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Center for International Climate and Environmental Research – Oslo
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Climate change policymaking - three explanatory models

Working Paper 2000:6
ISSN: 0804-452X

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26 April 2000

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Abstract

This paper gives an outline of three explanatory approaches to policymaking processes that allow the development of a rich set of non-trivial, probable assumptions. These assumptions provide a foundation for understanding climate policymaking behavior. First, the Unitary Rational Actor model provides a set of assumptions about the state's interest in calculating costs and benefits as a basis for decision-making. By avoiding the inclusion of sub-actors in the analysis, it is possible to analyze behavior while assuming that the actor is unitary and in full control of the situation. Second, the Domestic Politics model presents a set of assumptions where domestic actors have different sets of preferences, and where the internal distribution of costs and benefits between them is crucial for decisions on climate policy strategies. And third, by applying the Social Learning model, the assumption is that the learning processes climate policy actors are involved in are able to change their interests and preferences as the policy process unfolds. The concern is not only with analyzing policy formulation patterns as a material calculus to maximize self-interest, but also with taking into account action as a result of social norms and the social environment. The development of climate change policy in Germany is used as an illustrative example throughout the paper.

Acknowledgements

This research was conducted as part of the project "Climate change policymaking – A comparative analysis of Norway, Germany and the USA" at CICERO, financed by the Research Council of Norway. I would like to thank Arild Underdal for useful comments. I also thank my colleagues at CICERO for useful discussions on previous drafts of this paper, especially Sjur Kasa, Tora Skodvin, Bjart Holtsmark, Jon Hovi, and Lynn P. Nygaard. Responsibility for errors and opinions are my own.

Contents

1 Analytical purpose

How can we explain the choices and behavior of policy-makers engaged in forming climate policy? If we are to understand how and why politicians meet the challenges that climate change poses,[1] it is important to understand the political mechanisms and societal processes that capture the incentives in the policymaking process.

The main focus in this paper will be to study if and in what way three different explanatory models can account for climate policymaking. I assume that the structure of the issue area can best be illuminated with the help of conceptual models, or explanatory approaches, that guide the research towards certain key independent variables that have a causal effect on the policymaking choices of climate change decision-makers. As an illustration, I look into climate policymaking behavior in Germany since 1987. Germany is an interesting case because it holds a leading position in Europe, both economically and politically. Also, the country seems to struggle with a gap between an ambitious role in the international climate change negotiations and difficulties with performance, i.e. problems with implementing sufficient abatement measures to achieve the country's CO_2 reduction target.

The paper is organized as follows. Section 2 provides background information on how and when climate change became a political issue in Germany. I also look into the development of greenhouse gas emissions in Germany, the energy supply-mix and balance, as well as how to picture the policy-formulation process. Section 3 presents each of the three explanatory models that comprise the main focus of study, and uses German climate policy to illustrate the main assumptions made by the models and the differences between them. Applying the three explanatory approaches to German climate policymaking behavior thus allows the explanation to proceed in three steps. Section 4 presents some conclusions.

[1] The climate change issue is characterized by uncertainty as to the scope, time-range and effects of a higher surface temperature on earth. The climate change problem is special in that it incorporates this uncertainty. It is also special in that it 'hits' the very heart of the economy, making energy production and consumption problematic because they are both vital to economic growth *and* major contributors to environmentally damaging anthropogenic emissions. Abatement investments are often costly in the short-term, while economic benefits from these investments often are uncertain and may not be realized until the long-term. Thus, climate change poses a significant environmental and economic challenge as a global issue that politicians have to face.

2 Climate change on the political agenda in Germany

2.1 Short historical account

Germany has been a European leader in developing a comparatively strong climate policy since 1987. Climate change first entered the German political agenda in late 1986, much as a result of the public debate that followed a report from the German Physical Society and the German Meteorological Society warning about the threat of a climate change. Strong media attention to the issue was spurred, [2] and climate change as a political question became a part of the increasing concern over environmental issues in Germany towards the end of the 1980s. This trend began with the learning and public awareness in the early 1980s about the acidification of the German forests caused by SO_2–rich precipitation, and the discovery of the ozone "hole" in 1985. Media attention and political debate coupled the ozone- and climate issues, and thus created a sense of urgency also about actions designed to avoid a climate change. A concerned public opinion and consequently pressure and concern within the political parties led to, as early as 1987, the establishment of a parliamentary commission[3] with a mandate to the science of climate change. The Enquete Commission presented its report to the parliament in 1990 with the recommendation that Germany reduce its CO_2 emissions by 25-30% from 1987 level within 2005. This aim followed the recommendations made by international agreement at the Toronto Conference on the Atmosphere in 1988. The German parliament and cabinet endorsed the need to respond to the threat of climate change, and agreed on a national target of 25% reduction of CO_2 emissions by 2005[4].

The process of establishing an international cooperative effort to curb emissions of gases that could provoke an irreversible change in the earth's climate has been led by the United Nations since 1989. During the Rio Conference in 1992, a total of 154 nations signed the Framework Convention on Climate Change (FCCC), Germany among them. In addition to establishing its own ambitious national CO_2 reduction target, Germany took a leading role in these negotiations. It was an explicit aim for Germany in this period to take an international lead on environmental issues, and by doing so set an example for others to follow[5]. Therefore it only made sense that at the Rio Conference, the German chancellor requested to host the first Conference of the Parties (COP) under the FCCC.

In 1995, during the COP 1 in Berlin, Chancellor Kohl declared that the German national target would be to reduce CO_2 emissions by 25% from 1990 level by 2005. This meant an important sharpening of the target, and it may have been issued as a result of Germany's role of host during this important first COP. The announcement of a very

[2] Interview with a representative from the German ENGO *Germanwatch*, Bonn, June 3, 1999, and Bauermann, C. and J.Jäger, (1996): "Climate Change Politics in Germany" in *Politics of climate change – a European perspective*, Routledge, London.
[3] The full name of this parliamentary commission was *Enquete-Kommission Vorsorge zum Schutz der Erdatmosphäre,* and it was in operation during the period 1987-90.
[4] Interview with a Bundestag representative for SPD, Bonn, May 31, 1999.
[5] Interview with a civil servant at the chancellors office, Bonn, June 2, 1999.

comprehensive voluntary agreement with the emission-intensive industries in Germany was also a well-timed move, believed to be driven by the country's sense of responsibility to make this first COP a success[6].

