

Article

Ecological Tax Reform in Germany and Interest Groups

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This paper examines the political feasibility of an ecological tax reform (ETR). To this end, a positive taxation approach is developed from which the politico-economic determinants of a successfully implemented, ecologically-oriented tax policy may be derived. Public acceptance of the ETR introduced in Germany is then evaluated on the basis of these determinants. By comparing the popularity of the eco-tax on the one hand and the utilisation of eco-tax revenues on the other, it is demonstrated that Germany's ETR creates an "eco-fiscal illusion" in the following sense: while the eco-tax generates stable revenues, which are returned in a way that is approved of by the electorate, it nonetheless has a significant symbolic value with regard to an improvement in environmental quality—a fact which leads to increased popularity among the environmentally conscious sections of the population. Furthermore, the ETR can be interpreted as the result of implicit vote-trading between the coalition parties.

Keywords: Eco-tax, Germany, Interest groups.

1. Introduction

Following almost twenty years of public debate in Germany, the Law Initiating the Ecological Tax Reform (Gesetz zum Einstieg in die ökologische Steuerreform) and the Law on Continuing the Ecological Tax Reform (Gesetz zur Fortführung der ökologischen Steuerreform) came into force on 1 April 1999 and 1 January 2000, respectively. These laws provide for a step-by-step increase (3 €-cents per litre per year until 2003) in the existing petroleum tax, as well as the introduction of an electricity tax (0.5 €-cent per kWh, raised annually by 0.5 €-cent until 2003). Revenues amounted to €4.3 billion in the first year, and are estimated to rise to €14.3 billion in 2002 and €17 billion in 2003. The lion's share (currently 95 percent) are returned via a reduction in employers' contribution rates for statutory pension insurance, and some €200 million are spent for subsidies on renewable energy (Deutscher Bundestag 2002). Although this political solution represents a step in the right direction compared to other previously discussed proposals, its specific design is laden with considerable imperfections that will be described below. Why, then, did the ETR come to be implemented after such a long period of discussion, and how can the departure from concepts derived from normative theory, such as taxes on emissions with lump-sum recycling, be explained?

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In order to answer these questions, this paper develops a positive tax approach in which taxation is depicted as the result of a collective decision-making process within a democracy. This enables us to derive the politico-economic determinants of an ecologically-oriented tax policy, on the basis of which the enforceability of an ETR in the assumed democratic model can be evaluated. Germany's successfully implemented ETR serves as a case study for the analysis. The observations below are based on interviews conducted with actors in German environmental and fiscal politics between October 1999 and January 2000.

The paper is structured as follows: first, an optimal taxation model is developed from the perspective of the new political economy in part 2, and then applied in part 3 to derive the politico-economic determinants of taxation. Part 4 subsequently uses these determinants to examine the public acceptance of Germany's ETR, and looks at the specific design of the concept. The conclusion (part 5) summarises the conditions contributing to the successful introduction of the ETR in Germany.

2. Optimal taxation from the perspective of the new political economy

In order to assess the political feasibility of an ETR, a positive taxation approach will be developed in this section, based on explanations from the perspective of the new political economy, which assumes that policy decisions are based on the rational decisions of individuals who vote, who want to become elected politicians, or who form interest groups. There are few studies that analyse optimal tax structures within the framework of a politico-economic model. One exception is provided by the essays of Hettich and Winer (1984, 1988, 1993, 1997), as well as a study by Seiglie (1990) in which the politically optimal level of an eco-tax on consumption is calculated. In accordance with Down's basic model of a democracy (Downs 1968) it is assumed that we are dealing with a government that is striving to maximise its political support. This political support is provided exclusively by associations (i.e., by groups of citizens with common interests) and corresponds to the weighted sum total of the utility functions of all interest groups or of representatives of these groups. The individual interest groups are weighted in proportion to their importance in the political process, thus reflecting their influence on political decision-making. The aim of the government is thus not to maximise tax revenues—as is the case with the concept of a Leviathan state that doesn't care for the welfare of its citizens¹—but rather to increase its chances of re-election (Neck 1983, 159). Maximising a political support function can be justified on the basis of a variety of microeconomic conceptions. It can be explained, for instance, within the framework of a probabilistic voting model (Coughlin, Mueller, and Murrell 1990). Moreover, it is the result of the so-called "common agency approach," in which several interest groups attempt to influence government behaviour by means of donations to political parties (Dixit, Grossman, and Helpman 1997).

