

## Power and Policy Design: A Comparison of Green Taxation in Scandinavian Agriculture

Carsten Daugbjerg\*

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### Introduction

The use of green taxes in pollution control is increasingly being considered and used in continental Europe, particularly in Scandinavia, as traditional command-and-control instruments have proven insufficient to reduce pollution to the levels desired. Green taxes can be directed towards various groups like consumers, motorists and producers, but the ease with which such instruments can be introduced differs among the groups. The introduction of green taxes directed towards groups which are not well organized, such as consumers, seems relatively easy. By contrast, the use of such instrument in well-organized economic sectors, e.g., industry and agriculture, is not straightforward. There is much evidence of this. For instance, attempts to introduce a fossil fuel tax in Britain, carbon dioxide taxes in Germany and the European Union and a tax on chemical fertilizers in Denmark have failed. However, it is important to point out that green taxes directed towards producers are, indeed, used. For example, Denmark, Finland, Norway, Sweden and The Netherlands use carbon dioxide taxes. The Netherlands

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applies a surplus manure tax, and pesticide taxes have been introduced in all three Scandinavian countries.<sup>1</sup>

Agriculture provides important insights into the politics of green taxes. This article compares the introduction of fertilizer and pesticide taxes in Denmark, Norway and Sweden. It demonstrates that by designing green taxes in certain ways, governments can introduce them even in situations in which those who are subject to them are relatively powerful. Hence, the causal relationship between political power and policy design is the focus of this article.

Agri-environmental taxes were introduced in Scandinavian agriculture in the 1980s and 1990s. Sweden has applied fertilizer and pesticide taxes since 1984 and Norway since 1988. In Denmark, a pesticide tax has been applied since 1995. These taxes were all introduced by Social Democratic governments or governments in which the Social Democratic Party was the leading party. These governments were not dependent on the farmer parties for survival, or they were in a situation in which the farmer parties would not challenge the governments on the question of green taxes. Clearly, this made the tax alternative a politically feasible measure to use in agri-environmental policies. The taxes were introduced to cope with similar types of pollution problems. In all three countries, nitrate run-offs from arable land to ground and surface waters were perceived as the main pollution problem in agriculture (Andersen & Daugbjerg 1994; Mydske, Steen & Taarud 1994; Eckerberg 1994), but pesticide use was also seen as a serious environmental problem. Although the three Scandinavian countries faced similar pollution problems, they introduced different green tax schemes. While the Danish government designed the pesticide tax scheme in a way which, to a great extent, accommodated the interests of farmers, the Swedish government did so only to a limited extent when it designed pesticide and fertilizer tax schemes. In terms of accommodating farm interests, the design of the Norwegian pesticide and fertilizer tax schemes lies somewhere in between the Danish and the Swedish schemes.

This article focuses on the phases in which the Scandinavian governments introduced new economic instruments in agricultural pollution control. I am interested in the conditions which enabled policy makers to introduce green taxes. The puzzle is why governments, which to a great extent had similar electoral bases and pursued fairly similar goals, introduced different green tax schemes in agriculture? I attempt to resolve the puzzle by analyzing the policy process in what Rokkan (1966) called the "corporate channel of influence." It consists of decision making bodies composed of interest group representatives and state officials. Power in this channel is to a large extent based on expertise within the policy field concerned. In other words, resources count. Rokkan argued that there was another channel of influence, the "numerical democracy channel of influence," which refers to democra-

tically elected bodies in which power is based on electoral support. However, since the Scandinavian Social Democratic governments which introduced green taxes in agriculture shared important features, one cannot explain the variation in fertilizer and pesticide taxes by focusing on the “numerical democracy channel.” In other words, the variation in the electoral bases and policy objectives of these governments is too small to explain variation in the tax schemes.<sup>2</sup> Thus, to explain variation in agri-environmental tax designs, we need to analyze the power of farmers in the corporate channel of influence. It is argued here that differences in the organizational arrangements in agricultural policy making and difference in farmer associations’ access to resources relevant to agri-environmental policy making can help explain why policies differ.

Methodologically, this article is designed as a “most similar nations” comparison. This means that one compares nations which have many important characteristics in common, but produce different outcomes. By using this research design, we keep many independent variables constant, and thus considerably limit the range of potential variables that may explain the variation in outcomes. Besides keeping the nature of pollution problems constant, this article keeps constant important variables such as political culture, political system and government coalition.

In a comparison of similar nations, there is a risk of running into Galton’s problem; that is, the cases compared are not independent. For instance, a policy decision in country A is inspired by experiences of a similar decision in country B.<sup>3</sup> One should consider, therefore, whether a comparison of green tax policy making in Scandinavian agriculture may be invalidated by Galton’s problem. Anckar (1993, 122–23) argues that we can easily run into this problem because:

The contacts between the [Nordic] countries are frequent, systematic and integrated; there are obvious structural similarities between the countries. The similarities suggest that decision makers . . . have to cope with similar problems and circumstances and act in rather similar contexts as they try to seek new solutions and views. They can therefore be expected to turn to the neighbouring countries for models and inspiration (*ibid.*, 123).

However, in relation to an explanation of different outcomes in similar countries, a comparison of the Nordic countries is not invalidated by Galton’s problem. In such a comparison, the analytical focus is on why similar ideas are implemented in different ways. Since this is the question of this article, Galton’s problem is irrelevant here.

The next section develops a proposition on the relationship between the political power of farmers and green tax policy designs, which is tested in three subsequent sections. The first one compares green schemes in Denmark, Norway and Sweden. Then, the political power of farmers in the three countries is compared, and finally, the article analyzes whether power

relations actually influence tax designs. The conclusion assesses the extent to which the findings support the proposition, examines whether alternative theories can more convincingly explain the variation in green tax policies, and accounts for the lessons which we can learn from the study.

## Political Power and the Design of Green Tax Policies

Many economists recommend the use of taxes in pollution control because they are more efficient and effective measures to reduce pollution than regulations (standards) and environmental subsidies (e.g., Baumol & Oates 1971; 1988; Pearce & Turner 1990). Such recommendations are based on economic analysis and usually neglect the political aspects of the use of green taxes. The choice of environmental policy instruments, irrespective of whether they are taxes, regulations or subsidies, is not just a question of finding the most efficient solution, but a highly political process (e.g., Howlett 1991; Salamon 1981; Winter 1994). Elmore (1987, 175) suggests that the choice of policy instruments "has more to do with coalition politics than with their operating characteristics." Like policy making in any other policy field, environmental policy making is a political process (Daugbjerg 1995). Nevertheless, economists are more concerned with the technical design of green taxes than with their political attractiveness and feasibility, and this is a major weakness in the literature on green taxes. To become politically attractive and feasible, green taxes have to be designed in certain ways and thus, policy design may be the factor which determines whether green taxes can be introduced.

Farmers and businessmen are opposed to green taxes because they increase production costs. Obviously, this is a major problem in situations in which producers operate in a competitive international market (the situation faced by many industrial sectors) or in sectors with fixed prices (the situation in agriculture) because costs cannot be passed on to consumers. In both situations, firms may lose profits. The opposition to green taxes can be reduced by designing them in certain ways. In particular, the questions of (i) reimbursement of tax revenue, (ii) control over tax revenue, and (iii) the causal relationship between the subject being taxed and pollution are important aspects of the policy design.

Reimbursement of tax revenues increases the opportunities to use taxes in pollution control (Buchanan & Tullock 1975, 143; Andersen 1994, 213). Obviously, producers are better off if proceeds are reimbursed instead of becoming general state income. However, even though revenues are reimbursed, producers may still oppose the tax because reimbursement may involve redistribution of income among producers and, therefore, there will be winners and losers in the producer community concerned. To reduce such

opposition, governments need to make sure that reimbursement involves no more than minor redistribution of income. If this can be done, producers no longer have a good case which can mobilize other political actors against the tax. So, the more fairly the tax is reimbursed, the more likely it is that producers cannot successfully oppose it.