The Kyoto Protocol was signed in 1997, after several rounds of very hard and comprehensive negotiations in the two years after COP 1. The Protocol was a breakthrough for international cooperation, as it incorporates legally binding reduction commitments for the signatories. However, the ratification process of the protocol is proceeding very slowly, causing serious doubts about whether it will ever be ratified by some crucial countries such as the USA, the EU, Japan, and Russia.
During the negotiations on the Kyoto Protocol, in the period 1995-1997, Germany's national strategy shifted towards a greater focus on the cooperation between the EU countries as their common negotiating position became firmer and better coordinated. Germany used its leadership position in the EU to help formulate the common EU position in the negotiations: to reduce CO_2 emissions by 15% by 2010, and to be able to distribute levels of reduction internally within the EU countries.[7] This agreement, in turn, served to further strengthen Germany's pivotal role in the development of EU climate policy. The EU was able to win through with its proposition to be perceived as a common unity under the Kyoto Protocol and was thus able to achieve a flexible and cost-effective way of reducing emissions. The greenhouse gas emission reduction target of the EU under the Protocol is to reduce the emissions of CO_2 equivalents by 8% in the first budget period (2008–2012). Germany alone will be responsible for approximately 80% of the total EU reductions, as decided by internal distributive negotiations within the EU. This underscores the German leadership in EU climate policy[8].

The development of a German climate policy has taken place during the reunification period of East and West Germany. Tension, prejudice and a need to adapt to each other have characterized the unification process. The Federal Republic of Germany comprises sixteen different federal states, or Länder. The political and administrative system of West Germany was applied to the Eastern Länder over-night. The system of a social-market economy that was developed in West Germany after the Second World War has been a careful blend of market capitalism, strong labor protection and a generous welfare state. The success of this system has characterized the country's constant economic growth in the post-war period. Including the Eastern Länder into the system since October 1990 has implied a subsidy of approximately DEM 150 billion per year to reconstruct that part of the country.[9] The economic burden of this subsidy has fallen on the old (Western) Länder. Coinciding with a general recession in Europe in the early 1990s, this caused Germany to go from being the locomotive of the European economy to entering a period of recession. A quick look at recent statistics shows that the growth in GDP has slowed down and in fact was negative in 1993. The growth was 2.3% from 1995 to 1996. The unemployment rate has increased steadily since 1991, and remains at the high level of 10.9% of the workforce in 1999.[10]

[6] Interview with a representative from the Association of German Electricity Supply Companies (VDEW), Bonn, June 1, 1999.
[7] Commonly referred to as the "EU-bubble".
[8] Ringius,L (1999): *The European Community and Climate Protection: What's behind the 'Empty Rhetoric'?* CICERO Report 1999:8, p.22.
[9] Federal statistical office Germany: http://www.statistik-bund.de/, December 1999.
[10] Federal statistical office Germany: http://www.statistik-bund.de/, December 1999.

2.2 Emission-levels and the energy situation

When we look at the statistics, we can see that in the first half of the 1990s the CO_2-emission level fell in Germany but has since started to rise again. Between 1990 and 1996, energy-related CO_2 emissions in Germany fell by 10.3%. In relation to the GDP, CO_2 emissions fell by 19% during the same period. The fall between 1990 and 1996 was 13.3% per capita.[11] The reasons for these trends are varied. First, the economic reconstruction and reduced use of CO_2-intensive lignite coal in the new Länder has played a significant role in the improvement in the whole of Germany's emissions balance. Of the total of ca.13% reduction of CO_2 emissions achieved by 1999, about 12% must be said to be a result of the restructuring of the former communist Länder. Second, the link between economic growth and CO_2 emissions continued to be severed in the old Länder to a certain extent. However, population migratory movements within Germany counteracted the trend, through immigration and an increased utilization of the production capacity in the old Länder. On the whole, per capita emissions of CO_2 in the old and the new Länder today are at the same level, i.e. at approximately 11 Mt per year.[12]

According to the federal government Germany needs a balanced energy mix that includes hard coal and lignite, oil, natural gas, nuclear power and renewable energies in order to have a reliable energy supply. The energy-mix trend shows that the use of hard coal and lignite as energy sources has declined from 1990 to 1996, whereas the use of oil, gas and nuclear power has increased. But still, about 50% of electricity production is based on coal, and about 30% is based on nuclear power.

2.3 Policy formulation pattern

When trying to explain policymaking behavior, it is here assumed that the process of policy formulation follows a certain pattern. It is a process of domestic bargaining, where the stages of the policy process are ideally sequential, but expected reactions and action in the next stages almost invariably influence policy action in the first stage. It is assumed that the international agreement is accepted or ratified at some stage in this process. Ratification is a negotiated product, based on a national negotiating strategy incorporating the actual as well as the assumed reactions of participants in the national policymaking debate. After ratification or acceptance of an international commitment, the government develops a policy to implement the commitments through certain policy measures. Society then responds to the governmental policy decisions. I also assume that governmental policy measures have an impact on the environmental problem. Societal response and impact assessments evaluate the policies in terms of their effect, and the evaluation can lead to policy adjustments.[13]

[11] BMU (1997a): *Second National Communication to the UNFCCC by the Federal Republic of Germany.*
[12] BMU, 1997a
[13] This picture of the policy formulation process is largely based on Hanf et al.,(1996): *The Domestic Basis of International Environmental Agreements: Modeling National/International Linkages*, p. 40

The formal decision-making system is rooted in the federal, parliamentary democratic state system that West Germany has had since World War 2. The political parties have had a strong role in this parliamentary system. The establishment of a stable democratic order based on the model of the "social market economy" underpinned by legal regulation, free collective bargaining and co-determination has been a success for Germany. The German industrial relations system has been an important element in a virtuous circle: The distinctive institutions and traditions in industrial relations limited industrial conflict and encouraged workplace co-operation in high-quality production, while the resulting economic prosperity in turn contributed to peaceful and collaborative industrial relations.[14] Only during the last decade have Germans been forced to relate to changing industrial relations, where the service-sector of the economy is becoming increasingly more important while the trade unions lose both power and members.

Although the sixteen Länder are generally relatively autonomous, in environmental policy there is a hierarchical relation between the individual Länder and the federal government. This division of jurisdiction makes the federal government largely responsible for designing the environmental policy. The federal Constitution, as well as the rule of "competing" legislation and the right to issue framework legislation, provides the federal level jurisdiction to rule over Länder jurisdiction in most parts of environmental policy. However, the implementation of both federal and Land (state) legislation is almost entirely a matter for the Länder with their two or three-tiered administrative structure.[15]

[14] Jacobi, O. et al.(1998): "Germany: Facing New Challenges" in Ferner, A. and R. Hyman (1998): *Changing Industrial Relations in Europe*, Blackwell, Oxford.
[15] BMU (1997b): *Environmental Policy - Decision of the federal government of 6 November 1997 on the Climate Protection Programme of the Federal republic of Germany, on the basis of the Fourth Report of the CO_2 reduction Interministerial Working Group (CO_2 Reduction IWG)*, p.13.