In order to complete the model, an assumption regarding the aims and aspirations of the electorate is required. In the following it is assumed that the electorate consists of three types of voters: workers, industrialists, and environmentalists. All three are affected by government tax policy in their dual roles as consumers of public goods and services and as taxpayers. It may be assumed that individual voters

¹ As formulated by Brennan and Buchanan (1980).

are not concerned about the tax system as a whole or about the consequences it has on the overall tax burden (Folkers 1983, 191). On the contrary, they are interested solely in their perceived (subjective) personal tax burden.² Neither the excess burden of a particular tax nor the objective tax payment is of significance; the only matter of importance for voters is how they perceive their tax burden.

Environmentalists feel additionally encumbered by numerous forms of environmental degradation, and thus stand to see benefits from any improvements in the quality of the environment. Such improvements can be positively influenced by an eco-tax, whereas any effects that taxes levied solely for fiscal purposes may have on the quality of the environment are hard to identify. Workers have a utility function which, in addition to the tax burden, positively depends on employment, which rises when payroll taxes are lowered. Uncertain here is the extent to which employment is affected by those taxes that do not place a direct burden on labour as a production factor.

As far as all three types of voter are concerned, demand for tax rules is thus the result of a cost-benefit analysis, i.e., the evaluation of public goods and services and environmental and employment effects, as compared to their share of the related tax burden. Voters are not fully informed, i.e., their assessment is based on a limited amount of available information. The utility function of the respective representative members of the industrialists (I), environmentalists (E), and workers (W) thus reads as follows:

$$\begin{aligned} v^I[b^I, t, G] & \quad \text{for } h = I \\ v^h = v^E[b^E, t, Q, L, G] & \quad \text{for } h = E \\ v^W[b^W, t, L, G] & \quad \text{for } h = W \end{aligned} \quad (1)$$

$$\text{with } \frac{\partial v^h}{\partial b^h} \frac{\partial b^h}{\partial t_i} < 0; \frac{\partial v^E}{\partial Q} \frac{\partial Q}{\partial t_e} > 0; \frac{\partial v^E}{\partial Q} \frac{\partial Q}{\partial t_i} > 0; \frac{\partial v^W}{\partial L} \frac{\partial L}{\partial t_1} < 0; \frac{\partial v^W}{\partial L} \frac{\partial L}{\partial t_i} > 0; \frac{\partial v^h}{\partial G} > 0$$

For all $i = 1, \dots, K, e, l$ and $h = I, E, W$

where G represents the amount of public goods and services which have to be financed by taxes.

The tax system, $t = (t_1, \dots, t_K, t_l, t_e)$, consists of an eco-tax (t_e), a payroll tax (t_l), and other taxes levied for fiscal purposes (t_1, \dots, t_K). Furthermore, Q represents the quality of the environment; L , the employment level; and b^h , the subjective tax burden of voter type h . Voters of the same type are organised into interest groups. The environmentalists are members of an environmental association, while the industrialists form an industrial association, and the workers, a trade union. One voter type could, conceivably, be unable to organise its interests. In this case, it would either be excluded from the political support function altogether or would be weighted in relation to the group's importance according to a social welfare function. The approach chosen here thus represents a general case which is

² On the financial-psychological concept of the subjective tax burden, see Schmolders (1970, 59–75).

capable of reflecting other scenarios, depending on the interpretation of the weights applied to the respective groups.

