthermore argue that the possible damages from pollution are difficult or impossible to quantify and monetize, which prevents the calculation of an accurate tax rate.

Fourthly, as Becker (1983) famously described in his "Theory of Competition Among Pressure Groups for Political Influence", group size matters: the smaller the group the more effectively it can lobby, which is why business lobbying tends to be more effective than lobbying for consumers (see also Brandt and Svendsen (2002), Markussen et al. (1998), Svendsen (2002)). Public interest groups (like environmental groups) are also relatively weak due to group size.

The relative strength of an interest group furthermore depends on a number of factors, such as policy makers' preferences and the cost/benefit ratio of the proposed regulation (see Brandt and Svendsen (2003). Anger et al. (2008) illustrate this in the context of the EU-ETS: the EU-ETS sectors which were represented by more powerful interest groups realized two positive outcomes: firstly, they got a preferential allocation of allowances in comparison to other EU-ETS sectors, and secondly, they succeeded in lowering the overall abatement burden within the EU-ETS, whereby abatement burden was imposed on non EU-ETS sectors

and overall economic efficiency was reduced. Concerning the position of green interest groups, Lai (2008) argues that they prefer grandfathering of permits to auctioning and to emission taxes. He formulates a two-stage model where in the first stage the type of policy is determined and in the second stage the emission cap is set and shows that grandfathering increases the environmental policy groups political influence and minimizes the emission cap (see also Oates and Portney (2003)).

In yet another example Anger et al. (2006) study the effects of a revenue-neutral tax reform which links ecological taxes with reductions in labor costs. Using the German Ecological Tax Reform database, they find substantial effects of lobbying, especially for sectors with a highly inelastic energy use. From an efficiency point of view, the highest taxes should be imposed on these sectors; as this is known ex-ante, these sectors also have the highest incentive to lobby for substantially reduced taxes, which may well result in practice. Furthermore they show that interest groups' effectiveness also depends on market concentration and energy demand elasticities.

In an attempt to show how this resistance to environmental taxes could be overcome, Aidt (2010) compares different refunding mechanisms (income-tax cuts, extra public spending and tax-burden compensation to polluters) and shows that by "lobbying for a refunding rule that pleases voters, the interest group can reduce the ''price'' of buying a reduction in the green tax. In cases where the tax revenue can be used to compensate the interest group's members, this benefit must be sufficiently large to outweigh the value of the foregone tax burden compensation. In cases where the tax revenue cannot be refunded to polluters, the interest group has no direct stake in the refunding rule and will, therefore, support the rule that voters prefer." And Svendsen et al. (2001) argue that "in heterogeneous sectors the tax revenue is difficult to refund in a politically acceptable way. Energy-intensive firms will lose from taxation even with a full refund, and are able to protest quickly and with success."

We see that lobbyists of industrial and business interest groups are relatively better equipped to influence policy making from an early stage on. The specific information and expertise of lobbyists is a crucial factor in policy-making which strengthens the relationship between administrators and lobbyists. On the other hand environmental lobbyists, suffer from group size and fewer financial resources which in reality can even result in a situation in which the lobbyists are paid by the very organization they lobby. Gullberg (2008) furthermore shows that lobbying behavior in the European Union significantly differs between traditional and green interest groups. Traditional interest groups lobby bureaucrats (in the European context, the European Commission) while green interest group lobby the European Parliament. From this we derive that traditional interest groups are more involved in early stages of policy making than green interest groups and may therefore better influence the evolution of a policy. Taking the EU-ETS as example, Markussen and Svendsen (2005) analyzed whether the final design of the EU-ETS can be explained by potential industry winner or loser involved in the early stages of the policy making process. Their answer is ambiguous because on the one hand industries main objective to install a voluntary system

was not realized. But on the other hand, lobbying lead to a policy design that benefited industry more than any other policy design that could have been realized.