3 Three approaches to explaining German climate policymaking behavior

Drawing on the background features of Germany vital to climate policymaking behavior described in the previous section, this section focuses on an outline of three explanatory models. The starting point of accounting for climate policymaking here is a perception of explanation as a function of understanding and describing the problem issue, the actors involved, and the situational logic of the actors. This paper thus attempts to provide an explanation by following three largely complementary paths of research used to describe and understand actors' choices[16]. In addition to providing a richer form of explanation, the advantage of applying more than one explanatory approach to policymaking behavior is that I can investigate into how much of the actor behavior each of the approaches can account for, and which provides the most fruitful approach given my particular purpose of analysis.[17]

The use of the three models can help focus the analysis of the complex set of variables that influence policy-makers in the closely related policy areas of energy production and consumption and the development of responses to the threat of climate change. More specifically, the three explanatory approaches, or models, function as sets of assumptions about decision-making behavior. They are to a large extent complementary and hypothesize different but simultaneous elements of policy conduct. The feedback processes that invariably exist between the phases of the policymaking process indicate a partial overlap of the three models as analytical tools. By applying the three models to a particular situational setting, it is possible to outline and identify some important political mechanisms at work, mechanisms that are decisive for climate policymaking conduct.

A focus on hypothesized causal relationships, or mechanisms, captures a dynamic element in the explanation, and produces a more concise type of knowledge. This knowledge is not of a general kind but is rather situation dependent.[18] Accordingly, an explicit description of the elements that define the actor's basis for decision will be a very important part of gaining knowledge about the particular situation. Therefore, description of the natural environment of actors is considered important. Likewise, it is important to establish an account of other strategic actors as well as of the social relations between actors in order to have input to explain behavioral choices. This background helps clarify our understanding of the actor's actions.[19]

[16] I think of actor's choices in terms of being based on mechanisms at work which are important to identify. In this section I identify mechanisms through applying the three explanatory approaches.
[17] My use of these three approaches is largely based on Underdal, A. (1998): "Explaining Compliance and Defection: Three Models" in *European Journal of International Relations*, Vol. 4, No. 1.
[18] See Elster, J. (1989): *Nuts and Bolts for the Social Sciences*, Cambridge, p.22.
[19] Farr, J. (1985): "Situational Analysis: Explanation in Political Science" in *Journal of Politics*, Vol. 47, p. 1088.

3.1 First cut: Calculating state behavior

When trying to capture the incentives of decision-makers, it can be useful to apply the Unitary Rational Actor model. This model provides an interest-based explanation of behavior, and its advantages are, first, the parsimony and rigor afforded by the assumptions of unity and control by the rational actor. Second, it can easily be coupled to the actor's situational logic, and be used to ascribe interests to the actor's role in the situation.

Underdal specifies three basic assumptions that the model builds upon[20]:

- States are unitary, rational actors
- Decision-makers evaluate options in terms of costs and benefits to their nation, and only in those terms, and choose whichever option (is believed to) maximize(s) net national gain.
- States are in full control of "their" societies.

The assumptions imply that actors (i.e. states) calculate their policy behavior according to welfare gains and costs. Rational choice means value maximizing. The actor selects the alternative that has the highest-ranking consequence in terms of his goals and objectives. It is also implied that explanation is sought in terms of the context in which actors operate, rather than in terms of internal policy processes or structures. International structures guide behavior in certain directions and pose limitations on the number of options for action. Furthermore, it is assumed that states have one set of specified goals, one set of perceived options, and a single estimate of the consequences that follow from each alternative. Action is chosen in response to the strategic problem the nation faces. The various courses of action relevant to a strategic problem provide the spectrum of options, and the enactment of each alternative course of action will produce a series of consequences. The relevant consequences constitute benefits and costs in terms of strategic goals and objectives.[21]

Applying these assumptions when accounting for a country's calculations in the climate change context, we must keep in mind that the initiative to proceed with any kind of national climate policy comes as a result of the international climate change negotiations. In an anarchical world, a rational actor will not take on commitments as a sole actor, commitments that could be disadvantageous to the actor himself. Therefore, assuming that all states embark on developing a climate policy, we can deduce an important proposition from the unitary rational actor model:

- The main incentive for a state to adopt policy measures is that the international regulations or agreements they are based on must provide expectations to reap net benefit, or at least not lose. The state will therefore implement policy measures according to what it has promised to do internationally only as long as the costs do not exceed the costs it would incur by defecting.

[20] Underdal (1998): p.7
[21] Allison, G. T. (1971): *Essence of decision – explaining the Cuban missile crisis*. Little Brown and Company, pp. 32-33 and Skjærseth, J. B. (1999): *The making and implementation of North Sea pollution commitments: institutions, rationality and norms*. University of Oslo, pp. 45-46.

Cost/benefit calculations

The Unitary Rational Actor model implies that a state's perceptions of abatement costs[22] and damage costs play a deciding role in the shaping of national negotiation positions and determine the domestic policy choices in the climate change area. More specifically, the state is assumed to consider the net costs of environmental action compared with the net costs of inaction and status quo in the policymaking phase. If we consider the national costs Germany would incur by implementing the Kyoto Protocol, calculations show that they will be relatively small -- about 0.07% of the GDP if free emissions trading are allowed, and only 0.02% of the GDP in the case of no emissions trading.[23] Under the Protocol, Germany can use a comprehensive approach to reduce emissions, meaning that reduction can be achieved through policy that includes six major greenhouse gases. If reductions must be achieved through reduction of CO_2 alone, the costs would probably be higher.

The interpretations of the above estimates must be based on the fact that Germany is a large importer of fossil fuels for primary energy use. The country is heavily dependent on fossil fuels, with 40% of the primary energy consumption met by oil, about 27% met by coal, and about 20% met by natural gas. Germany's own reserves of fossil fuels are very small, however, with only 6% of the world's coal reserves and considerably less than 1% of the world's oil and gas reserves.[24] This means that Germany would benefit from a lower price on oil and natural gas, and that the calculations of the benefits it would have from buying emissions quotas would depend upon the fossil fuel prices on the world market.[25] But a climate policy that includes regulations that affect the energy-market will probably mean that the market will be changed and that important interests will be affected. So even though the total national costs do not seem high, one must also expect the state to calculate the costs that changes in the energy market will incur on society.