In the following discussion we shall develop the politically optimal tax structure, which balances the various aims and aspirations described above. The government will fix tax rates in such a way as to maximise its political support function:

$$S = \sum_h \theta_h n_h v^h \quad (2)$$

where θ_h represents the political influence of the interest group h , and $n_h v^h$ represents the aggregate utility of its members.

The government must use its tax revenues to finance a given amount of public goods and services. The government budget restriction reads as follows:

$$G = \sum_k R_k t + R_e t + R_l t \quad (3)$$

where R_k represents the revenue from tax k , R_e represents the eco-tax revenue, and R_l represents the revenue from the tax on labour.

The government's optimising problem can thus be described using the following Lagrange maximising approach to derive optimal tax rates:

$$L = \sum_h \theta_h n_h v^h + \lambda [\sum_k R_k t + R_e t + R_l t - G] \quad (4)$$

This leads to the first order conditions:

$$\begin{aligned} \frac{\partial L}{\partial t_i} = & \sum_h \theta_h n_h \frac{\partial v^h}{\partial b^h} \frac{\partial b^h}{\partial t_i} + \theta_E n_E \frac{\partial v^E}{\partial Q} \frac{\partial Q}{\partial t_i} + \theta_W n_W \frac{\partial v^W}{\partial L} \frac{\partial L}{\partial t_i} \\ & + \lambda \left[\sum_k \frac{\partial R_k}{\partial t_i} + \frac{\partial R_e}{\partial t_i} + \frac{\partial R_l}{\partial t_i} \right] = 0 \quad \text{For all } i = 1, \dots, K, e, l \end{aligned} \quad (5)$$

Equation 5 can be re-written to provide the following condition for politically optimal tax rates:

$$MPC_i = \frac{- \sum_h \theta_h n_h \frac{\partial v^h}{\partial b^h} \frac{\partial b^h}{\partial t_i} - \theta_E n_E \frac{\partial v^E}{\partial Q} \frac{\partial Q}{\partial t_i} - \theta_W n_W \frac{\partial v^W}{\partial L} \frac{\partial L}{\partial t_i}}{\sum_k \frac{\partial R_k}{\partial t_i} + \frac{\partial R_e}{\partial t_i} + \frac{\partial R_l}{\partial t_i}} = \lambda \quad (6)$$

For all $i = 1, \dots, K, e, l$

where MPC_i represents the marginal political costs of tax i (i.e., the marginal change in political support from a marginal tax variation in relation to the resulting marginal tax revenue).

In the following it is assumed that the marginal tax revenue is positive for all taxes (i.e., the entire tax system is within the Laffer-efficient range, where tax revenues do not decrease with increasing tax rates). The following factors are included in the change in political support. On the one hand, a marginal tax increase leads to a loss of popularity, both as a result of the additional burden for the citizens and because of a possible negative effect on employment. On the other hand, a tax increase can, through its effect on the quality of the environment, generate stronger support for the government among environmentally conscious citizens. In the case of an eco-tax, the government will always experience a popularity gain of this sort; with other taxes, however, any effect of this kind is dependent on their ability to influence the quality of the environment. Correspondingly, a loss of popularity among the working population is assured only in the case of increasing payroll taxes, whereas any change in popularity due to an increase in other taxes depends on the subsequent effects on employment.

It is clear from equation 6 that the marginal political costs (MPC) of each tax correspond to the Lagrange multiplier λ , and thus to each other. The politically optimal tax structure is thus characterised by the equivalence of the marginal political costs of all taxes.³ In other words, this condition states that in a democracy the optimal tax structure minimises the political costs of a tax for a given level of tax revenue. On the basis of this observation it is possible to address the following issue: Under what conditions would an ETR prove politically enforceable in a democracy within the framework of the model assumed here?