In principle, there are two ways to channel revenue back to producers. The *earmarking approach* requires that producers engage in environmentally friendly activities to qualify for reimbursement. Revenue is paid back as various types of environmental subsidies and may, therefore, produce an environmental double dividend. That is, besides motivating producers to reduce pollution, the tax produces a revenue which producers can get back only if they engage in certain environmentally friendly activities (Andersen 1994, 204–10). In the *non-earmarking approach*, the revenue is refunded irrespective of whether producers engage in certain activities. This approach reimburses proceeds automatically through direct subsidies or through reductions in various types of taxes; thus there will be no environmental double dividend. Producers prefer this approach since all members of the industry concerned get their share of the tax revenue without being required to do particular things.

Giving producers a certain control over the way in which the tax revenue is spent is another way to reduce opposition to green taxes. The worst scenario to producers is when the revenue is considered general state income, because this give them little, if not no, control over the spending of the revenue and over the future tax level. Hence, producers prefer that green tax revenues are considered not general state income but “sectoral money”; that is, the revenue is spent within the sector concerned. Producers achieve most control if they have a majority in the bodies administering the revenue, but if are they are accorded the right to consultation they can also achieve influence.

Finally, in order to reduce producers’ opposition to green taxes, governments can design tax schemes so that there is a direct and clear causal relationship between the subject being taxed and pollution. Then, the tax has a better chance of being perceived as fair among producers. In general, one can argue that the more direct the relationship, the less likely it is that producers fiercely oppose the measure. It makes a major difference whether discharges or production inputs are the subject of a green tax. When discharges are taxed, producers pay for their actual pollution, which is not always the situation when polluting production inputs are taxed. Some producers may pollute more than others although they use the same production inputs, but they are equally taxed, and therefore, the tax may be perceived as being unfair (Vatn 1997, 5). Fairness and equity are important values among citizens and politicians (Winter 1994, 43).

The paragraphs above argue that governments can use policy design to reduce opposition to green taxes in producer communities. When govern-

ments design agri-environmental tax policies, they need to take the political power of producers into consideration. It is argued here that to introduce green taxes in economic sectors in which producers have political power, the design of the tax scheme is more important than in sectors in which they have limited political power. If producers possess political power, green taxes need to be designed in certain ways to prevent producers from mobilizing strong support within the political system, in particular within sectoral policy networks. Such networks can become major constraints on the development and implementation of policies (Marsh & Rhodes 1992). Thus, design is an important means to reduce producers' opposition to a level at which it does not impede the implementation of the tax scheme itself or the implementation of other environmental programs already in force or to be introduced. Producers may not like the tax, but if it is properly designed, they may accept it as a political fact they have to live with.

Before a proposition on the relationship between the political power of producers and the design of agri-environmental taxes can be developed, it is necessary briefly to outline the concept of power. Here, I concentrate on the power originating from political structures and from the possession of political skills and resources. Smith differentiates between structural and non-structural power. "The basis of structural power is that rules, procedures and beliefs support the interests of the powerful without the powerful having to decide on every occasion what should be allowed on the agenda" (Smith 1990, 39). These rules, procedures and beliefs give certain interests a privileged position in policy making because "[p]ower is not only exercised by individual decisions but by privileges created by structure which advantage certain groups to the exclusion of others" (ibid., 35). Non-structural power refers to the exercise of power arising not from structure, rules, procedures and beliefs, but from situations in which actors apply their resources and skills (ibid.).

This article is concerned with the power producers exercise in the corporate channel of influence. This type of power is both structural and non-structural. Producers exert structural power when they use established networks to privilege certain policy options over others. Structural power in the corporate channel is often associated with the exclusion of certain interests which do not fit those of producers. By contrast, when producers use their technical expertise, their economic resources and their political skills and experience, they exert non-structural power. Producers can rely mostly on structural power in countries where members of sectoral state-producer policy networks share world views, values, economic perceptions, policy principles, procedures, norms, etc., which favor producer interests. By contrast, the use of non-structural power is most important to producers in countries with weakly institutionalized state-producer networks (Smith 1993, 73).

To explain policy design, it is crucial to know how much power producers possess. It is important to point out here that usually demands for burdensome environmental measures (e.g., green taxes) do not arise inside but from outside producer policy networks. In countries where producers have limited political power, it is very difficult for them successfully to oppose political actors who put green taxes on the agenda. Thus, policy makers do not need to design tax policies in a way which accommodates farm interests in order to neutralize opposition. Conversely, when producers have political power, environmental regulation must consider their interests because producers forcefully can oppose political actors who attempt to introduce policies which they do not favor.

After this discussion of policy design and political power, a proposition on the relationship between the two variables can be suggested. The proposition to be tested in this article is: the more powerful producers are, the more likely policy makers are to (i) reimburse tax revenues automatically without requiring producers to engage in certain environmentally friendly activities, (ii) give producers control over the spending of the revenue, and (iii) design tax schemes with a direct relationship between the subject being taxed and pollution.

To support the proposition empirically, we need to demonstrate that the causal relationship predicted by the proposition can be found in real life. This can be done by picking cases in which there is variation in green tax policy design and, subsequently, examine whether variation in producers' power in the corporate channel can explain policy variation. In order to test the proposition on the relationship between political power and policy design, the remainder of the article compares fertilizer and pesticide taxes in Denmark, Norway and Sweden and analyzes whether differences in farmers' power cause variation in policy designs in the way suggested by the proposition.

## Fertilizer and Pesticide Tax Schemes in Scandinavia

Norway and Sweden introduced fertilizer and pesticide taxes in the 1980s, and Denmark introduced a pesticide tax in the mid-1990s. So far, attempts to tax fertilizers have failed. Interestingly, the three countries have designed their agri-environmental tax schemes in different ways. This section compares the design of the tax schemes.

### *Denmark*

In Denmark, there were serious conflicts over the use of green taxes in agriculture in the mid-1980s. Farmers strongly opposed the tax proposals, claiming that there was no direct link between the tax and pollution. They



were supported by the Liberal-Conservative Schlüter governments, but these governments had a hard time because initially there was a green majority in *Folketinget* (the Danish parliament) which supported the tax. This majority was a center-left wing coalition of the Social Democrats, the Radical Liberals, the People's Socialist Party and the Left Socialists. The Liberal-Conservative governments managed to split the green majority several times and therefore a general fertilizer tax could not be introduced in the 1980s and early 1990s (Daugbjerg 1998, ch. 5).

In 1993, the Social Democratic Party was back in power after more than ten years in opposition. It became the leading party in a coalition government consisting of the Radical Liberal Party, the Christian People's Party and the Center Democrats. One of the problems the government faced was the slow progress in the reduction of pesticide consumption. In 1986, *Folketinget* had adopted a pesticide action plan which stated that the use of pesticides must be reduced by 50 percent by January 1997. A number of measures such as strict rules on registration of new and old pesticides, compulsory education of farmers and information campaigns had been put into operation, but pesticide use had decreased less than expected. Thus, policy makers were beginning to run out of realistic non-tax policy alternatives. Pesticide use was not, however, the only agri-environmental problem the government had to deal with. Reductions in nitrate pollution had also been smaller than expected.

The government decided to use taxes in an attempt to reduce pesticide use, and in March 1995, it presented its formal proposal on a pesticide tax to *Folketinget* (Skatteministeren 1995). The proposal suggested a tax equal to 37 percent of the retail price on insecticides and 15 percent on fungicides, herbicides and crop growth-regulating chemicals. These tax levels were claimed to cut down pesticide use by 5 to 10 percent. The revenue would be reimbursed by suspending the state land tax. The government argued that this would lead to "a certain over-compensation" of farmers (*ibid.*, col. 2346). The tax scheme would only involve minor redistribution in the farming community; however, horticulture would lose income and, therefore, special measures would be put into operation to ensure that it was not under-compensated. The proposal was supported by a *Folketing* majority consisting of the government parties and the left wing parties (Skatteudvalget 1995).