Also, a state will consider its emissions, vulnerability and costs as functions of how the economic impacts of emission restraints vary among countries. Economies react differently to targets related to the emissions of greenhouse gases and the introduction of general abatement measures because the equilibrium and thereby the output of the economy will be affected. In the case of Germany, the reunification between east and west led to a restructuring of the East-German economy, with a particular emphasis on closing down unprofitable industries in the eastern Länder as well as closing down or rebuilding lignite-based power plants to curb pollution. This led to an immediate reduction of CO_2 emissions in Germany of approximately 12%, or approximately 170 million Mts., between 1990 and 1993. The "wall-fall" effect of reunification has given Germany a head start in emission reductions compared to other countries. [26]

Important input into domestic policymaking comes from the country's relationship to other countries and the world markets. Climate change is characterized by an

[22] Abatement costs are complex, and include both direct and indirect costs (such as trade-balance effects).
[23] See Holtsmark, B.J and O.Mestad (Forthcoming) "An Analysis of Links between the Market for GHG Emissions Permits and the Fossil Fuel Markets".
[24] BMU (1997a): pp. 40-41.
[25] I am grateful to Bjart Holtsmark for clarifying this point for me.
[26] There has of course been costs involved, more specifically a yearly subsidy of approx. DEM 150 bill., mainly for heavy investments in the industry and energy-supply sectors.

asymmetrical distribution of abatement or control costs across countries. There are significant differences in national emission profiles and in amounts of emissions of harmful gases from different countries. There is also an asymmetrical distribution of climate damage costs, especially between industrialized and developing countries. Coupled together with uncertain cause-and-effect relations and potentially significant costs of climate policies affecting a range of key economic sectors, the result is the complex dynamics characterizing the case of climate change.[27]

A quick glance at Germany's ambitious national emissions reduction target initially would convince us that the country is willing to take on more costs (a stronger climate policy) than an immediate cost/benefit calculus would suggest. National plans and government representatives[28] point out that Germany is very interested in pursuing long-term climate policy strategies. Even though Germany's welfare might suffer in the short term by applying certain policy measures, it would reap benefits in the long term. This partially because it would gain a head start in new technology markets, and also because it would build confidence in potentially important markets in the developing world for the future. At COP5 in Bonn in November 1999, chancellor Schröder said in his opening speech to the conference "if we do not embark upon climate protection now, we will loose the markets of the next century"[29]. He also reaffirmed Germany's CO_2 reduction target, and his ambition to keep it. It has been a specific objective for Germany to be a leader in international climate affairs. Environmental minister Jürgen Trittin reaffirmed this in an interview a few weeks before COP5:

> Germany will maintain its role as a front-runner in international climate protection into the future. During the Ministerial Segment of this Conference I will firmly support the idea of other States adopting a similarly broad catalogue of measures for climate protection as us. Measures for energy conservation, ecological tax reform, promotion of renewable energies and many further measures do not only benefit our climate, but also offer opportunities to modernize the economy. The climate discussion is proving to be a driving force in analyzing sustainable ways of living in industrial society and in doing so makes an important contribution to the public's awareness of global contexts.[30]

These statements indicate that the possibility of gains in the future is important for the calculus of Germany's climate policy, probably combined with the anticipation of modest costs of implementing abatement measures, as pointed out above.

Sustainable development strategies, while meeting the challenge of globalization, incorporate the importance put on having a potent industrial sector in Germany. Weight is put on the government's willingness to prepare conditions that will make a strong and vital industry sector possible today, combined with a strong climate policy.[31] There has been a strong focus on the role of industry in the German economy, and a debate about how to keep Germany an attractive site for large industrial companies and future investments has been important in the 1990s. Now Germany is on the verge of a new era, economically speaking, where globalization and changing industrial relations

[27] Ringius, Lasse (1997): "Identifying and selecting significant, less significant and insignificant actors in global climate change negotiations", *CICERO Working Paper* 1997:6.
[28] BMU (1997b) and *Interviews* with a civil servant at the Chancellors office, June 2, 1999, and a civil servant at the BMU, September 18, 1997.
[29] http://www.bundeskanzler.de/03/27/, December 1999.
[30] Interview with Federal Environment Minister Jürgen Trittin in *Umwelt* No. 10/99
[31] BMU (1997c): *Towards Sustainable Development in Germany*

are forcing the economic actors to think in new directions. Part of this change has been the increased environmental consciousness that has made policy-makers aware that investments in clean technology and energy efficiency can create new markets and new jobs.

No-regrets policy and issue linkages

Over the last few years, climate change has lost importance as an issue on the political agenda while the more urgent issues of unemployment and social welfare have gained importance. Combined with the fact that the climate change issue contains a high degree of scientific uncertainty about the consequences, time frame, and costs of climate change, policymaking has become increasingly difficult for the government. The Unitary Rational Actor model predicts that the policy alternatives chosen will be of a "no-regrets"-character. This means that proposed policy measures would be equally profitable also if negative climate change effects do not emerge. When the question of extra costs become relevant, i.e. doing more than "no-regret" measures, the policy-maker will have to consider the elements of uncertainty involved when making his cost/benefit calculus. In doing these means-ends calculations, the state is operating according to a logic of consequences where social norms or structures like environmental sustainability or preservation of nature do not count as much as material goods.

The German government has had as a clear goal that all policy measures taken at this point should be no-regrets measures. The ministry of economy (BMWi) will not recommend a policy measure that would lead to unemployment or negative economic effects.[32] The strained economy in Europe and Germany in particular, and the extra burden from the reunification process, are mentioned as underlying factors here. Another no-regrets measure derives from the debate about a possible "double dividend" achieved by introducing the green taxes that have been on the German agenda for several years. The red/green coalition government introduced a green tax reform in April 1999, with the argumentation that a turn towards taxation of environmentally unsound activities combined with a relaxation of tax on work would be good for the economy and create new jobs.

The logic of calculating policy choices would suggest that there is reason to expect political synergy effects in policymaking considerations. Implementing abatement measures that affect the energy sector will have economic impacts on both the industry and the general public. It is therefore not likely that abatement measures to reduce harmful emissions can be implemented and become successful unless they harmonize with other policy concerns in the countries' energy sector. A multiplicity of mutually reinforcing political considerations must, according to the Unitary Rational Actor model, be expected to influence the formation of national positions on climate change. Both the assumption of no-regret policy choices and the assumption of synergy effects seem to find support in empirical facts. The central points are the worsened state of the German economy during the 1990s and the growing concern about the unemployment issue. Industrial managers expect the government to take action adjusted to the difficult economic situation of Germany. At the same time managers call for a more comprehensive strategy in climate policy, where all affected policy areas must be kept

[32] Interview with civil servant at the BMWi (Ministry of economics), Bonn, September 23, 1997.

in mind.[33] For instance, the government introduced a complete liberalization of the electricity supply market in Germany in 1999 that will force electricity suppliers to be competitive on prices. At the same time the companies must be ready to face competition with foreign companies also. This development will probably be easier to adjust to for large energy-supply companies. In Germany this means for the most part energy from coal-fired plants or nuclear power plants supplied to the grid by energy giants like RWE.

The Unitary Rational Actor model has as a central proposition that rational actors seek to have the best possible information available when making policy decisions, about the preferences of other actors, the issue area, as well as about the range of options available. Looking at the international negotiating process, we see that the inherent uncertainty that characterizes the climate change problem has lead to a search of knowledge among states. The model would propose that Germany's position in the negotiation is a function of expected damage cost, abatement cost, and its GHG emission level. These considerations reflect the state of knowledge at the time decisions were made. In the period 1987-1992, a very important process of knowledge development took place in Germany. The Enquete Commission carried out six studies for the German parliament, assessing the science of climate change. The studies suggested that a reduction target of 25-30% of CO_2 emissions was achievable. The broad participation and general agreement within the Commission seem to have been important for the development of Germany's climate policy.