The change in political support for the government that is inherent in an ETR (i.e., a marginal increase in the eco-tax [t_e] with a simultaneous revenue-neutral reduction of the tax [t_j]) can be written as the total differential of the political support function:

$$dS = \theta_h n_h \frac{\partial v^h}{\partial b^h} \frac{\partial b^h}{\partial t_j} + \theta_E n_E \frac{\partial v^E}{\partial Q} \frac{\partial Q}{\partial t_j} + \theta_W n_W \frac{\partial v^W}{\partial L} \frac{\partial L}{\partial t_j} dt_j + \theta_h n_h \frac{\partial v^h}{\partial b^h} \frac{\partial b^h}{\partial t_e} + \theta_E n_E \frac{\partial v^E}{\partial Q} \frac{\partial Q}{\partial t_e} + \theta_W n_W \frac{\partial v^W}{\partial L} \frac{\partial L}{\partial t_e} dt_e \quad (7)$$

The required revenue neutrality can be described as follows:

$$dR^e = -dR^j$$

with $dR^e = \frac{\partial R_e}{\partial t_e} + \frac{\partial R_l}{\partial t_e} + \frac{\partial R_k}{\partial t_e} dt_e$; $dR^j = \frac{\partial R_e}{\partial t_j} + \frac{\partial R_l}{\partial t_j} + \frac{\partial R_k}{\partial t_j} dt_j$ (8)

³ This condition, mentioned above, was first formulated by Hettich and Winer (1984, 70).

Insertion of equation 8 into equation 7 results in the following condition for the political enforceability of an ETR:

$$\begin{array}{ccc} & > & > \\ \frac{dS}{dR^e} = 0 & \Leftrightarrow & PGK_j = PGK_e \\ & < & < \end{array} \quad (9)$$

An ETR, in which a tax (t_j) is marginally replaced by an eco-tax (t_e), is thus only politically feasible (i.e., it only results in a gain in political support) when the marginal political costs of the tax to be reduced are greater than those of the eco-tax. In order to make any observations regarding the public acceptance of an ETR it is therefore necessary to compare the political costs of an eco-tax increase with the gain in support that results from the chosen use of revenues. The political costs are determined by a variety of factors, which will be discussed in more detail below.

3. Politico-economic determinants of taxation

It is clear from equation 6 which factors influence the political costs of taxation. One important factor is the degree to which a tax increase leads to a greater feeling of subjective burden within the respective voter groups ($\partial b^h/\partial t_j$). Furthermore, the political influence of interest groups (θ_h) is distinguishable as a factor determining the selection of taxation instruments. The effects of a tax on the environment ($\partial Q/\partial t_j$) and on employment ($\partial L/\partial t_j$) are also of relevance. Further determinants are the environmental consciousness of the population ($\partial v^E/\partial Q$) as well as the significance of the labour market situation for the electorate ($\partial v^W/\partial L$) seen in relation to the evaluation of tax relief ($\partial v^h/\partial b^h$). Since the marginal political costs of any tax represents the change in popularity in relation to the additional revenue generated, marginal tax yield is also of decisive importance. The strength of membership of a particular interest group (n_h) is not the subject of a separate examination here, since it is one of the factors that determine the group's political influence.

As mentioned in the last section, the subjective perception of a tax burden may deviate from the real burden, because different taxes are characterised by varying degrees of perceptibility or noticeability for individual voters. This phenomenon, the systematic misjudgement of tax burdens, is also known as a *fiscal illusion*. The government can exploit this situation in that the political costs of taxation can be reduced by giving priority to “unnoticeable” taxes (Schmölders 1960). One possible cause of the fiscal illusion discussed in the literature is the cost of information (Pommerehne and Schneider 1978, 383–386). Precise calculation of the actual (objective) tax burden requires a substantial amount of information, the procurement of which is not without cost. According to Down's theory, this cost contrasts with what is only a minor benefit when it comes to casting one's vote. Consequently, each voter will only exact information as long as the marginal benefit of procuring that information is greater than the marginal cost.

