

The feasibility of ecological taxation

A.T.G. Paulus^a

^aUniversity of Limburg, Faculty of Economics and Business Administration, P.O. Box 616, 6200 MD Maastricht, The Netherlands

Abstract

From an analysis of the possibilities and complexities of ecological taxation, conducted within the context of the first NRP (research project 851051E), it follows that the feasibility of ecological taxes is determined by their design, the level at which they are implemented, the taxing authority by which they are imposed and by the constitutional, institutional and fiscal framework in which they are embedded.

1. ECOLOGICAL TAXATION: POSSIBILITIES AND COMPLEXITIES

Generally, ecological or environmental taxes can be defined as types of levies (i.e. compulsory contributions or forms of payments) which conform with one or more of the following characteristics:

- In order to incorporate negative external environmental effects into the decision calculus of the externality generator, taxes are aimed at accomplishing tax avoiding changes in the behaviour of those who are confronted with these taxes.
- In order to achieve a particular environmental goal, taxes are aimed at raising an amount of revenues that suffices to fund specific environmental policy measures.
- There is an intended or unintended relationship between the tax and the nature and size of activities or elements that are relevant from an environmental point of view.

Being defined as such, ecological taxes can be included in a broader category of ecologically relevant taxes. This category also includes taxes initially introduced for non environmental reasons but with a direct or indirect (un)desirable impact on the environment. Following this description of ecologically relevant taxes, it can be shown that governments have several options to introduce ecological taxation. More specifically, options include the supplementation of the existing tax system with new ecological taxes (e.g. earmarked taxes or regulatory charges) or the re-orientation or replacement of existing taxes and charges by ecological ones. The latter option is also known as ecological tax reform.

To introduce these options, however, governments face important complexities. These are related, among others, to the ecological effectiveness and the administrative costs of these taxes, the linkage between the tax point and the point of pollution, the informational needs required to set the proper tax rates, their fiscal and steering effects and to the earmarking of ecological tax revenues. Further complexities arise with the concor-

dance of ecological taxation with existing national and international tax and legal systems. Additionally, complexities are associated with the distributional incidence and the national and international economic effects of ecological taxes.

2. THE DESIGN AND IMPOSITION OF FEASIBLE ECOLOGICAL TAXES

Given these complexities and possibilities, which differ per type of ecological tax, it follows that the use of taxes for ecological purposes comprises several complicated problems. These problems can be solved only if the ecological tax as a policy instrument is placed within a general policy framework. This can be achieved by using an ecological tax in the form of a regulatory charge as an instrument of environmental policy. In this case it is important to formulate and search for an accommodative policy that eases the making of behavioural changes. Outside the existing tax system, also new earmarked environmental taxes can be introduced. In this case it is important to find a proper relationship between the taxes, tax liable individuals and the provision of an ecologically relevant service. In addition, the possibility exists to reform the entire tax system in order to stimulate an optimal use of natural resources. If ecological taxes of the ordinary revenue raising type are used, this in fact opens a political discussion on the entire tax system. From this it follows that ecological taxes are complicated, yet that in principle these taxes could be feasible when properly designed and when coherent with certain preconditions.

Besides being properly designed and coherent with certain preconditions, ecological taxes, in order to be feasible, acceptable and effective from an ecological point of view, have to be imposed on a level and by a taxing authority or decision making unit that is closely related to relevant ecological problems and circumstances. In addition, ecological taxes have to be imposed on a level which minimizes undesirable economic effects in terms of competitiveness and costs of control, information and transactions. In order to be feasible, ecological taxes also have to be embedded within a constitutional, institutional and fiscal framework (whether governmental or club like) in which there is a close relationship between those who pay and benefit from the taxes in question.

Ecological tax units, *i.e.* taxing units which are closely related to relevant ecological circumstances, are the ideal representatives of such decision making arrangements. Since it can be expected that existing taxing authorities tend to be political units which do most of the times not fit the description of being clearly related to relevant ecological circumstances, this calls for a dynamic process in which a proper sized level for ecological taxation is gradually created via different types of co-ordination, co-operation and environmental diplomacy.