The three basic assumptions of the Unitary Rational Actor model can give us a lot of information about the calculations a unitary rational actor makes to decide on climate policy measures. The state is in control of "its" society, but its structural context and situation restrict it. International structures guide behavior in certain directions and pose limits to the number of options for action. For Germany, the economic difficulties and increasing unemployment of the last few years have been structures that have been important and restrictive for climate policy choices, not least because of the chances for decreasing competitiveness compared to major trade-partners in the world markets. This can be one explanation of why there is a discrepancy between ambitions to be a leader and the lack of political will for domestic implementation of CO_2 reductions. Another international structural constraint may be the stalemate the international climate change negotiations have faced after Kyoto. The ratification process of the Protocol seems to have become a game of wait-and-see, where no Annex B country wants to be first to make the legally binding commitments. For instance, the EU's tactics after COP5 seem to be to ratify only if the USA does so first.[34]

[33] Interviews with a director in the coal-mining company "Rheinbraun AG", Cologne, November 3, 1999 and a representative of BDI (Bundesverband der Deutschen Industrie), Cologne, September 16, 1997.
[34] Interview with a representative from the ENGO "Forum Umwelt und Entwicklung", Bonn, November 3, 1999.

3.2 Second cut: Calculating domestic actor behavior

The second approach I use to explain climate policymaking is the "Domestic Politics" model, which is an interest-based explanation, like the Unitary Rational Actor model. [35] In addition to actor interests, the elements of power and influence among domestic sub-actors are important to consider here. The general assumption of this model is that climate policymaking behavior can be accounted for as a result of decisions by policy-makers triggered by different actors and levels of the political system in a state. Domestic actors affected by climate policy measures may have interests that deviate from the national/state interest, and this may influence the implementation of a climate policy. The most important difference from the Unitary Rational Actor model is therefore that the calculus of behavior by domestic sub-actors can lead to a lack of ability by the government to implement a preferred climate policy.

This means that all the three core assumptions of the Unitary Rational Actor model are relaxed.[36] First, the model perceives the government not as one single decision-maker, but rather as a complex organization where sub-actors pursue multiple objectives that are sometimes in conflict with each other. Relaxation of the unity assumption thus implies that policy decisions are influenced and formed by the interests of sub-actors, in accordance with their different sets of preferences, values and attitudes. Second, the Domestic Politics model assumes that the domestic sub-actors are not primarily concerned with the national welfare or "interests" as such, but rather evaluate options with the aim of fulfilling a more subjective set of goals. The actors' perspectives and interests are to some extent shaped by role and position or as Allison pointed out: "where you stand depends on where you sit".[37] This may be amplified because political systems tend to distribute power and influence unequally, and therefore produce outputs that deviate systematically and predictably from those that would maximize national welfare as conceived of in the Unitary Rational Actor model[38]. Third, the model assumes that states are not in full control of "their" societies, but on the contrary that the state has only partial control and is influenced and constrained by society. So even if a government would want to implement for instance a comprehensive climate policy strategy, it may be unable to go through with its plans because of domestic political constraints.[39]

Cost/benefit calculations
The assumptions of the Domestic Politics model suggest that not only the aggregate national costs and benefits count when a policy direction is chosen, but that also the internal domestic distribution of costs and benefits is important. In environmental policy it is difficult to find good solutions with respect to a distribution that all parties find acceptable. Curbing climate change often means introducing regulatory policy to change vital parts of the economy like energy supply, transportation and industry. This imposes costs upon the actors that the policy measures aim to change behavior of, actors that are powerful and important for the state economy.

[35] See Underdal, A. (1998): pp.12-20 for a well-structured presentation of this model.
[36] Underdal (1998): p. 12.
[37] Allison (1971): p.176.
[38] Underdal (1998): p.13.
[39] Underdal (1998): p.13.

The industry sector has been very important for the German economy after the Second World War, and industrial organizations like BDI (Bundesverband der Deutschen Industrie) and DIHT (Deutsche Industrie und Handelstag) have been active participants in the national debate about climate policy initiatives. Industry is the source of about 14% of CO_2 emissions in Germany, and consumes about 17% of final energy.[40] The Domestic Politics model would assume that the potential costs that a climate policy, such as a carbon tax, would inflict on the industry sector would induce them to be active in lobbying the government. The model also assumes that the government depends on their cooperation, either voluntary or coerced, to introduce and implement climate policy measures. The distribution of power and influence may also matter here, and the large companies in, for example, the automobile, chemical and coal industries are well connected to the two major political parties (SPD and CDU). Industrial managers admit that their influence on climate policy is substantial.[41] A voluntary agreement was announced by the industry in 1995/96 where industrial associations representing 4/5 of final industrial energy consumption committed themselves to reducing CO_2 emissions by 20% within 2005 from 1990 levels. The agreement came after intensified planning of a CO_2 tax in the BMWi prior to 1995, and was hastened because of the upcoming COP1 hosted by Germany in Berlin.[42] The voluntary agreement thus had the effect of reducing the potential conflict level between the government and the industry, as both parties needed a new policy solution that they could agree upon. In achieving this, the long-standing tradition of good industrial relations and policy consensus in Germany seems to have been important, together with the importance of the organizational corporate channel in German politics.

However, curbing climate change can, instead of regulatory measures, mean a financial support-policy to encourage development of renewable energy or more energy-efficient technologies. The model would assume that the distribution of costs and benefits implied by such policy measures would be equally important for the calculations made by domestic actors on behavior. As in many other European countries, the German society and industry is facing new challenges with trends like globalization, liberalized markets and changing industrial relations. The power-supply market is being vigorously liberalized, with tumbling electricity prices and a series of mergers between companies. The competition is very hard at the moment. In this situation it is presumably more difficult for electricity based on renewable energy to make its way into the market, even though the government has introduced a range of policy measures to secure that such energy is being channeled into the energy supply system. For instance the Act on the Sale of Electricity to the Grid has established minimum compensation rates for electricity generated from renewable energies, along with an obligation to accept such electricity into the public network.[43] In general, the model would predict that policy measures that induce costs upon specific sectors of the economy while benefits are widely distributed throughout society will be difficult to implement.

[40] BMU (1997b)

41 Interviews with a director in the coal-mining company "Rheinbraun AG", Cologne, November 3, 1999 and a representative from the Association of German Electricity Supply Companies (VDEW), Bonn, June 1, 1999.

[42] Interview with representative from the Association of German Electricity Supply Companies (VDEW), Bonn, June 1, 1999.

[43] BMU (1997a): p. 121.