The political influence brought to bear by interest groups is of key importance for the distribution of tax burdens among the various groups of voters. The extent to which influence can be exercised is of

significance for the selection of tax instruments, in as much as the government will give preference to those taxes which create a lower subjective burden among the more influential associations, and which place a greater burden on the less assertive groups. Thus the political costs can be minimised, since passing on the tax burden to politically insignificant groups leads to the smallest loss of popularity. With regard to the popularity gains to be achieved by means of tax-induced environmental improvements, it is the political influence of the environmental associations which is of significance, while the power of the trade unions is an important factor when it comes to determining the effect a change in the employment situation may have on political support.

The environmental effect of a particular tax is given by the degree of environmental improvement perceived (or anticipated) by the electorate in connection with a marginal tax increase. It may be assumed that, due to their lack of information, voters will disregard the fact that taxes inspired by purely fiscal objectives can also have an effect on environmental degradation via cross-price effects (e.g., by reducing consumption due to price increases and thus reducing pollution). Accordingly, eco-taxes are the only means of achieving popularity gains among the environmentally conscious sections of the population. For the same reason, voters will be unable to recognise the actual effects taxes may have on employment. While taxes on the production factor of labour will be assumed to have a damaging effect on employment, voters will probably be aware that other taxes also have some sort of influence on employment, but not whether this effect is positive or negative.

The more pronounced the environmental consciousness of the electorate, the greater the popularity gain achieved by increasing an eco-tax. The greater the significance of employment for the electorate, the stronger is the effect on government popularity of a change in the employment situation. Tax benefits are subject to distorted perception in much the same way as the tax burden. Substantial information costs and the interpretation of environmental improvements as a public good generally result in the under-valuation of environmental benefits. This is particularly true if there is competition with other economic policy goals, such as employment and income security, which are not regarded as public goods to the same degree (Schneider and Volkert 1999, 2f). In times of economic crises, and high unemployment in particular, environmental improvements will tend to be undervalued while an increase in employment and tax cuts will be overvalued.

Marginal tax revenue (i.e., the additional tax revenue achieved through a rise in the tax rate by one unit) is the final determinant requiring explanation. As marginal tax revenue rises, the political costs of a tax increase decline, since it is possible to achieve a given level of tax revenue with lower tax rates. Marginal tax revenue is higher the less erosion of the tax base there is. The degree of tax base erosion is in turn dependent upon the substitution opportunities open to consumers and the level of the tax rate. As in the normative approach, it will be the aim of the government to minimise the number of alternatives available to voters. Thus the trade-off derived in the classical approach to optimal taxation between the fiscal and the environmental objectives of an eco-tax is also found in the politico-economic model. This trade-off is the subject of numerous studies on the double dividend of an ETR.⁴

4 In lieu of many, see Bovenberg and de Mooij (1994).

4. The political enforceability of an ecological tax reform: Germany as a case study

Based on the politico-economic determinants of taxation described above, the public acceptance of the ETR in Germany shall now be assessed. First of all, the political costs of the eco-tax introduced in Germany are evaluated. Following this, the political benefit gained from using the tax revenues to reduce social security contributions are estimated. The final section deals with the question of whether the ETR can also be interpreted as the result of vote-trading between the coalition partners.

4.1. *The political costs of ecological taxation*

In its specific design, Germany's eco-tax is characterised by a relatively low level of noticeability. It is an indirect tax included in the price of the goods and services taxed. In his studies, Schmolders (1970, 61f) established that indirect taxes are characterised by a lower level of noticeability than direct taxes. Most citizens have insufficient knowledge of the actual tax rates to be able to calculate their eco-tax liability. Another reason for the low level of noticeability of the eco-tax is, however, that it is not imposed on those who ultimately bear the tax burden, but at an earlier stage—the aim being to have the levy passed on to the final consumer (Schmolders 1960, 25). Moreover, the annual step-by-step increase in tax rates also reduces the perceptibility of the eco-tax.