Before the law on pesticide taxes was enacted, the state land tax revenue was channeled into an agricultural foundation which subsidizes domestic and international marketing, development of food products, combating of plant and animal diseases, advice to and education of farmers and certain inspection activities. As mentioned above, this state land tax was suspended and the pesticide tax revenue would then be channeled into the agricultural foundation. The agricultural associations fully control the foundation since they have seven of the eight seats in its governing board (the Labor Movement has the remaining one). The foundation distributes most of the

pesticide tax proceeds to the Agricultural Advisory Service (owned by the farm associations), the Agricultural Export Board and nine agricultural foundations which fund the activities mentioned above in various agricultural sub-sectors, such as the pig, dairy and beef sub-sectors. Each foundation has a governing board in which agricultural representatives occupy most of the seats (Lovbekendtgørelse no. 65, 1996; Ministeriet for Fødevarer, Landbrug og Fiskeri 1997a, 3–4; Landbrugsrådet 1990; Danske Slagterier 1994; Mejeriforeningen 1996; Køddbranchens Fællesråd 1990; personal communication, the Agricultural Development Agency, December 1997). Thus, farmers have full control over the spending of the pesticide tax revenue.<sup>4</sup>

### *Sweden*

In Sweden, fertilizer taxes were discussed in the 1970s but were not introduced until 1984. The Social Democratic government proposed a 5 percent fertilizer tax and a tax of 4 *kronor* per kilogram active substance in pesticides.<sup>5</sup> The Minister of Agriculture stated that there would be no reimbursement of the tax revenue and that the tax schemes should be easy to administer (Swedish Government 1984). So, the revenue was considered general state income. *Riksdagen* (Swedish parliament) adopted the proposal (SFS 1984:409; SFS 1984:410). However, later on, the tax revenue was, if not officially earmarked, then, at least, spent in the agricultural sector. Most of it was spent on general environmental purposes in agriculture. For instance, in 1986, the taxes created a revenue of 116 million Swedish *kronor* which was spent mostly on research related to agri-environmental problems; approximately 5 million were spent on advice to farmers (Jordbrukdepartementet 1987, 10). Farmers who were not big consumers of environmental advice had no opportunity to get the tax money back. In other words, there were only weak mechanisms to ensure that the revenue in practice was reimbursed to individual farmers. Of course, farmers perceived this as an unsatisfactory situation (*ibid.*, 86).

In 1988, the Social Democratic government put forward a proposal to double fertilizer and pesticide taxes. The Minister of Agriculture argued that increasing the fertilizer tax to approximately 10 percent would decrease the use of fertilizers and stimulate more effective use of farmyard manure. By raising the pesticide tax from 4 to 8 *kronor* per kilo active substance, he hoped also to decrease the use of pesticides. Another important purpose of the tax was to provide subsidies for the enlargement of manure storage facilities, an environmental policy measure suggested by the minister. These subsidies would be provided during a three year period and were estimated at 200 million *kronor*. In this period, the tax increase was estimated to provide an extra revenue of 230 million *kronor* annually. Besides funding environmental investments, the taxes would also fund development projects and land

conservation schemes (Swedish Government 1988, 24–26, 28–31, 34–35, 40). What should happen with the tax revenue when the subsidy program concerning enlargement of manure storage facilities terminated in 1991 was not stated. The majority of *Riksdagen* accepted the proposal (Jordbruksutskottet 1988, 24–25, 34, 45–46; SFS 1988:638; SFS 1988:639).

Subsidies for the enlargement of manure storage facilities meant that approximately a third of the tax revenue, in practice, was earmarked to individual farmers' environmental investments, but two thirds still went to general policy measures, like research and development conducted by state institutions. However, reimbursement through subsidies involved redistribution among farmers. Farmers specialized in plant production would, because of their reliance on chemical fertilizers as the major nutrition source, provide a relatively high share of the tax revenue compared to farmers specialized in animal production who relied also on animal manure as a source of nutrition. Since only farmers specialized in animal production could apply for subsidies for the enlargement of animal manure storage facilities, the fertilizer tax would involve a redistribution from crop to animal production.

In 1994, both fertilizer and pesticide taxes were raised again. The former was on average raised to 27 percent and the latter was increased from 8 to 20 *kronor* per kilogram active substance (SFS 1994:1707; SFS 1994:1706; personal communication, Swedish Agricultural Board, December 1997). The majority of *Riksdagen* supported the bill, but due to pressure from the Center Party, which traditionally has represented farm interests, *Riksdagen's* standing agricultural committee issued a statement which dealt with the issue of reimbursement. The committee stated that in principle green tax revenues were general state income but in practice there should be parity between tax revenues and agri-environmental subsidies (Jordbruksutskottet 1994). However, later on, the idea of reimbursement was further watered down. Originally, the fertilizer tax was considered a levy, but in 1995, it was changed to a formal tax, meaning that it is considered not "sectoral money" but general state income (SFS 1995:616; personal communication, Swedish Agricultural Board, December 1997).

### *Norway*

In Norway, fertilizer and pesticide taxes were also introduced in the 1980s. In the autumn of 1987, the Social Democratic government put forward a proposal in *Stortinget* (the Norwegian parliament) which would authorize the government to introduce taxes on chemical fertilizers and pesticides to provide funding for agri-environmental measures. The proposal did not specify the level of the tax but stated that the government had estimated the revenue at 12 million Norwegian *kroner* (Landbruksdepartementet 1987a). This was approximately equal to a 1 percent fertilizer tax (Vatn 1997, 9) and a

2 percent pesticide tax (Miljøverndepartementet 1989, 75). There was no opposition to the proposal in *Stortinget* but the Standing Committee on Agriculture stated that all revenue should be spent on agri-environmental measures. In other words, *Stortinget* wanted earmarked reimbursement (Landbrukskomiteen 1987, 8, 12). However, only a little more than a quarter of the proceeds was reimbursed to individual farmers; the rest was spent on research and development, administration and inspections (Landbruksdepartementet 1988, 50).

In the 1989 state budget proposal, the government proposed an increase in fertilizer and pesticide taxes so that on average fertilizers would be taxed by 6 percent and pesticides by 8 percent. The revenue was estimated at 78.5 million *kroner* of which 62 million were earmarked to various agri-environmental measures. Half of the 62 million would be spent on specific measures on individual farms, nutrition planning and prognoses, information, advice and registration of pollution. The rest of the revenue would be spent on research and development projects and on inspections. When environmental subsidies included in the agricultural agreement, which made up 85 million *kroner* (Landbruksdepartementet 1989, 25), are taken into account, the total environmental support directed towards individual farms still exceeded the total green tax proceeds.

A narrow majority in *Stortinget* decided that the Agricultural Development Foundation (*Landbrukets Uttbyggingsfond*) was to advise the Department of Agriculture on the use of the tax revenue (*Nationen*, 23 November 1988). This gives farmers a certain influence because five of the nine members of the governing board represent farm and forestry associations. Since decisions are taken by simple majority vote, farmers can form a majority (Landbruksdepartementet 1987b, 63). However, the Department of Agriculture has the final say on the distribution of the tax revenue.

During 1987 and 1988, the design of the Norwegian fertilizer and pesticide tax schemes was established. In the following years, the taxes were gradually increased but there were no changes in the way the revenue was reimbursed and administered. In the 1990 state budget, the fertilizer tax was raised to 7 percent and the pesticide tax to 11 percent (Landbruksdepartementet 1989, 74; Landbrukskomiteen 1989), and in 1991 they were increased to 15 and 13 percent respectively (Landbruksdepartementet 1990, 8, 29; Landbrukskomiteen 1990). Despite these tax increases, farmers still received much more in environmental subsidies than they paid in green taxes when the environmental subsidies of the agricultural policy are included in the calculation.

#### *A Comparison of Green Tax Schemes*

Table 1 compares the tax designs on the three dimensions discussed above and clearly shows that in terms of accommodating farm interests in the design

Table 1. A Comparison of Scandinavian Agricultural Green Tax Policy Schemes

	Denmark	Norway	Sweden
Reimbursement	Revenue is "sectoral money." Fully reimbursed to individual farmers through suspension of the state land tax. Non-earmarking	Revenue, in practice, considered "sectoral money." Spent on general agri-environmental purposes and environmental subsidies. Revenue more than fully reimbursed to individual farmers when the environmental subsidies of the agricultural policy are included. Earmarking	Revenue originally considered general state income, but not stated clearly until 1995. In practice, revenue spent on general agri-environmental purposes, but partially reimbursed to individual farmers from 1989 to 1991. Earmarking in practice
Control over tax revenue	Farmers have full control	Farmers have advisory role	Farmers have no control
Causal relationship between the subject which is being taxed and pollution	Pesticide tax: a fairly direct link	Fertiliser tax: no direct link Pesticide tax: a fairly direct link	Fertiliser tax: no direct link Pesticide tax: a fairly direct link

of tax schemes, Swedish farmers were worst off and their Danish counterparts were best off. Norwegian farmers were in an intermediate position.