The policy process as a series of games
Several political scientists have suggested that by applying the Domestic Politics model we can picture the effect of cost-benefit calculations by sub-actors if we analyze the policy process as consisting of a series of (partly overlapping) games.[44] The time-aspect implied by this kind of analysis tends to make us see these processes more clearly. It seems clear that German climate policy has gone through at least three stages (or phases) of development. When the climate policy issue was introduced on the agenda in Germany, the actors who were most dominant were scientists, environmental agencies, the Green Party and the media. The environmental non-governmental organizations (ENGOs) were not so active in this initial phase because they have traditionally been working primarily with local or national issues.[45] The main issue at this point was to assess as much knowledge as possible about the climate change issue and develop an agreement about the range of the problem. The parliamentary Enquete Commission worked from 1987 to 1990 (see p. 3), and was a pivotal consensus-maker. It consisted of 26 members representing a broad range of societal interests. In this phase of the climate policymaking process, the presence and strength of intermediate agents were important in articulating and aggregating concerns over climate change issues. The Green Party had a strong position in the public debate, supported by an active press functioning as a transmitter for new knowledge to the public. Counter-forces have traditionally been pollution-intensive industries and the trade unions. The ambitious target that came out of the political process around the Enquete Commission tell us, according to the Domestic Politics model, who were the dominant actors in this process and in the national debate at the time.

Another assumption of the model is that the kinds of social values affected by environmental degradation are important for the policy choices in the next stages.[46] The environmental awareness in Germany was growing in the 1980s and early 1990s, much as a result of concern about dying forests (Waldsterben), growing air-pollution in the cities, and other urgent environmental issues. Environmental consciousness is deeply rooted in the minds of Germans, articulated even in the first half of the century, both by the Social Democrats and the Nazi movement. A revival of environmental issues came in the early 1970s by the SPD. The valuation of both environmental quality in general as well as the valuation of specific environmental resources in the populace is assumed by the Domestic Politics model to influence policy-makers. Such valuations can also affect the society's comprehension of the environmental situation or context, for instance in the form of culturally embedded attitudes towards uncertainty and risk. The concerns of the German public about climate change after 1986 continued the trend of growing environmental awareness. At the time, the domestic distribution of costs and benefits were relatively rough estimates and hard to determine exactly. Coupled together, these two elements probably contribute to explain why there was such a broad consensus in Germany about taking on a very ambitious CO_2 reduction target.

[44] See Allison (1971), Hanf et al. (1996).
[45] Beuermann and Jäger (1995): 212. This has changed during the 1990s, as there has been a development towards more professionalization of the environmental movement in Germany, with increased use of scientific expertise in the organizations. This has lead to a turn away from confrontations and more effort towards cooperation strategies with the government (Brandt, K.W: (1999): "Dialectics of Institutionalization: The Transformation of the Environmental Movement in Germany", in *Environmental Politics*, Vol. 8, No. 1.
[46] Hanf et al. (1996)

Over the last five or six years, as the economic growth has slowed down, the public seems less willing to accept regulation that affects their own behavior directly. For example, there has been massive opposition to the ecological tax reform introduced by the government in April 1999. These "green" taxes mean more expensive gasoline, electricity and gas, and have caused a significant loss of popularity for the red-green government. The coalition parties themselves expect this to be a difficult process, but see it as necessary to proceed with reforms and hope for positive economic effects and thus a chance of regaining voters in time for the next election.[47] The current tax system was formed primarily during a time when environmental concerns were given less weight, at the same time as reorganization and structural problems in the job market were less serious than they are today.

The Domestic Politics model suggests that a new phase, or game, of the policy process starts when a country gets involved in international negotiations and agrees to commitments. For Germany the situation changed after the UNCED conference in Rio de Janeiro in 1992. The country took on a leading role in the negotiations, and more domestic governmental agencies became involved. An inter-ministerial group was given the responsibility of working together to develop a climate policy strategy, and to report to the government every second year on progress and suggestions for new policy measures. The model assumes that the involvement of several ministries affects the policy process in relation to the relative strength of the different branches of government.[48] Elements like institutional capacity and degree of involvement are predicted to be important for the degree of influence over policy formulation and implementation. In Germany, the environmental ministry (BMU) has had a coordinating role in the development of both the country's negotiation position and in the national implementation work. But the BMU has had a weak role in comparison to the ministries of economy (BMWi), transport (BMVBW), and building (BMBF). The BMU has a small budget, only 0.7% of the total, and a small staff. More people work on climate-related issues in the BMWi than in the BMU. In addition, there has been a conflict of sector interests within the inter-ministerial group. Particularly the first two reports to the government were difficult to reach an agreement on, as they introduced many new measures and proposals affecting sector interests within the ministries.[49]

As the attention shifted towards more specific policy measures, more sub-actors understood that their interests were at stake and that policy measures could be potentially costly. This triggered a third phase, or game, of the policy process where we have seen a greater involvement and opposition to demanding climate policy measures from a varied range of interests like industry groups, trade unions and the automobile organizations that had earlier been surprisingly in agreement with the government. It was in this period that the voluntary agreement between industry interests and the government was made, and also in this period that economic strain and increasing unemployment became more and more important issues on the political agenda.

The ENGOs became more involved in the debate, as they became aware that climate change is one of the most serious environmental problems.[50] In a situation of increased

[47] Seminar with Klaus Müller, Green Party financial spokesman, Oslo, August 20, 1999.
[48] Hanf et al. (1996).
[49] Interview with two civil servants at BMWi, Bonn, September 23, 1997.
[50] Interview with representative from the ENGO "Forum Umwelt und Entwicklung," Bonn,

involvement from several sub-actors, the Domestic Politics model suggests that a process of redefinition of the policy problem occurs, so that climate policy becomes just as much a matter of energy policy, transportation policy, etc. The redefinition of the issue and the take-over by sector agencies tend to reinforce each other.[51] This brings in the assumption made in the beginning of this section; that the most important difference from the Unitary Rational Actor model is that the calculus of behavior by domestic sub-actors can lead to a lack of ability by the government to implement a preferred climate policy.

Government control over state policy
An obvious discrepancy has occurred in German climate policy over the period after COP1 in Berlin. The ambitious emissions reduction target (minus 25% of CO_2 within 2005) has proven to be hard to implement, despite the massive reductions achieved in the first years after the reunification. Economic recession and increased unemployment coupled with intensified activity and lobbying from both pro-active and counter-active interest groups towards climate policymaking processes are possible explanatory elements.