Distortion of perception can also arise from the fact that every form of perception is guided by hypotheses (Frey, Brandstätter, and Schuster 1994, 72f.). With regard to taxation, this means that a citizen's fundamental attitude towards taxation, as well as the sense of reasonableness, have a major influence on the subjective burden he or she may feel. In this context, Schmolders (1960) observes that "the accuracy of perception varies with the sympathy or antipathy felt towards the subject." We may thus conclude that the burden caused by an eco-tax which follows a generally accepted ecological objective, such as climate protection, will be perceived as being lighter than the burden caused by taxes levied solely for fiscal purposes.

The decision not to introduce a general energy tax, but rather to favour a combination of a petroleum tax increase and an electricity tax, can also be interpreted as a measure aimed at reducing the political costs of the venture. The electricity tax is moderate in terms of the volume of revenue generated, and was offset by a decline in electricity prices triggered by the liberalisation of Germany's energy markets in 1998. As far as the petroleum tax is concerned, it should be emphasised that the public has gradually become accustomed to this form of taxation and that the subjective burden has thus diminished over the course of time. This is also the tenet of Canard's tax law, which states that old taxes are good taxes.⁵ Moreover, splitting the eco-tax into different components makes it more complicated; a general energy tax with a single tax rate would have been more transparent, and thus more readily perceptible. The even more complex solution to differentiate the tax according to the greenhouse gas content of different fuels was not chosen, as the Green party did not want to favour nuclear energy.

Although the eco-tax is characterised on the whole by a low level of noticeability, it induces the strongest feeling of subjective burden among the industrialists. As the tax originally had been designed

⁵ For a politico-economic foundation of the rule, see also Bach (1994).

as a tax on the use of energy in the production process, the intensity of perception of the proposal was very high, since the tax would have been imposed where income is created (Meyer-Krahmer 1979, 70). This observation is not new; Downs (1968, 291) recognised in the 1960s that democratic governments tend to favour producers over consumers. The energy-intensive industries felt particularly encumbered by the eco-tax and gave voice to their complaints via statements issued by their industrial associations.⁶ Similar opposition was voiced by industry representatives in the media in 1998. However, the government defused the ensuing threat of a loss of popularity with the introduction of special regulations for the manufacturing industry (i.e., an exemption of industry above a threshold of €500 and its decision not to tax coal). The latter is due to the political clout of the coal mining industry, which has been able to get enough subsidies to cover production costs of three times the world market price.

The political costs of the eco-tax are determined not only by its noticeability but also by its effects on employment, and by the significance of the labour market situation for the electorate. Given the current high level of unemployment in Germany, the effects of the eco-tax on employment is of crucial importance for its political enforceability. Depending on the industry they represent, the individual trade unions have widely differing opinions regarding these effects.⁷ Workers' representatives in labour-intensive industries such as the ÖTV (the German Public Services and Transport Workers' Union) view the eco-tax as having a positive effect on employment due to the reduction in employers' contributions to pensions. Conversely, the trade unions responsible for the energy-intensive industries in particular, such as IG Bergbau, Chemie, und Energie (the German mining, chemical, and energy workers' union), rejected the eco-tax on the grounds that it is hostile to employment. However, the attitude of the umbrella organisation of Germany's individual trade unions, the DGB, towards the eco-tax is predominantly positive—as long as it does not place any additional burden on coal without similar measures being implemented in other countries (DGB 1999).

Of primary importance as far as the environmental associations are concerned is the potential of the eco-tax to improve the quality of the environment, whereby the actual capability of the eco-tax to bring about such change is less important than its symbolic value in terms of ecological effectiveness (Gawel 1994, 33). The federal government articulated the ecological objective of the tax by describing the petroleum tax increase and the electricity as well as the natural gas tax as an eco-tax, and repeatedly emphasised the point. In spite of the declining public awareness of environmental problems in Germany at the present time, the introduction of an ETR can be expected to generate a gain in popularity for the government among the environmentally conscious section of the population that still constitutes a sizeable group of voters. The Green party, as an indicator, managed to get more than 5 percent of votes in most state elections.