3. ECOLOGICAL TAXATION AND GLOBAL CLIMATE CHANGE

The dynamic process in which a proper sized level for ecological taxation is gradually created via different types of co-ordination, co-operation and environmental diplomacy seems especially important for global environmental problems such as, for instance, the global climate change problem. Since single countries will probably face a competitive disadvantage once unilaterally introducing taxes on greenhouse gas (G.H.G.) emissions, the call for a multilateral or international introduction of these taxes can be

expected to increase in the future.

Within the context of the dynamic process described above, the analysis conducted within the framework of the above mentioned research project shows that taxes that are intended to be used with regard to the problem of global climate change are preferably imposed and introduced at a surveyable level, i.e. at the level of a particular country or a small group of countries. The imposition of taxes at this level can then serve as an important starting point and role model for GHG taxes that are intended to be introduced within an international greenhouse gas taxing arrangement. In this sense, the introduction of ecological taxes by single countries plays an important intermediate role in the dynamic process described above. Within this stepwise process, GHG taxes can first be introduced by single countries. Via co-operation, co-ordination and environmental diplomacy it is then possible for GHG taxes to be embedded within an international climate change agreement, which enhances the possibilities for these taxes to be imposed by an authority and at a level which is clearly related to relevant ecological circumstances.

4. ECOLOGICAL TAXATION: THE NETHERLANDS

In the Netherlands, the existing governing and financial framework for ecological taxation forces particular restrictions upon the level and authority by which these taxes can be imposed, upon the design and purpose of these taxes and upon the possibilities to differentiate the imposition of ecological taxes throughout the country. An analysis of the actual use of ecological taxation in the Netherlands shows that ecological taxation in this country is gradually developing, via a stepwise process, from a system in which different sectoral environmental levies are introduced within a relatively unco-ordinated manner towards a more structured system in which environmental levies are introduced on the basis of relevant ecological circumstances. It also follows that ecological taxation in the Netherlands has now entered the phase in which it is tried to accomplish a structured financing system for environmental policy. At the same time, more room is created for the introduction of ecologically relevant taxes and tax elements that are not primarily intended to be used for fiscal purposes. At this point in time, the greater part of the ecologically relevant levies that have been introduced in this country share the characteristic of being relatively small earmarked types of taxes that have relatively low tax rates. Raising a proper amount of tax revenues that can be used to fund relevant environmental expenditures is the main purpose of the greater part of environmental levies in this country.

In the Netherlands, only the imposition of ecologically relevant levies by water authorities closely reflects the idea of ecological tax units. Generally, however, there are few opportunities in this country to connect existing taxes and levies to relevant ecological circumstances. An analysis of these opportunities within the context of the above mentioned research project shows that such opportunities are mainly provided by the tax systems of municipalities, provinces and water authorities. With regard to the feasibility of additional ecological taxation in the Netherlands this implies that the possibilities and opportunities for these sub national governments to further use and introduce ecologically relevant taxes should be enlarged in the future.

5. THE FEASIBILITY OF ECOLOGICAL TAXATION: CONCLUSIONS

From the analysis of the feasibility of ecological taxation in the above mentioned research project it can be concluded that sub national governments can play a significant role in providing starting points for the introduction, imposition and use of ecologically relevant taxes which are intended to be introduced within a broader national, transnational or international context. More specifically, it can be concluded that sub national government bodies fulfil an important exemplifying, connecting and starting role within a dynamic process in which these taxes are gradually embedded within their proper institutional, fiscal and constitutional structures. The latter, as this research project shows, is a precondition for feasible ecological taxes, i.e. for (alternative) courses of policy action in which thoroughly and carefully designed ecological taxes are embedded within institutional, constitutional and fiscal structures that allow and facilitate the ecological effectiveness and acceptability of these taxes.