1. Introduction

1. BACKGROUND

This book is motivated by my own confusion about the prospects for environmental policy in the European Community. Its outline was sketched in the repercussions of the two Danish referenda in 1992 and 1993, first rejecting and then approving the Maastricht Treaty, and the narrow victory of the 'yes' vote in the French referendum. At that time the Community was mired in one of its most severe crises, and environmental policy was no exception. Environmental policy became a political football, used by the 'yes' wing to promote the advantages of Community action and by the 'no' wing as providing clear-cut examples of superfluous Community action. The year 1992 should have been the year when European integration reached its maximum, with the completion of the internal market and the launching of the European Union. Instead it became clear that further European integration was being met by unexpectedly strong resistance at national levels. One of the main questions was to decide which policy tasks should be undertaken by the Community and which should be delegated to the national governments. The subsidiarity principle appeared as a concept which could help strike a balance between Community powers and Member States' powers and to help the Community to steer a new course.

Environmental policy played a significant role in the subsidiarity debate. Harmonization of environmental policy measures was one of the major concerns of the Community's internal market project because the number of those measures had increased rapidly during the 1980s. Moreover, the growing concern about transboundary environmental problems further stimulated Community action. This 'Europeanization' of environmental policy, however, was not seen only through rose-coloured spectacles. Fears were expressed that Community action would lead to 'lowest-common-denominator' policies inadequate to deal with specific national problems and priorities. Thus, some argued that Community competences in the environment should be increased, while others felt that the present degree of cooperation was excessive (Liefferink, 1996). The reasons for the disagreement are many. One reason may lie in the complicated relationship between the internal market, subsidiarity and environmental policy. First

of all, the single market will increase economic activity, which will ultimately affect the environment (Task Force, 1990). How this effect will take form, however, is not clear. Second, subsidiarity was introduced in the Treaty because national governments were eager to protect their prerogatives against any undesired Community intrusion (Dehousse, 1993). How subsidiarity will affect the continued development of Community environmental policy is not clear, either.

The internal market removes border controls and technical barriers to trade, such as different technical regulations and product norms. This will affect the choice of instruments for national environmental policy. The most clear-cut examples are product norms covering mobile emission sources, such as cars or hairsprays containing chlorofluorocarbons (CFCs), or commercial products, such as consumer products containing toxic substances. The product norms set by one Member State will be environmentally ineffective in the internal market because the products cannot be prevented from being imported from other Member States, therefore undermining stricter national standards. Hence the need for Community action.

Subsidiarity was developed and included in the Treaty as a response to what was perceived by some Member States as growing and unnecessary Community competences. Subsidiarity was therefore introduced as a way of regulating the use of these competences, but it does not grant the Community additional powers. This interpretation, however, has been modified by the Community institutions, turning subsidiarity into a question of comparative efficiency. According to the Community institutions, subsidiarity should grant the Community additional powers if the Community can achieve the envisaged goal more efficiently than the Member States. This interpretation of subsidiarity involves a comparison of the costs and benefits of centralized and decentralized decision-making.

Subsidiarity is directly related to the central question in environmental federalism: should we allow local diversity in standard-setting for environmental quality or should we impose a uniform central measure? Simple economic reasoning appears to provide a straightforward answer to this question. Environmental regulations should vary across countries in accordance with national circumstances. Tietenberg (1978) discusses how to determine the optimal degree of spatial differentiation of emission charges. The optimal level of pollution is where marginal social damages equal marginal abatement costs. This is illustrated in Figure 1.1. If MAC_1 and MSD_1 are, respectively, the marginal abatement cost and the marginal social damage functions of country 1, then the optimal level of pollution in country 1 is P_1. If the MAC and MSD functions in country 2 differ from those in country 1, the optimal environmental policy in country 2 should

differ from that in country 1. In the figure, country 2 should implement a more stringent environmental policy resulting in a lower level of pollution, P_2. A harmonized (uniform) environmental policy would lead to pollution level P_H and a welfare loss in country 1 as well as in country 2 (area BEF and ACD, respectively).

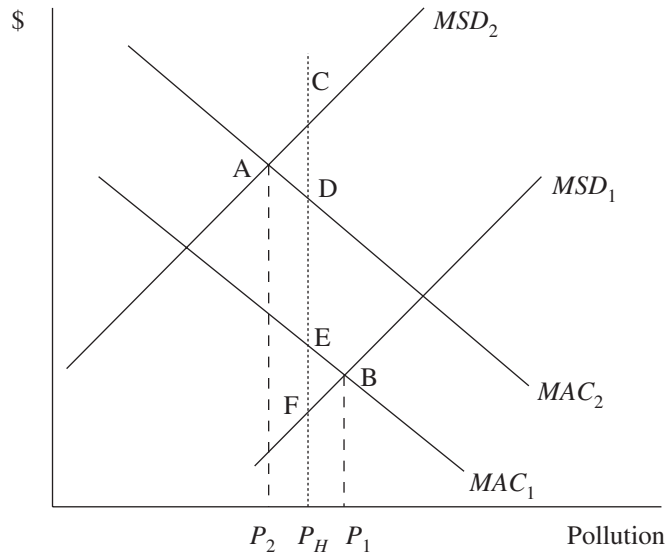

Figure 1.1 Optimal uniform and non-uniform levels of polution

Decentralized decision-making clearly has advantages. Decentralized authorities can more easily than a central authority adapt environmental policies to differences in local conditions and preferences. This means that variations in endowments, preferences and cultural traditions call for a considerable degree of decentralization of environmental policy.