3.4 The public bureaucracy

We now turn to analyzing the role of the administrative level of the political system. Administrators necessarily play an important role in the preparation and early implementation of environmental policy measures. According to Niskanen's famous model of bureaucracy (see Niskanen (1971), the leader of any public administration unit seeks to maximize his unit's budget, increase the number of his employees, and hence increase his power and importance (see Chang and Turnbull (2002) who provide empirical support for this notion). In contrast to politicians administrators are also not bound by re-election constraints. If this holds true for authority whether or not it is engaged in environmental policy, the result of budget-maximizing is that environmental administrations are intrinsically motivated to implement environmental policy measures which require the most administrative controls as well as exhibiting the highest costs (see Mueller (2003)). We can also assume that most members of 'green' public authorities identify themselves with the goals of their authority and are highly motivated. But being motivated need not necessarily lead to favoring cost-efficient policy making. Especially with environmental policy that is largely tied to incentives that need to be given to the regulated party, the inefficiency aspect of command-and-control mechanisms also comes from the simple fact that administrators are not there to formulate or provide incentives or to encourage and reward the regulated ones, not to speak of any innovation beyond compliance with given requirements, as Rondinelli and Berry (2000) point out.

When it comes to assessing whether public authorities are in favor of command-and-control instruments over market-based instruments or vice versa, given budget-maximizing behavior, several factors need to be considered: firstly, command-and-control mechanisms exhibit high costs, since monitoring them is labor-intensive; secondly, with command-and-control mechanisms the authority has an information advantage that mainly derives from expert knowledge within the authority compared to the government; thirdly, the authority simply knows what to do, which may not be the case with a new instrument; and fourthly, the public authority is needed for command-and-control mechanisms, but may be superfluous if, say, a command-and-control mechanism is replaced by an environmental tax, or this may at least require a great degree of flexibility within the authority (see Schneider and Volkert (1999) and Stavins (2003b) for a discussion).

Instead of continuously monitoring a large number of facilities, the use of taxes or tradeable permits reduces the information needs of the public authority or makes the information completely superfluous in cases in which the relevant powers are taken away

from the authority completely. Obviously, as information acquisition is resource-consuming, this is not necessarily in the interest of the authority (see Stavins et al. (1997)).

Studies about the administrative costs of market-based and command-and-control instruments are scarce. Betz (2008) estimates the start-up costs of the EU-ETS for Germany at about 7.5 million € and the recurrent costs at about 7 million € p.a. In Germany nearly 1,900 emitters take part in the EU-ETS. For Austria's 200 emitters, the Austrian Federal Audit Commission calculated the costs of the EU-ETS for the public administration at 2 million € in 2007. Comparing these figures, especially when they are prepared by public officials, is difficult if not impossible (see e.g. McCann et al. (2005) for an analysis of transaction cost measurement systems).

To the authors' knowledge, there is no literature comparing the transaction costs of different environmental policy instruments in Europe. In a literature review for the US, Anthoff and Hahn (2010) compare literature values of the costs of different environmental instruments, and report "[…] the range of potential cost savings is large. Most of the studies predict cost savings above 40 per cent by moving from marketable permits from an existing command-and-control approach, and some predict cost savings above 90 per cent". Keohane (2006) studies the US system of tradeable pollution permits for sulfur dioxide emitted by electric power plants during the first trading period from 1995 to 1999. He finds that the trading system led to estimated annual cost savings of 150 mio. $ in comparison to a uniform performance standard which would have achieved the same abatement. This figure corresponds to a 17% cost reduction. From the experiences made we draw the conclusion that the theoretic notion that with market-based instruments efficient environmental policy can be achieved with lower costs.

In the light of section 3.3 we conclude that the affected producers and the public authorities are the two groups with the strongest reasons to favor command-and-control policies. Also, both parties have the political power and resources to influence the design of environmental policy.