The outcomes on the third dimension may need further explanation. There is an unclear link between a general tax on chemical fertilizers and nitrate pollution. Compared to the use of animal manure, the use of chemical fertilizer involves less risk of nitrate run-offs. The merits of chemical fertilizer are that it can be applied much more accurately than animal manure, it can be effectively applied when the crops need it and finally, and perhaps most importantly, during the growing season crops can absorb all nitrogen in chemical fertilizer; in animal manure they can only utilize about half of it. Thus, animal manure is more environmentally risky to use than chemical fertilizers (Landbruksministeriet, 1991). What a general fertilizer tax actually does is tax the "clean" production input in an attempt to motivate farmers to utilize the nitrogen in the polluting input (animal manure) more effectively. In contrast, there is a fairly direct relationship between the use of pesticides and pollution.

Now, the crucial question is: does the extent to which farmers possess political power in the corporate channel influence the design of the green tax schemes in the way suggested by the theoretical proposition? The following

sections attempt to establish whether there is a causal link between political power and policy design.

## The Political Power of Danish, Norwegian and Swedish Farmers

Above, I distinguished between structural and non-structural power. What are the operational definitions of these two types of power in the corporate channel of influence? Since we cannot develop an operational definition encompassing all aspects of structural and non-structural power, we must rely on indicators which can reveal central aspects. The extent to which farmers possess structural power can be revealed by examining whether there are counterbalancing forces in agricultural policy networks, in particular in the agricultural price negotiations which are central to agricultural policy making. The exclusion of actors which are capable of counterbalancing farm interests is an indicator that farmers have structural power, while the inclusion of such interests indicates that farmers' structural power is limited. Exclusion of certain actors means that alternative policy options and problem perceptions are not seriously considered in the policy process because there are no insiders to put forward such options. By contrast, inclusion of counterbalancing forces implies that actors who are centrally positioned within the network have the opportunity to put alternative options on the agenda. It is important to point out that an analysis of whether or not counterbalancing forces are included in agricultural policy networks must not confuse presence with influence; being present does not necessarily mean that one has influence. Many policy networks have a core and a periphery. Thus, network analysis must distinguish between the members belonging to the core of networks and those belonging to their periphery (Rhodes & Marsh 1992). Furthermore, one must be aware that state actors are sometimes a counterbalancing force. Some of them are concerned with broader public interests or with counterbalancing a dominant interest group. Other state actors do, however, "choose to view themselves solely as representatives of constituent and client interests, thinking it appropriate and correct that they act solely according to the latter's preferences rather than their own" (Nordlinger 1981, 37).

Non-structural power can be indicated by examining who controls the agricultural advisory service. By advising individual farmers, the advisory service receives a lot of information about farming in practice and can thus produce systematized information and knowledge about the environment in which policies are to be implemented. The advisory service has also the capacity to estimate the environmental, technical and economic consequences of various environmental policy instruments. Therefore, it is able to match

state research institutions and other information-generating state bodies. Thus, controlling the advisory service means access to important resources in agri-environmental policy making.

### *Denmark*

Most agricultural observers agree that Danish farmers are powerful. The configuration of the agricultural policy network indicates clearly that farmers have considerable structural power. The network has a core and a periphery. The core consists of the agricultural associations affiliated with the Agricultural Council (*Landbrugsrådet*) and the Ministry of Agriculture. Contacts between these core members in matters concerning national policies administered by the Ministry of Agriculture take place in a large number of formal committees. The process in which the Danish positions in EC agricultural policy making is formulated centers around the so-called Article 2 committee. The committee advises the Minister of Agriculture ahead of the meetings of the European Community's Council of Farm Ministers, and also on the administration of the Common Agricultural Policy in Denmark. It consists of representatives from the Ministry of Agriculture, the Ministry of Industry, the Confederation of Danish Industries, the Danish Chamber of Commerce, the Economic Council of the Labor Movement, the Consumer Council and the agricultural associations (Lovbekendtgørelse no. 65, 1996). The committee is, first of all, a forum in which the members express their official positions. Decisions are often made in informal working groups which usually consist of civil servants from the Ministry of Agriculture and/or its agencies and officials from the agricultural associations (Daugbjerg 1998, 151). A recent example of such a working group was the one set up to analyze the Danish dairy sector. It included only the core members of the agricultural policy network (Ministeriet for Fødevarer, Landbrug og Fiskeri 1997b).

The non-agricultural interests represented in the advisory committee have not been able to position themselves centrally in the agricultural policy network and therefore they form the network's periphery. The Consumer Council plays a minor role within the network, and complains that the agricultural associations dominate the meetings in the ministerial advisory committee, and that the Ministry of Agriculture and the agricultural associations make deals before the meetings. Moreover, they hold that the Ministry is mainly concerned with agricultural interests (Daugbjerg 1998, 152).

In Denmark, there are close links between agricultural and national interests (Buksti 1983, 268–69, 277–80). Since Denmark has had a considerable economic net benefit from the Common Agricultural Policy (Nedergaard et al. 1993, 134–35), Danish agricultural policy making has not been constrained by macroeconomic concerns. In fact, Danish ministers of

finance have had no reason to counterbalance agricultural interests, and therefore the Ministry of Finance plays a minor role within the agricultural policy network (interview, 1998). The close link between national and agricultural interests means that, in the European arena, the Danish state and farmers consider themselves partners. In fact, the Ministry of Agriculture and farmers have traditionally gone to Brussels together to get the best possible deal (see Bregnsbo & Sidenius 1993, 193).

Danish farmers have also non-structural power since the farmers' associations control the agricultural advisory service. It is owned and managed by the Farmers' and the Smallholder' Unions, has approximately 1,500 advisors and annually makes about 2,000 field experiments related to arable farming (Daugbjerg 1994, 92–95). Thus, there is considerable agricultural expertise within the advisory service.

### *Sweden*

From a comparative perspective, Swedish farmers have lost considerable structural power since the late 1950s. This is indicated by the fact that consumers have gained access to and achieved a central position in the agricultural policy network. In 1962, the Social Democratic government encouraged the formation of the Consumer Delegation (Steen 1988, 214–15), which came to consist of representatives from the trade unions, the Cooperative Union and Wholesale Society. Later on, business associations and wholesale companies not belonging to the agricultural cooperative movement also joined. In 1963, the government gave the consumers access to the agricultural policy network, but at that time they only had a consultative status. Gradually, they gained more political power, meaning that they became equal negotiation partners in the annual agricultural price negotiations.

Up until 1990 when the agricultural policy was deregulated, the price negotiations were conducted in a certain way. In the first stage, the Agricultural Marketing Board (or a committee appointed by the government), the Farmers' Federation and the Consumer Delegation tried to reach a framework agreement for price setting within a certain period. Usually, the Swedish state representatives played a modest role in this phase. If a compromise was reached, the cabinet presented a bill to *Riksdagen*. In the second stage of the price setting, the Farmers' Federation and the Consumer Delegation entered into negotiations in which they agreed on a detailed price proposal. The Agricultural Marketing Board then assessed the proposal and presented it to the cabinet which made the final decision (SOU 1984:86, 76–78, 418–20; Steen 1988, 204–07; Micheletti 1990, 132). The equal status of the Farmers' Federation and the Consumer Delegation is illustrated by a photograph published in farmers' weekly magazine *Land* just before the price negotia-



tions started. It showed the presidents of the two associations arm wrestling each other (*Land* 10 February, 1989).