There is nevertheless still a need for centralized decision-making because it has several advantages. First of all, transboundary externalities are most efficiently dealt with by a central authority because a decentralized one will tend to ignore the part of the externality outside its own jurisdiction. In this case, centralized action may be needed to ensure that the efficient abatement level is reached. Second, a central authority may also be efficient in taking advantage of economies of scale or reducing transaction costs. Third, Cumberland (1979 and 1981) has argued that in the presence of interjurisdictional competition centralized decision-making may be important. Interjurisdictional competition means that states engage in a destructive 'race to the bottom', competing for new business firms by

implementing low environmental regulations. Wilson (1996) and Oates (1999), among others, have recently provided a thorough review of the literature on interjurisdictional competition. The authors find that there does not appear to be sufficient evidence of interjurisdictional competition to justify uniform environmental measures. A fourth argument for uniform measures is the cost of administering environmental regulations. Member States (and firms within Member States), and thus their abatement costs, are likely to differ. Moreover, when locational differences may lead to differing damages, it may be complicated and costly to administer decentralized regulations. As Tietenberg (1978) discusses, the consequence is that a number of environmental measures are uniform rather than spatially differentiated. This issue is dealt with in detail in Kolstad (1987), who argues that the administrative and informational costs of implementing non-uniform regulations can be large. Therefore, there may be situations where regulators may sacrifice efficiency and regulate different regions by uniform regulations.

Centralized and decentralized decision-making each has advantages and disadvantages. The optimal degree of centralization and decentralization is ultimately a matter of the comparative magnitude of welfare losses. Uniform central standards may entail allocative losses because of the failure to allow local standards to reflect local costs and benefits. Decentralized different standards may entail losses due to transboundary externalities and interjurisdictional competition.

The first time I came across aspects of environmental policy in a federal system was in 1990, while taking a course in environmental economics at Odense University. We studied the excellent book by Baumol and Oates (1988) which includes a chapter that examines whether we should choose national or local standards for environmental quality. Oates's work has since then been my greatest source of inspiration. He applies his theoretical analysis to the US experience on centralized and decentralized environmental standards. The parallel with the EU was obvious, and I sought to apply Oates's work to this area.

In doing so, two articles have been very important to me. Folmer and Howe (1991) provide an excellent study of the environmental impacts of the completion of the single market. The article is a cornucopia of research topics with respect to environmental policy in a federal system. Their analysis touches upon the relationship between subsidiarity and the internal market, but it is clear that these topics are so important from a policy perspective that they deserve additional attention. This is what Siebert (1991) does in his analysis of the options for decentralizing environmental policy in Europe. He applies economic theory to Folmer and Howes's discussion about subsidiarity and the internal market, and focuses on the choice of

environmental policy instruments and transboundary character of the externality, thereby elaborating on some of the aspects identified by Folmer and Howe, while others are left unelaborated. Left unexplored were the institutional aspects in relation to subsidiarity, issues connected with relocation of firms in response to differences in environmental policies, and problems of asymmetric information. These topics are the concern of the following chapters.

2. PURPOSE

The purpose of this book is to examine the balance between the costs and benefits of centralized and decentralized environmental policies. The book consists of nine chapters which, under varying conditions, attempt to answer the question of how environmental regulatory authority can be allocated most efficiently among federal and state governments. The chapters can be divided in two parts. The first part consists of Chapters 2, 3 and 4; the second, Chapters 5 through 8.

The purpose of the first part is to examine how a political system, in this case the EU, has affected the allocation of environmental regulatory authority. This is done by examining Member States' possibilities to enact environmental regulations that are more stringent than Community measures. If this is not possible, the principles of environmental federalism are not met. Another purpose of this part is to examine the principle of subsidiarity. Subsidiarity directly affects the distribution of competences between the EU level and the Member States. The question is how it is done and what the effects are. Finally, subsidiarity is discussed in relation to public finance literature.

The purpose of the second part is to scrutinize the basic economic reasoning in determining allocation of the environmental regulatory powers presented above. The basic economic reasoning, arguing that local environmental problems should be dealt with by local governments and international environmental problems by transnational governments, is based on a number of simplifying assumptions, and the question is how robust results are to changes in these assumptions. This is examined by analysing distribution of information between different levels of government. If both the EU level and the Member States' level possess information needed to implement efficient environmental policies, what is then the optimal allocation of environmental regulatory powers? If governments engage in interjurisdictional competition to attract jobs and businesses, there may be an argument for centralizing regulatory powers to create a 'level playing-field'. Another purpose of the second part is therefore to

determine whether environmental regulations do affect economic activity and whether governments engage in interjurisdictional competition. Finally, it is generally believed that the presence of transboundary externalities makes a strong case for centralized decision-making in the form of international environmental agreements. Basic economic reasoning predicts, however, that these agreements will be threatened by free-riding, perhaps thereby undermining the arguments for centralized decision-making. But this reasoning assumes that governments maximize their own welfare and ignore that of others. What if, more realistically, it is assumed that a country is also interested in the welfare of other countries and in how other countries behave in the international setting?