The government control over state policy can, according to the Domestic Politics model, be seen as a function of several elements.[52] First, the internal unity of the government may be important in explaining the difficulties with implementing a strong enough climate policy. The coalition between CDU and FDP between 1982 and 1998 seems to have been a relatively harmonious collaboration. The new red-green coalition government, however, has had its differences during the first year of governance. Regarding climate policy, there have been internal disagreements about which policy measures are most adequate: energy savings or clean energy investments. This is a disagreement that goes between the Green Party allied with the left wing of SPD against the right wing of SPD. There is also friction between the Greens and the Schröder-wing (right wing) of SPD, which is criticized for being too closely connected with the coal and automobile lobbies.[53] Second, the policy distance to major opposition parties can account for government lack of control over state policy. But in Germany, one of the most remarkable features of the climate policy has been the high level of agreement across traditional political dividends. There has always been a high degree of bipartisan support for climate policy decisions. The opposition parties through most of the 1990s (SPD and the Green Party) did to a large degree support the Kohl government decisions. They criticized that the implementation was too weak, but supported the general policy direction. This bipartisan support continues today: Apart from criticism against the ecological tax reform, the opposition parties (now the CDU and FDP) support the government's climate policy direction. Third, the Domestic Politics model points to the personal authority of the head of government as a likely explanatory element. Chancellor Kohl seems to have had a personal interest in the climate change issue, and he took initiatives that pushed the policy process forward. For instance, his speech at the COP1 in Berlin is regarded as decisive as an incentive to the elaboration on domestic strategies. And he said several times that it was Germany's goal to reach a

November 3, 1999.
[51] Underdal (1998): p. 17.
[52] Based on Hanf et. al (1996).
[53] Interview with a scientific advisor for the parliamentary group of the Green Party, Bonn, June 2, 1999.

real commitment for the industrialized countries in the negotiations about a Kyoto Protocol.[54]

Another assumption made by the model is that a high degree of centralization of formal authority at the federal level is expected to facilitate the implementation of a climate policy. In Germany, the Länder have a certain degree of independence, but the majority of German climate policy measures are by federal ordinances that apply in all Länder. However, some effects can be seen of vertical fragmentation, for instance in Nordrhein Westfalen, where the Land-government continues to subsidize the coal industry while the federal government is reducing its coal subsidies.

Issue linkages
As pointed out in the section about the Unitary Rational Actor model, the nature of climate policy is such that it can not be dealt with in isolation from other policy issues. The examples from German climate policy have shown that the government has many other concerns, as has the general public. Climate policy has to "compete" with other issues for a place on the policy agenda. The most likely way for a policy proposal to find support is therefore through serving several policy needs at the same time. Issue linkages can develop both as a result of strategic or tactical considerations, or as a result of the situational context into which the issue is framed. These elements can determine what perspectives and premises are considered relevant, and which actors will have access to the policymaking process.[55] With the new German coalition government, new constellations between political actors and new synergy effects between climate change and other political issues have arisen. The junior coalition partner, the Green Party, has had as one of its main policy issues for two decades the fight against nuclear power. Environmental minister Trittin has openly said that he will spend 60% of his time on working towards a phase-out of nuclear energy.[56] But of course, a total phase-out of nuclear power in Germany would most probably mean that more power plants would be fired with fossil fuels, i.e. coal, oil or gas, in the future, which will have a negative effect on the climate. In this way synergy effects can give a new drive to policies, also towards other objectives than perhaps intended. Exogenous factors, like an election, can shed new light on political issues and thus lead to either progress or a standstill in the development of a particular policy.

3.3 Third cut: Learning processes and social norms

The third approach used here to explain climate policymaking is less clearly developed than the two first models. It is based on a new direction of study in international relations that over the last decade has challenged the agent-based, interest-driven explanation of policy behavior that the two preceding models represent. Constructivism is concerned not only with analyzing policy formulation patterns as a material calculus to maximize self-interest, but also attempt to take into account action resulting from the social environment. An assumption is also made about the social environment as being capable of shaping and changing the actor interests/preferences. To be more specific, the two most important differences to the Unitary Rational Actor model and the Domestic Politics model can be summarized in two assumptions made by

[54] Interview with a civil servant at the Chancellors Office, Bonn, June 2, 1999
[55] Underdal (1998): p. 19.
[56] Interview with a representative for the ENGO *Germanwatch*, Bonn, June 3, 1999.

constructivists.[57] First, they assume that material structures are given meaning only by the social context through which they are interpreted. Second, they address the relation between human agents/states and their structural environment. This is conceived of as an interactive process of preference formulation, where state interests emerge from and are endogenous to interaction with structures.

The clearest difference that appears between the three models from these assumptions is the way they all conceive of interest formulation. The first emphasizes the influence of structures as a constraint on the behavior and choices of states operating according to means-ends calculations; the second emphasizes the influence of domestic actors and the distribution of power and influence between them; and the third emphasizes the social context in which structures are formed. This third model is different from the other two in another important way too, in that it "allows for" the preferences of the actors to change during the policy formulation process. Looking into the content and sources of state interests, social norms are seen as constituting states/agents and providing them with understandings of their interests. This means that a country can go into, for instance, international negotiations on a subject with one set of preferences, and gain new knowledge about the issue during the negotiation process that leads to a change of preferences and thus also a change of state behavior.

The learning process in Germany

The assumption about tentative preferences indicates that decision-makers may enter policy-processes with imperfect information and a will to learn. Accordingly, they engage in an active search for information and ideas, as well as in persuasion of other actors.[58] In Germany, perhaps even more active than in other European countries, a learning process was initiated at the end of the 1980s. The public opinion and the international attention to the climate change problem brought on the establishment of a parliamentary Enquete Commission in 1987. The Commission was composed of politicians and scientific experts, and knowledge was transferred between them in the sense of interpreting the science and formulating political needs. All political parties participated actively in the national debate on the issue at the time, together with scientists, industry interests, trade unions, and other environmental interests in Germany. The work of this commission is considered to be extremely successful and to have shortened the phase of issue framing considerably.[59] Another important element that made the Enquete Commission a success was the fact that its leadership was conducted in a very objective way. The leader team, from CDU and SPD, were able to lay aside traditional differences and work together in the Commission in a most constructive way.[60] This made the Commission's work important as a learning "platform" for societal interests, and has become a common knowledge base and a reference point for all participants in the subsequent national policymaking phases.

German climate policy has also been influenced by the work of the IPCC (the Inter-governmental Panel on Climate Change). The IPCC was set up by the UN in 1988 to undertake internationally coordinated scientific assessments of climate change. In Germany it has functioned as an important basis for legitimacy of research results. During the work of the Enquete Commission, careful comparisons with IPCC's results

[57] See Checkel, J. (1998): "The Constructivist Turn in International Relations Theory", in *World Politics*, Vol. 50, January.
[58] Hanf et al. (1996): p. 14.
[59] Beuermann and Jäger (1996): p.194.
[60] Interview with Bundestag representative for SPD, Bonn, May 31, 1999.

were made all the way.[61] According to the assumptions made in the Social Learning model, the social context of the time with strong environmental awareness and concern about the consequences about climate change constituted the international norm of more and more countries engaging in developing a climate policy. In this policy process, at least Germany seems to have had preferences and interests that changed underway. An interpretation of the process according to this explanatory model could be that the high ambitions the country started out with in 1990, promising to reduce emission of CO2 with 25% from 1990-level within 2005, has changed somewhat with new knowledge. The international norm in the late 1980s, where industrialized countries were learning more and more about the interconnectedness between the environment and human actions that could disrupt the ecosystems, may have been one reason why Germany showed a will to take on a strong climate policy and even be willing to be a front-runner. However, these preferences seem to have changed, as the implementation of national climate policy measures have been difficult to achieve. It could be a result of the learning process since more knowledge can result in changed preferences as the Social Learning model would suggest.