The presence of consumers in the agricultural policy network is not the only indication that Swedish farmers have limited structural power. Since the early 1960s, the Agricultural Marketing Board (which administers the price policy) has developed into a mediator between consumers and farmers. For example, in the 1990 agricultural policy reform process, it tried to balance between consumer interests favoring deregulation and agricultural interests seeking limited adjustments of the old policy (Daugbjerg 1998, ch. 6). Furthermore, an official of the Farmers' Federation characterized the Marketing Board as "the farmers' economic opponent" and did not think the Board had been "working for the interests of agriculture, but had been inspired by consumer interests and the public interest" (interview, Farmers' Federation official, 1994).

The Ministry of Finance has had relatively few contacts with the Ministry of Agriculture (Pettersson 1989, 61–62) considering that it controls the state budget. However, although the Finance Minister and Ministry, in terms of contacts, have not been central actors in the agricultural policy network, they have had an important say in agricultural spending decisions. Before the government could present price agreements to the *Riksdag*, the Finance Minister had to approve them. Since Swedish finance ministers have a powerful position in the cabinet and traditionally have tried to limit increases in expenditures (Larsson 1993, 212), macroeconomic concerns have constrained agricultural policy making.

The non-structural power of Swedish farmers is limited. Since 1967, the Swedish state has run most of the agricultural advisory service through the regional state agricultural boards (*Lantbruknämnderna*). The county agricultural societies (*Hushållningssällskapen*), which are independent, private organizations closely associated with the farming community, also advise farmers. The relative importance of the state advisory service is evident when one compares the number of employees in the advisory services. While the county agricultural boards employed 1,130 advisors (1,020 man years) in 1990, the county agricultural societies only employed about 200 in 1991 (140 man years are used for advice in agriculture) (SOU 1992:99, 20, 59–60).

### *Norway*

Norwegian farmers are often regarded as some of the most powerful farmers in Europe because they are heavily subsidized. However, the degree of agricultural support is not necessarily an indication of the power of farmers in the corporate channel because it expresses the political will to support farmers' income and says little about Norwegian farmers' ability to mobilize

support within the political system when the issue of green taxes is put on the political agenda.

Consumer groups are excluded from the agricultural policy network in Norway. However, this is not to say that there are no actors to counterbalance farmers in the policy process; there are indeed actors who can bring in alternative problem perceptions and policy options. Steen (1988) has analyzed farm price negotiations in Norway after World War II and shows that while there has been no explicit conflict between consumer concerns and the interests of farmers, a conflict between farmers and the state has developed.<sup>6</sup> He points out that farmers' demands for income increases were in conflict with the state's desire to distribute economic resources to purposes other than agriculture (*ibid.*, 115). A clear indication that the Norwegian state is concerned with interests other than those of farmers is the composition of the state negotiating committee in the price negotiations. Since the early 1970s, the committee has consisted of the Department of Agriculture, the Department of Finance and the Department of Consumer and Administrative Affairs. The Department of Agriculture has chaired the committee, while the Department of Consumer and Administrative Affairs has had the overall responsibility for the negotiations (*ibid.*, 203–04; Klausen 1996, 141). Steen (1988, 202) convincingly argues that the composition of the committee demonstrates that general price and income concerns and macroeconomic planning have been of central importance in the negotiations. Another indication that agricultural interests do not dominate the network is the high number of breakdowns in the price negotiations. From 1947 to 1985, there were 13 breakdowns in Norway, compared to only four in Sweden in the same period (*ibid.*, 154).

There are some indications that since the mid-1980s, the Department of Agriculture has become less willing to include the agricultural representatives in policy committees and investigations. Farmers' associations complain that the Department of Agriculture has introduced tough hearing deadlines which make it difficult for them to prepare well-considered replies (Opedal & Rommetvedt 1995, 29). This may indicate that the Department is now changing from being a partner to being a counterbalancing force.

In 1989, another counterbalancing force was included in the agricultural network as the Department of the Environment gained access to the price negotiations (Landbruksdepartementet 1989, 12; Mydske, Steen & Taarud 1994, 63). This is not the only indication that the Department of the Environment was becoming an important actor in agricultural politics in the 1980s and early 1990s. Since 1987, the state undersecretaries of the departments of agriculture and of the environment have met twice a year, and a coordination group consisting of officials of the two departments have met two to six times annually (Hovik & Opedal 1996, 179). In general, the

relationship between the two departments is characterized by cooperation and mutual respect rather than by conflict (ibid., 177, 179).

As to non-structural power, Norwegian farmers are less powerful than Danish farmers because neither the Farmers' Union nor the Smallholders' Union control an agricultural advisory service. The state runs the advisory service and therefore has access to its agricultural expertise (Rådet for Lokalforvaltning og Rådgivning i Landbruget 1982).

### *A Comparison of the Political Power of Farmers in Scandinavia*

A comparison of farmers' political power shows that Danish farmers have considerable structural power since there are no powerful actors to counterbalance farm interests within the agricultural policy network. Moreover, macroeconomic concerns have not been a constraint on price policy making. By controlling the agricultural advisory service, farmers possess considerable non-structural power in environmental policy making. Swedish farmers are the least powerful since they have limited structural power. Within the agricultural policy network, they have been counterbalanced by consumers, and state agricultural authorities have acted as mediators between the two conflicting interests. Furthermore, macroeconomic concerns have constrained agricultural policy making. The fact that the Swedish state controls most of the agricultural advisory service indicates that farmers have limited non-structural power in environmental policy making. Norwegian farmers are in an intermediate position. They have more structural power than their Swedish counterparts because they are not directly counterbalanced by consumers within the agricultural network. However, Norwegian farmers have less structural power than Danish farmers because they are constrained by macroeconomic concerns. Since Norwegian farmers do not control the agricultural advisory service, they only have limited non-structural power in environmental policy making. In the conclusion, I shall discuss whether the political power of farmers, in the last instance, is rooted in economic power.

### **Did the Power of Farmers Actually Affect the Policy Process?**

So far, I have shown that tax designs are associated with the structural and non-structural power of farmers in the way the theoretical proposition suggests; that is, the more structural and non-structural power farmers have, the more likely policy makers are to accommodate their interests in green tax schemes. In this section, I shall move beyond this correlation and demonstrate that power relations within the corporate channel of influence actually affects

the design of the taxes. This is done by analyzing the extent to which the initial tax proposals accommodated farm interests, and by examining the extent to which changes in policy proposals were made during the policy process to accommodate farmers' interests.

### *Denmark*

In September 1993, the Danish government set up a committee consisting of civil servants from various ministries to examine the possibilities of using green taxes in industry and agriculture. The government made it clear in its mandate to the committee that green taxes would not be allowed to affect the international competitiveness of Danish industry and agriculture and that tax revenues had to be reimbursed, using the earmarking approach (Embedmandsudvalget om grønne afgifter og erhvervene 1994, 2–3).

In its mid-term report (published in April 1994), the committee examined four pesticide tax models and concluded that only a tax based on the market price could be recommended. The committee suggested a 30 percent tax; however, it did not estimate how much the use of pesticides would be reduced but seemed to believe that the tax would, at least, bring about some reduction. It also put forward the idea of differentiating the tax levels among the four main categories of pesticides: insecticides, fungicides, herbicides and crop growth-regulating chemicals. As already mentioned, the government had asked the committee to consider earmarking reimbursement schemes, but such schemes were not even discussed as regards the pesticide tax. It may be that they were excluded from the report to accommodate farm interests and thus decrease the possibility of strong opposition from farmers. Two overall non-earmarking reimbursement schemes were discussed, one in which reimbursement was based on acreage support and one in which proceeds were refunded through a lowering of land taxes. The committee recommended the latter model. The former model was dismissed because it would redistribute income from arable, pig and poultry farmers to dairy farmers and because there was some doubt whether it would contradict European Union Law (ibid., 311–21).