3. OVERVIEW

The first part of the book begins with Chapter 2, which examines the possibilities for Member States in the EU to determine a national environmental policy that differs from the environmental policy imposed by the Union. The chapter identifies the limits for national environmental sovereignty by examining the provisions in the treaties that allow Member States to maintain and enact their own national environmental measures. It thus deals with the question of allocation of powers between a central level of authority (the Union) and a decentralized level (the Member States).

Chapter 3 presents a theoretical and empirical analysis of the effects of subsidiarity on European Community legislation. The concept of 'subsidiarity' attempts to strike a balance between respect for democratic self-governance and efficiency of Community action. The chapter demonstrates, however, that the way in which subsidiarity was finally included in the Treaty favours self-governance and may inhibit Community action even in those situations where the envisaged Community action would produce clear benefits compared to action at the level of the Member States. Community institutions have implemented subsidiarity in a manner which avoids this outcome, but tends to favour Community action at the expense of respect for localities. Chapter 3 also illustrates that the effect of subsidiarity on Community legislation in the 1990s is ambiguous. On the one hand, subsidiarity has been quite successful in reducing the overall volume of Community proposals. On the other hand, it has not been able to alter adopted Community legislation from strongly binding instruments, such as regulations and decisions, to less binding instruments, such as directives.

Chapter 4 relates subsidiarity to the public finance literature. Both economic principles and the principle of subsidiarity prescribe that differences in national endowments, preferences and cultural traditions require

a considerable degree of decentralization of environmental policy in the Community. However, decentralized decision-making may be inappropriate in the presence of transboundary externalities, scale economies or relatively homogeneous endowments and preferences. The chapter illustrates that subsidiarity is not a question of either centralized or decentralized decision-making, but involves a mixture of powers at different levels. An environmental regulatory system with harmonized target standards at Community level and differentiated emission standards at the level of the Member States may combine the advantages of central rules with decision-making by Member States. Community water policy legislation, which has been revised in light of subsidiarity, incorporates this system and allows Member States to choose the necessary means for achieving the harmonized standard.

The second part of the book begins with Chapter 5, which examines the proposition that central governments should let local governments control local externalities. This is examined in a model with local externalities and in a federal system, where the central and the local authorities are imperfectly informed. These respective authorities have the same goals but different information. The local authority may be better informed about the local demand for changes in environmental policy, whereas the central authority may be better informed about many scientific aspects related to changes in environmental quality. It is demonstrated that the central authority can introduce a grant-in-aid system that induces the local authority to take central authority information into account and combine it with local information. The grant-in-aid system is flexible so that the local authority is induced to use a weighted combination of local and central information. At one extreme, the central authority is highly uncertain of the environmental and health effects of a specific pollutant. In this case, the tax subsidy scheme may be designed to allow local information to play an essential role in the environmental policy. At the other extreme, the central authority is quite certain that a specific pollutant must not exceed a certain limit. In this case, the tax subsidy scheme is designed to allow local information little influence on environmental policy.

Chapter 6 examines whether environmental regulations affect international trade and capital movements. The chapter gives an overview of both theoretical and empirical studies examining this question. The general conclusion that emerges from the literature is that neither the theoretical nor the empirical analysis supports trade effects and large-scale capital flight as a response to stricter environmental policies. The implication is that there is no reason for governments to engage in interjurisdictional competition.

However, to engage in interjurisdictional competition it is enough that governments believe that they can attract capital and jobs. Therefore, the

finding in Chapter 6 does not lead to a rejection of the possibility of inter-jurisdictional competition. In Chapter 7 such competition is examined when there is imperfect competition. It might be expected that imperfect competition would increase the scope for environmental capital flight, and thereby also for ecological dumping. The general conclusion is that the literature on imperfect competition provides a range of predictions about ecological dumping from the literature on perfect competition. There may be incentives for governments to loosen their environmental policy in order either to attract firms to their country or to capture market shares in international markets. This result, however, is not robust. It may also be rational for a government to implement an environmental policy which is too strict.

Chapter 8 challenges the basic economic reasoning that International Environmental Agreements (IEAs) are undermined by free-riding. Game theory argues that the number of countries in an IEA is usually very small, while such agreements do not give any additional benefits compared to the situation where they did not exist. However, cooperation does take place, and the chapter introduces two factors that may enhance the chance of forming IEAs. It is illustrated, first, that a very simple form of commitment may easily expand the stable agreement and, in the end, induce full cooperation. Second, the concept of fairness is introduced. When fairness is introduced, the countries not only maximize their own welfare, but are affected by the welfare of others as well. It is demonstrated that fairness may reduce free-riding behaviour, thereby increasing the relevance of IEAs.