Knowledge diffusion

It is a general assumption that actors with a high knowledge level are able to control the shaping of policy alternatives to a greater extent than are actors with an inferior knowledge level. Thus, it must be expected that the policy measures carried out in countries possessing the highest level of relevant knowledge will be copied by others.[62] The assumption implies that social learning will lead to diffusion of policy measures and ideas between countries. This has been the case in the international climate change negotiations, where the secretariat of the Framework Convention on climate Change in Bonn, Germany has functioned as an instrument for knowledge diffusion. For instance, all signatories send their national reports to the secretariat, where they are available for others to make use of.

In general, it seems clear that Germany has been an exporter of ideas and knowledge in the international climate change negotiations. The successful agreement made between the large industrial organizations and the government in 1995/96 is an example of a policy instrument that other countries have tried to copy. Also, the catalogue of more than 130 policy measures is impressive, and a policy approach the Germans would want other countries to copy.[63] The process of knowledge diffusion can also be expected between interest groups and the policy-makers at the domestic level. Organized interests in Germany put a lot of effort into keeping their organization updated in the issue area.

If we move along with the assumption that policies develop to a large extent through learning, i.e. through the adoption of new knowledge and ideas, and that social norms lie beneath these processes, we can develop the argument one step further. Policies are maintained through becoming incorporated into the actor's identity. Put differently, norms are collective understandings that make behavioral claims on actors and constitute actor identities and interests as opposed to simply regulating behavior.[64] An illustration is the new institutional channels for exchange of information and learning that have been incorporated into the German governmental system in the 1990s. The most important one has been the inter-ministerial working group working with CO_2 reductions. Consisting of the five most relevant ministries, it has been given the role of developing policy alternatives and measures that Germany can apply to implement its

[61] Beuermann and Jäger (1996): p. 195.
[62] See Hanf et al. (1996): p. 13
[63] Said by environmental minister Trittin in *Umwelt* No. 10, 1999.
[64] Checkel (1998): p. 327.

CO_2 reduction target. The exchange of information and knowledge between the ministries within the group is important, and it has become easier over time to achieve agreement among the representatives for the different ministries to agree on policy design.[65]

According to the Social Learning model, one can expect a change in actor identity over time, where the members of the group will have preferences and interests shaped by the norms in the group and what they learn there. This, too, was reflected in the case of Germany. Another new governmental channel in the 1990s was the contact group on climate policy organized by the former environmental minister. Consisting of organized interests both pro-active and negative towards climate change, like industry, ENGOs, trade unions and churches, it had a function of information exchange and learning. It was one of the factors that have transformed the environmental non-governmental organizations in Germany from being a protest/confrontational movement, towards a more cooperative line.

[65] Interview with two civil servants at BMWi, Bonn, September 23, 1997.

4 Conclusions

In the presentation of the three explanatory models, I wanted to investigate how much of the actor behavior each of the models could account for, and which provides the most fruitful approach given my particular purpose of analysis. The analysis above shows that the models represent different aspects of explaining policymaking behavior, and each are best applicable within those areas. Therefore, using all three models probably provides the richest form of explanation.

From the three models it is possible to develop a rich set of non-trivial, probable assumptions. The assumptions give input to understanding climate policymaking behavior. The Unitary Rational Actor model gives us a set of assumptions about the state's interest in calculating costs and benefits as a basis of decisions. By avoiding including sub-actors into the analysis, it becomes possible to analyze behavior while assuming that the actor is unitary and in full control of the situation. This model performs best when the intention is to describe the general interests of Germany. This was demonstrated by the discussion about international structures, and how they guide behavior in certain directions and pose limits to the number of options for action. For Germany, the economic difficulties and increasing unemployment of the last few years have been structures that have been important and restrictive for climate policy choices, not least because of the chances for decreasing competitiveness compared to major trade-partners in the world markets. This can be one explanation of why there is a discrepancy between ambitions to be a leader and the lack of political will for domestic implementation of CO_2 reductions.

The Domestic Politics model, on the other hand, presents a set of assumptions where domestic actors have different sets of preferences, and where the internal distribution of costs and benefits between them is crucial for decisions on climate policy conduct. The focus is on the role of sub-national actors, their interests, and their relationships to the institutions that comprise domestic politics. It was demonstrated that what goes on inside the state is critical in understanding climate change policymaking. In Germany, the role of large industrial associations in influencing the implementation of a voluntary agreement for reduction of industrial GHG emissions rather than green taxation in 1996 is a case in point.

The Social Learning model takes a different angle, as it assumes that the learning process that climate policy actors are involved in is able to change their interests and preferences as the policy process unfolds. It is concerned not only with analyzing policy formulation patterns as a material calculus to maximize self-interest, but also with trying to take into account action as a result of social norms and the social environment. Both the assumptions about the learning process and about knowledge diffusion seem to find empirical support in the case of Germany. This is shown in the discussion about the role of the inter-ministerial working group addressing policy design for achieving CO2 reductions. The exchange of knowledge and preferences between the ministries within the group is important, and it has become easier over time to achieve agreement among the representatives for the different ministries to agree on policy design.

The three models have different areas of application, and therefore different areas in which they will provide the most fruitful explanatory approach. In other words, the best choice of explanatory model will depend on the purpose of the analysis: the more specific or closer you want to get to analyzing the behavior of an actor and its social surroundings, the more difficult it would be to use the Unitary Rational Actor model. Also, the more cooperation and interconnectedness between actors there is, the more fruitful it would be to use the Social Learning model. In the case of policymaking within the issue of climate change, it seems not only useful but perhaps also necessary to use all three models. Because the issue area of climate change is so complex, using all three models simultaneously can generate a rich set of assumptions that help us to understand and describe the behavior in policymaking, a set that would not be possible with only one model.

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CICERO (Center for International Climate and Environmental Research – Oslo)
CICERO (Center for International Climate and Environmental Research – Oslo) was established by the Norwegian government in 1990 as a policy research foundation associated with the University of Oslo. CICERO's research and information helps to keep the Norwegian public informed about developments in climate change and climate policy.

The complexity of climate and environment problems requires global solutions and international cooperation. CICERO's multi-disciplinary research in the areas of the natural sciences, economics and politics is needed to give policy-makers the best possible information on which to base decisions affecting the Earth's climate.

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For å løse klima- og miljøproblemene trengs globale tiltak og samarbeid på tvers av nasjonale grenser. CICEROs tverrfaglige forskning bidrar til å finne løsninger på det naturvitenskapelige, økonomiske og politiske planet.

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