The committee also discussed various tax schemes to reduce nitrate pollution, but it did not recommend a particular scheme. In fact, the discussion put much emphasis on problems associated with the use of green taxes to reduce nitrate pollution, i.e., lack of cost efficiency, administrative complexity and redistribution of income within the farming community (ibid., 295–311). Taxes on fertilizers were not discussed later on in the policy process, officially because *Folketinget*'s evaluation of the nitrate policy had to be awaited. This was convenient because the issue of taxing fertilizers was politically controversial: farmers strongly opposed such taxes and the Minis-

try of Agriculture was skeptical (Embedmandsudvalget om grønne afgifter og erhvervene 1995, 18, 28).<sup>7</sup>

In a joint reply to the committee's report, the agricultural associations opposed the idea of using green taxes in agriculture, arguing that they would increase production costs. They stated that this was particularly problematic since the GATT Uruguay agreement was expected to cause income losses in Danish agriculture (De danske Landboforeninger, Dansk Familielandbrug, Landbrugsrådet and Dansk Erhvervsjordbrug 1994). The possibility of losing control over tax policy making also worried the agricultural associations. In a separate letter, the Agricultural Council stated: "We fear that, over time, environmental taxes directed towards producers will become fiscal measures" (Landbrugsrådet 1994).

### *Sweden*

In 1979, the Swedish Minister of Agriculture set up a commission to investigate the environmental, economic and employment effects of reduced application of chemicals and fertilizers. It finished its work in 1983, suggesting a number of policy measures. The commission discussed a tax on fertilizers as a measure to limit nitrate run-offs, but since such a tax had to be relatively high to reduce the use of fertilizers significantly, the commission shifted its attention to the tax as a source of funding agri-environmental measures and research. The majority of the commission suggested a 1 percent tax, admitting that such a low rate would not limit the use of chemical fertilizers. It would, however, create a revenue of 15 million Swedish *kronor* which should be spent on extended advisory service to farmers and on research related to agri-environmental problems (SOU 1983:10, 223–24, 251–52). As for pesticides, the commission suggested a differentiated tax, meaning that the higher the risk involved in using them, the higher the tax. The risk classification was based on the risks to the users' health, not on the pesticides' effects on the environment. The majority of the commission suggested that 75 percent of the tax revenue was spent on research, and 25 percent on registration and re-registration of pesticides and on information about pesticide use (SOU 1983:11, 320–23; 343–44).

Not surprisingly, the commission's farmer representatives opposed the majority's tax proposals. They argued that most of the purposes which the tax was intended to fund were not farmers' economic responsibility but the state's. They were prepared, however, to accept to pay the costs of registration and re-registration of pesticides (SOU 1983:10, 303–05; SOU 1983:11, 372). The National Board of Agriculture (*Lantbruksstyrelsen*), which administered the agricultural structural policy and provided advisory service to farmers, formed part of the commission's majority and, thus, left farmers isolated in the policy process. The reason the Board did not oppose

fertilizer taxes might have been that it would benefit from the tax revenues. To improve the advisory service, the commission suggested that the tax revenue was used to fund a staff increase in the regional state agricultural boards (*Lantbruknämnderna*) (SOU 1983:10, 236–38, 251–52). Farmers were unable to mobilize sufficient opposition to prevent the Social Democratic government from proposing a 5 percent fertilizer tax and a tax of 4 *kronor* per kilogram active substance in pesticides in 1984. This level of the fertilizer tax was considerably higher than the one suggested by the commission, and the Minister of Agriculture, in principle, considered the tax revenue general state income and not “sectoral money” which the commission originally recommended.

The conflict over green taxes was not yet over, however. In 1988, a working group set up by the Minister of Agriculture suggested an increase in both the fertilizer and the pesticide tax to motivate farmers to use less fertilizers and pesticides. The group recommended that tax revenues be reimbursed and spent on environmental measures in agriculture. For instance, it recommended that 5 million Swedish *kronor* was spent on environmental advice to farmers and that additional resources should be given to the Agricultural State Board to fund research and development projects conducted by state institutions. This inflow of new resources might have been the reason why the Board supported the tax increase and thus belonged to the majority of the working group. The farmer representatives of the working group opposed the tax increases, arguing that higher tax levels would increase production costs and therefore had to lead to higher food prices. However, they did not obtain support for their position (Jordbruksdepartementet 1987, 68–75, 85–86; Swedish Government 1988, bilaga 2, 93). The government followed the recommendations of the working group and put forward a proposal which would double fertilizer and pesticide taxes in 1988. The majority of *Riksdagen* accepted the proposal. Surprisingly, the Center Party, which has traditionally represented farmers’ interests, did not issue any statements supporting farmers; only the Conservatives opposed the proposal (Jordbruksutskottet 1988, 24–25, 34, 45–46).

The increase of fertilizer and pesticide tax levels in 1994 was supported by a majority of *Riksdagen*, including the Center Party which, however, did try to ensure that tax revenues were considered “sectoral money,” but eventually had to accept that they were considered general state income (Jordbruksutskottet 1994; Skatteutskottet, 1995).

### *Norway*

In the autumn of 1987, the Norwegian Social Democratic government included a proposal on fertilizer and pesticide taxes in the 1988 state budget proposal to provide funding for agri-environmental measures (Landbruksde-

partementet 1987a). All parties in *Stortinget* accepted the proposal, but the Standing Committee on Agriculture stated that the revenue should be spent on agri-environmental measures (Landbrukskomiteen 1987, 8, 12). Unlike their Danish and Swedish counterparts, Norwegian farmers seemed to accept the use of such instruments in agri-environmental policies. The fact that the Center Party, which has traditionally spoken for farmers, did not oppose the proposal and the fact that the Farmers' Union did not deal with the question in its annual report indicate that the farmer associations' accepted the tax. At first sight, this is surprising when one compares with Denmark and Sweden and takes into consideration that in the future, the tax level was to be set in the annual budgetary negotiations. Since such negotiations often involve issue linkage across policy sectors, there was a risk that farmers would achieve little influence on the tax policy. One reason farmers did not oppose the taxes might have been that they would more or less automatically be compensated for increased production costs in the agricultural price negotiations.<sup>8</sup> It is also possible that farmers did not bother because the tax level was very low or, that they were careful not to debate the question because they received a high level of agricultural support and fierce opposition might have politicized the issue of subsidies. Finally, farmers might have accepted the tax because the increase in environmental subsidies (41 million *kroner* in 1988) far exceeded the green tax burden (12 million *kroner* in 1988) (Landbruksdepartementet 1989, 10).

As part of the 1989 state budget proposal, the Norwegian government suggested an increase in fertilizer and pesticide taxes so that on average fertilizers would be taxed by 6 percent and pesticides by 8 percent. All parties of *Stortinget's* Agriculture Committee accepted the tax level. The Center Party even suggested an increase in tax levels already in the summer of 1988 (*Nationen*, 2 July, 1988). The proposal to increase tax levels awakened the farm associations' interest in the spending of the revenue, but they seemed to accept the taxes and the tax levels (see Norges Bondelag 1989, 93–95; *Nationen*, 24 September 1988). They criticized the government for spending too large a share of the revenue on keeping the public bureaucracy running and for not spending them on measures reducing pollution. The Farmers' Union, strongly supported by the Smallholders' Union, proposed that an agri-environmental foundation be set up to administer the tax proceeds (*Nationen*, 11 and 12 October, 1988). The farm associations' criticism was echoed in *Stortinget* by the Conservatives, the Christian People's Party and the Center Party which all stated that the tax revenue should be spent on environmental measures on individual farms. However, they disagreed about the agri-environmental foundation. Only the Christian People's Party and the Center Party wholeheartedly supported the farm associations' proposal. The Conservatives suggested that the Agricultural Development Foundation (*Landbrukets Utbyggingsfond*) in which farmer representatives were in

majority should advise the Department of Agriculture on the use of the tax revenues. The governing Labor Party rejected the farm associations' criticisms and opposed the idea of setting up such a foundation, arguing that it would be a whole new principle to negotiate with interest groups on the use of state tax proceeds (Landbrukskomiteen 1988, 14–16; *Nationen*, 12 October, 1988). The dispute was settled by a *Storting* decision supporting the Conservatives' proposal and thus giving the Agricultural Development Foundation an advisory role. The vote was very close; in fact, it was pure luck for farmers that there was a majority in favor of the Conservatives' proposal. One of the Social Democratic MPs pushed the wrong button and thus tipped the balance! (*Nationen*, 23 November 1988).