4. Concluding remarks

In recent years the use of market-based instruments in environmental policy has steadily increased; most notably the EU-ETS brought a major shift in the way environmental policy is implemented and perceived. But still, the efficiency of the instruments in use is questionable, as their design seems to be strongly influenced by the economic agents' different interests. We used Public Choice theory to differentiate between five economic agents, voters, politicians, producers, interest groups and administrators, and considered the intrinsic motivation of each group in turn to find answers to the question we posed in the title of our paper, "Why does environmental policy in representative democracies tend to be inadequate?" Summarizing our public choice analysis, we draw the following conclusions:

(1) While, in the past, command-and-control instruments successfully reduced tangible environmental pollution (mostly in local areas) and improved the overall environmental quality in Western democracies, the more threatening but much less tangible global pollution arising from CO_2 emissions obviously cannot be controlled with command-and-control measures. Furthermore, economic theory shows the superiority of market-based instruments over command-and-control measures in terms of efficiency. Still, experience so far with market-based instruments is sobering, as regards both their frequency of use and their design and effects. The EU-ETS suffers from conceptual weaknesses, as not only was grandfathering chosen as the allocation method instead of auctions, but it also seems to have led to an over-allocation of tradeable permits and to windfall profits. The environmental taxes imposed in several European countries on fossil energy and CO_2 emissions are used more to finance public spending and less as instruments in fighting climate change or reducing environmental pollution.

(2) On the other hand, both political rhetoric and public discussion point strongly to the need to fight climate change, and to the economic superiority of tradeable permit systems or taxes over command-and-control instruments. And the general public, the voters, attach great importance to environmental quality: an empirical fact repeatedly verified in the studies we reviewed. The growing body of literature about what influences happiness also shows the high positive correlation between individual happiness and environmental quality. In addition the more tangible willingness-to-pay studies confirm these findings and show that parents have a higher willingness to pay for CO_2 emission reductions, which may be an argument in favor of a non-zero social discount rate. The value that voters place on the environment surely is high, but we also mentioned that in terms of everyday life, in which one's job, income and security situation have more weight than less tangible aspects, like CO_2 emissions, people's environmental morale or intrinsic motivation may not be high enough for them to actively vote for the environment. Furthermore, the costs of fighting climate change

are imposed on today's voters immediately, while it is future generations that will benefit from this effort. While, as described above, altruistic behavior can surely be ascribed to part of society, it may be less prevalent for environmental policy measures in society as a whole.

(3) With a look at the affected producers and interest groups, we conclude that, all in all, traditional (industrial) interest groups have every advantage over green interest groups: their group's size is in their favor and their financial backing is considerable. Both aspects work against the green interest groups, who suffer from the simple fact that they represent the general public, so group size is an issue and financing themselves is much more difficult (not at least due to free-rider behavior).

(4) Considering the public administration, we conclude that administrators have budget-maximizing behavior which makes command-and-control measures more attractive to them, because monitoring these is resource-intensive. Furthermore, they are in favor of command-and-control instruments over market-based instruments for several other reasons: command-and-control mechanisms exhibit high costs, there they have an information advantage because they profit from expert knowledge within the authority compared to the government, the authority simply knows what to do, which may not be the case with a new instrument, and the public authority is needed for command-and-control mechanisms, but may be much less needed if a command-and-control mechanism is replaced by market-based instruments such as an environmental tax. We conclude that the regulated industries and the public authorities are the two groups who have the strongest reasons to favor command-and-control policies. Also, both parties have the political power and resources to influence the design of environmental policy, which we consider the main answer to the question posed in the title of our paper.

What can we derive from our analysis? Firstly, to increase the importance and influence of voters/taxpayers one could push the idea of giving voters more rights, such as the introduction of a referendum or the right to an initiative. Now voters can express their preferences on single issues (like environmental ones) and force the government to undertake certain ecological measures. It is important that power to set the agenda is then shifted from the government or bureaucracy to the voters, too. As we see in Switzerland, the institution of the referendum or direct democracy has worked quite effectively. Secondly, as we show in our discussion of voters' motives and interests, a persisting information asymmetry remains a major obstacle in environmental policy. Ongoing efforts made especially on the European level, such as 'green labels' for food and non-food products, may help voters to internalize environmental behavior and thus increase the pressure on producers.

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