In 1990 and 1991, fertilizer and pesticide taxes were increased to 15 and 13 percent respectively. Still, farmers received much more in environmental subsidies than they paid in green taxes when the environmental subsidies of the agricultural policy are included in the calculation. Hence, farmers did not need to worry too much about the taxes, which may be the reason that neither the farm associations nor their representatives in the *Storting*, the Center Party, opposed the tax increases.

Farmers accepted the taxes and the tax levels as long as they were used as sources of funding agri-environmental measures (Norges Bondelag 1990, 104). However, there seemed to be a limitation to what the farm associations would accept in terms of tax levels. In the early 1990s, further increases in particularly fertilizer taxes were discussed, and the so-called Alstadheim committee even suggested an increase of the fertilizer tax to 150 percent (NOU 1991:2B, 565–67, 602; see also NOU 1992:3, 200–04). Although the farmer representatives in that committee did not oppose the tax level, the Farmers' Union later opposed it, arguing that it was unfair and that it would hurt the international competitiveness of Norwegian agriculture. Therefore, the Farmers' Union stated that the green taxes had to be abolished (Norges Bondelag 1992, 103–05, 1993, 118–19).

#### *A Comparison of Farmers' Influence in Green Tax Policy Processes*

A comparison of how farmers exercised power in the policy process reveals interesting cross-national differences. Danish farmers exerted considerable influence in the green tax policy process. The government accommodated their interests from the outset of the policy process by stating that tax revenue had to be reimbursed. During the policy process, the committee dealing with the green tax issue accommodated farmers' interests by excluding the issue of earmarked reimbursement from the discussion, even though the government had stated that the earmarking approach should be applied. Instead, the committee discussed non-earmarking approaches and recommended the one which involved less redistribution within farming community. The use of the



non-earmarking approach means that farmers are not required to engage in environmentally friendly activities to qualify for reimbursement. Another indication that farmers exerted considerable influence in the policy process was that they (presumably supported by the Ministry of Agriculture) succeeded in removing the issue of fertilizer taxation from the agenda.

Norwegian farmers did not exert as much influence as Danish farmers. Farm interests were, to some extent, accommodated early in the green tax policy process when a majority in *Stortinget* stated that tax revenues would be earmarked for environmental measures within agriculture. However, reimbursement schemes only partly accommodated farm interests. Farmers criticized the government for spending too much of the revenue on public bureaucracy and for spending too little on measures to reduce pollution on individual farms. Thus, the farm associations proposed that an agri-environmental foundation be set up to administer the tax revenues, but they were only accorded an advisory role. In fact, it was pure luck that they achieved this, because the only reason a majority on this question was formed in *Stortinget* was that a Social Democrat by mistake voted in favor of the proposal.

Swedish farmers could only exert marginal influence. They were overruled and became relatively isolated when the Board of Agriculture decided to support the use of fertilizer and pesticide taxes. Although the committee set up to deal with the use of chemical fertilizers and pesticides recommended reimbursement, the Minister of Agriculture stated that tax revenues should be considered general state income. Even when tax revenues in practice were reimbursed, the government did not take farm interests into account. The decision to use part of the tax revenue to subsidize the enlargement of manure storage facilities involved a redistribution from crop to animal production. Usually, farm associations try to avoid redistribution within the farming community.

The comparison of farmers' exercise of power in the green tax policy process strongly indicates that the relationship between the structural and non-structural power of farmers and the design of fertilizer and pesticide tax schemes is more than just a correlation. By comparing the extent to which the initial tax proposals privileged the interests of farmers and the extent to which farmers' interests were accommodated during the policy process, this article has moved beyond correlation. Thus, we have further strengthened the proposition that the structural and non-structural power of farmers influence the design of green tax schemes.

## Conclusion

The purpose of this article is to establish the link between political power and

policy design when policy makers introduce green taxes in pollution control in economic sectors. Thus, the analysis concentrates on the formative phases of green tax policy making. The first part of the article develops a theoretical proposition which suggests that the more politically powerful producers are, the more likely policy makers are to (i) reimburse tax revenues automatically without requiring producers to engage in certain environmentally friendly activities, (ii) give producers control over the spending of the tax revenue, and (iii) design tax schemes in which there is a direct relationship between the subject being taxed and pollution.

This proposition is tested in a comparative analysis of green tax policy making in Danish, Norwegian and Swedish agriculture. The comparison shows that when the Danish government in 1995 introduced a pesticide tax, it designed the tax scheme in a way which to a great extent accommodated the interests of farmers and thus diminished their opportunity to mobilize sufficient support within the political system to have the proposal removed from the agenda. The tax scheme reimburses the tax revenue automatically without requiring farmers to engage in certain environmentally friendly activities, gives farmers full control over the spending of the revenue, and there is a fairly direct relationship between the subject being taxed and pollution.

The Swedish government only to a limited extent considered agricultural interests when it designed pesticide and fertilizer taxes. Whether the tax revenues were general state income or "sectoral money" remained unclear until 1995, when it finally was stated that it was general state income. In practice, the tax revenues were earmarked mostly for general agri-environmental measures like research and development but from 1989 to 1991, a third of the revenue was used for environmental subsidies to individual farmers. Farmers have no control over the spending of the tax revenue. While the pesticide tax has a fairly direct relationship between the subject being taxed and pollution, the relationship is indirect in the fertilizer tax.

In terms of accommodating farm interests, the design of the Norwegian pesticide and fertilizer tax schemes lies somewhere in between the Danish and the Swedish schemes. The revenue is earmarked and is partly spent on general agri-environmental purposes and partly on environmental subsidies to individual farmers. However, when the environmental subsidies of the agricultural policy are taken into account, revenue is more than fully reimbursed to individual farmers. Farmers advise the government on the spending of the revenue. The pesticide tax has a fairly direct relationship between the subject being taxed and pollution, but the fertilizer tax has an indirect relationship.

This pattern of tax designs can be explained by power relations in Danish, Norwegian and Swedish agricultural politics in the way suggested by the theoretical proposition. Danish farmers have considerable structural and non-

structural power and therefore the pesticide tax, to a great extent, accommodates farming interests. Swedish farmers are the least powerful which enabled the government to design pesticide and fertilizer taxes which only to a limited extent take farm interests into account. Norwegian farmers have less structural and non-structural power than their Danish counterparts, but they possess more structural power than Swedish farmers. Norwegian farmers' intermediate position on the power continuum helps to explain why the design of Norwegian pesticide and fertilizer tax schemes accommodates farmers' interest more than the Swedish ones, but less than the Danish pesticide tax. Thus, these findings support the theoretical proposition. A comparison of farmers' exercise of power in the green tax policy processes further strengthens the proposition. Danish farmers' interests were accommodated to a greater extent from the outset of and during the policy process than the interest of Norwegian farmers. Swedish farmers only exerted very limited influence in the green tax policy process.

We need to assess whether a rival theory would be able to provide a plausible, competing explanation. If we can reject such a theory, the validity of our proposition would be strengthened. The greatest threat to the validity is the proposition suggesting that differences in policy design can be explained by differences in the national economic importance of agriculture. Such a proposition can be found among Marxist writers, but also among writers within other schools. Assuming that economic power is more or less automatically transformed into political power, the economic proposition suggests that in countries in which agricultural production is important to the national economy, policy makers are careful not to decrease the international competitiveness of the sector (see Bennet & Baldock 1991, 222). Consequently, they are likely to accommodate the interests of farmers. This proposition suggests a pattern of tax designs which is fairly similar to the one suggested by the proposition linking political power and policy design. However, one can throw considerable doubt on this economic explanation on methodological and theoretical grounds. First, correlation is not explanation; to qualify as an explanation, a correlation must not be spurious. There are some indications that the economic explanation does not meet that requirement in that real-life policy choices do not always correspond with the choices suggested by the proposition. For instance, it cannot explain why New Zealand and Sweden chose deregulation as a response to similar agricultural policy problems in 1984 and 1990 respectively. Agriculture made up 1.5 percent of GDP in Sweden and 6.9 percent in New Zealand in 1990 (Daugbjerg 1998, 11). The economic proposition would expect the two countries to choose different solutions and they did not. Nor can it explain why Danish industry, which in national economic terms is more important than agriculture, is subject to earmarked reimbursement of the carbon dioxide tax revenue while agriculture is subject to the more attractive non-earmarked

reimbursement. Furthermore, the economic proposition cannot explain why Danish industry was subject to environmental regulation more than ten years before agriculture (Andersen & Hansen 1991, 48–61). In both situations, the economic proposition suggests the opposite outcome. So, this type of explanation may in fact be spurious in many situations. However, this alternative proposition cannot be firmly rejected before more cases have been examined.

Second, in politics, economic importance is not objectively given. One should examine, therefore, how political actors perceive the economic role of an industry and how these perceptions influence political power relations. Thus, it cannot automatically be concluded that national economic importance determines the political power of a group. Adherents of the economic proposition would have to show the causal mechanism linking national economic importance and political power before it would be a plausible alternative explanation of the variation in green tax policy designs in Scandinavian agriculture.

Another rival theory which might threaten the validity of our proposition is that the Danish membership of the European Union explains why policy makers were sympathetic to agricultural interests. This theory would suggest that Danish policy makers accommodate farm interests in order to maintain the competitiveness of Danish agriculture in the EU market. At first sight, this explanation may seem plausible, but it is not. First, the Swedes increased their fertilizer and pesticide taxes just before entering the EU; the EU explanation would predict them to lower the taxes. Second, EU membership has not prevented Denmark and The Netherlands from introducing carbon dioxide taxes, even though the other EU members did not apply such measures in their climate policies.

What lessons can be learned from green tax policy making in Scandinavian agriculture? This study demonstrates that designing green taxes is not just a technical matter which can be left to experts, but a highly political process which requires political insights and skills. More importantly, it demonstrates the political importance of policy design, an aspect that seems to be neglected in the literature on green taxes. Most environmental taxes directed towards producers are too low to reduce pollution effectively, and are used to raise funding for other environmental measures (Howe 1994, 152; OECD 1997, 18–19; Andersen 1994, 200). If these taxes are to be increased to a level at which they significantly affect the behavior of polluters, policy makers need to pay more attention to policy design. In many situations, polluters have considerable structural and non-structural political power, and therefore they can mobilize significant opposition to environmental taxes. Thus, taxes need to be carefully designed in order to minimize the opposition of polluters. This study demonstrates that this can be done if policy makers reimburse tax revenues in some way or another, give polluters a certain control over the

spending of the tax revenue and design tax schemes which have a fairly direct relationship between the subject being taxed and reduction in pollution. The relatively high Danish tax on insecticides demonstrates that when carefully designed, green taxes can be set at a high level even in countries in which polluters are powerful.

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#### NOTES

1. See OECD (1997, 18–22) for an overview of green tax schemes in Europe.
2. Some would perhaps argue that the Scandinavian Social Democratic parties are not alike and that this explains policy variation. The Norwegian Labor Party has traditionally spoken on behalf of smallholders in agricultural policy making, and during the past three decades it has been more willing to consider agricultural interests than the Swedish Social Democratic Party (Steen 1988, ch. 8). This difference may help to explain why Norwegian farmers, in terms of having their interests considered in the tax design, were better off than their Swedish counterparts, but it cannot explain why Norwegian farmers were worse off than Danish farmers. Danish Social Democrats have traditionally been concerned about employment in the food processing industry and, therefore, careful not to hurt agricultural interests (Daugbjerg 1998, 175–76). If differences in the policy positions of the Scandinavian Social Democratic parties were to explain policy variation, the Danish and Norwegian agri-environmental taxes should be fairly similar and they are not. Consequently, this explanation can be ruled out.
3. This phenomenon is often referred to as lesson drawing (Rose 1991) or as policy transfer (Dolowitz & Marsh 1996).
4. In January 1998, the government agreed with the left wing parties (the Socialist People's Party and the Unity Party) to double the pesticide tax (Jyllands-Posten, 23 January, 1998). The increase of the pesticide tax was a direct response to a number of events which clearly showed the serious environmental impacts of pesticide use. During 1996 and 1997, waterworks throughout the country detected pesticide residues in the drinking water (Danmarks og Grønlands Geologiske Undersøgelse 1997, 49–65) and many people, including scientists, environmental and waterworks officials and politicians, feared that the situation would deteriorate further and threaten public health unless something radical was done. Farmers were not the only ones who caused pesticide pollution; in fact, the pesticide detected most frequently in the groundwater was used solely on non-arable areas (*ibid.*, 58). Nevertheless, farmers faced considerable environmental pressure which, combined with the lack of untried, realistic policy alternatives, meant that they could not prevent the agreement to increase the pesticide tax. The prime minister's decision to call a general election in March 1998 brought the legislative process to a halt and the pesticide bill was automatically withdrawn. After the election, there was no longer a majority in favor of the tax increase (Jyllands-Posten, 28 March, 1998).
5. Although the use of fertilizer and pesticide taxes was an innovation in agri-environmental policies, the fertilizer tax was a well known measure in agricultural policy. The Swedish government introduced an agricultural fertilizer tax in 1982 to fund agricultural subsidies. Apparently, farmers were more willing to accept that type

- of tax, perhaps because the spending of the revenue within the agricultural policy enabled farmers to achieve a certain control over the revenue (an agricultural pesticide tax was introduced in 1986).
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  8. However, in 1990, the government brought that principle to an end in agri-environmental policy making (Landbruksdepartementet 1990, 27). Surprisingly, neither the farm associations nor their representatives in the *Storting*, the Center Party, opposed this.

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spending of the tax revenue and design tax schemes which have a fairly direct relationship between the subject being taxed and reduction in pollution. The relatively high Danish tax on insecticides demonstrates that when carefully designed, green taxes can be set at a high level even in countries in which polluters are powerful.

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#### NOTES

1. See OECD (1997, 18–22) for an overview of green tax schemes in Europe.
2. Some would perhaps argue that the Scandinavian Social Democratic parties are not alike and that this explains policy variation. The Norwegian Labor Party has traditionally spoken on behalf of smallholders in agricultural policy making, and during the past three decades it has been more willing to consider agricultural interests than the Swedish Social Democratic Party (Steen 1988, ch. 8). This difference may help to explain why Norwegian farmers, in terms of having their interests considered in the tax design, were better off than their Swedish counterparts, but it cannot explain why Norwegian farmers were worse off than Danish farmers. Danish Social Democrats have traditionally been concerned about employment in the food processing industry and, therefore, careful not to hurt agricultural interests (Daugbjerg 1998, 175–76). If differences in the policy positions of the Scandinavian Social Democratic parties were to explain policy variation, the Danish and Norwegian agri-environmental taxes should be fairly similar and they are not. Consequently, this explanation can be ruled out.
3. This phenomenon is often referred to as lesson drawing (Rose 1991) or as policy transfer (Dolowitz & Marsh 1996).
4. In January 1998, the government agreed with the left wing parties (the Socialist People's Party and the Unity Party) to double the pesticide tax (Jyllands-Posten, 23 January, 1998). The increase of the pesticide tax was a direct response to a number of events which clearly showed the serious environmental impacts of pesticide use. During 1996 and 1997, waterworks throughout the country detected pesticide residues in the drinking water (Danmarks og Grønlands Geologiske Undersøgelse 1997, 49–65) and many people, including scientists, environmental and waterworks officials and politicians, feared that the situation would deteriorate further and threaten public health unless something radical was done. Farmers were not the only ones who caused pesticide pollution; in fact, the pesticide detected most frequently in the groundwater was used solely on non-arable areas (*ibid.*, 58). Nevertheless, farmers faced considerable environmental pressure which, combined with the lack of untried, realistic policy alternatives, meant that they could not prevent the agreement to increase the pesticide tax. The prime minister's decision to call a general election in March 1998 brought the legislative process to a halt and the pesticide bill was automatically withdrawn. After the election, there was no longer a majority in favor of the tax increase (Jyllands-Posten, 28 March, 1998).
5. Although the use of fertilizer and pesticide taxes was an innovation in agri-environmental policies, the fertilizer tax was a well known measure in agricultural policy. The Swedish government introduced an agricultural fertilizer tax in 1982 to fund agricultural subsidies. Apparently, farmers were more willing to accept that type