As far as the representation of interests and the influence the various voter groups bring to bear on political decision-making are concerned, a certain asymmetry exists in the sense that the industrial associations and trade unions enjoy greater political significance than the environmental associations. The hypothesis of an asymmetrical representation of interests in environmental policy is supported in

⁶ See the summarised statements in VIK (1995) when eco-tax proposals started to be discussed.

⁷ See the presentation of the various standpoints in Arbeit & Ökologie-Briefe (1995).

the literature of both political science and political economics.⁸ From the point of view of the government, any gain in support among the environmentally conscious sections of the population thus carries less weight than the loss of support among industrialists and workers. However, this loss of support is minimised by a variety of special regulations. Moreover, the environmental associations have gained influence in recent years, and the loss of popularity in the corporate sector can thus be partially offset by a gain in popularity due to perceived improvements in the quality of the environment achieved by their actions, such as blocking the sinking of Shell Oil's Brent Spar, a large, heavily contaminated floating oil storage platform, into the North Atlantic in 1995.

The final criterion to be examined is the level of marginal tax revenues. With regard to the erosion of the tax base it should be emphasised that the eco-tax leads to relatively stable revenues, because demand for petroleum and electricity are comparatively inelastic and the tax rates are moderate. The German eco-tax is capable of resolving or at least alleviating the trade-off (also found to be valid for the politico-economic approach) between the effects of an ecological tax on environmental awareness and on government revenue, because, on the one hand, it has a major symbolic value with regard to its effect on environmental quality, yet on the other hand, it produces little in the way of evasive reaction. Kirchgässner (1993, 165–168) established early on that the environmental political motivation of the petroleum tax is largely accepted by the public, even though it actually has little effect on behaviour, and so generates a high level of tax revenue. This phenomenon, which has made a material contribution to the political enforceability of the ETR in Germany, is described below—after Schneider (1999, 26f)—as an eco-fiscal illusion.

4.2. On the political benefit of the utilisation of eco-tax revenues

Compared with the eco-tax, the cuts in social security contributions, which are to be effected using eco-tax revenues, are characterised by a high degree of noticeability. Every member of the working population can immediately identify the burden of pension contributions from his or her monthly salary statement. Furthermore, the contribution rates are generally well-known, so that every member of the public can calculate the savings resulting from the ETR. Where social security contributions are concerned, the taxpayer and the individual, who ultimately bears the tax burden, are one and the same person, and costs can only be passed on, if at all, by means of an increase in gross wages. Altogether, the institutional design of social security contributions is an indication of their high level of perceptibility.

As with the eco-tax, a certain distortion of perception may be assumed where social security contributions are concerned. Since the environmental effects of taxes levied for purely fiscal purposes are not clear to the public, it would be wrong to conclude—in contrast to ecologically motivated taxes—that the subjective burden they induce is slight. On the contrary, voters associate payroll taxes and high non-wage labour costs with the problem of unemployment. It may thus be assumed that the public tends to overestimate the burden of social security contributions, because, in contrast to the eco-tax, negative rather than positive issues are associated with this form of taxation.

⁸ See Gawel and Schneider (1996, 11–15) and Rey (1990, 140–144).

The generally high noticeability of payroll taxes leads to a strong subjective perception of the burden on the part of the industrialists. Here, in contrast to the eco-tax, it is the labour-intensive industries which feel particularly handicapped. These industries, however, have less influence on the stance of the major industrial associations than the traditional energy-intensive industries. However, since the entire corporate sector feels the burden of high non-wage labour costs—albeit to differing degrees—its representatives speak out in favour of a reduction of social security contributions (Bundesverband der Deutschen Industrie 1994, 71).

The greatest political benefit is achieved through trade union support for the utilisation of tax revenues. Since the reduction in pension contributions reaches 1.5 percentage points (Deutscher Bundestag 2002), revenue recycling is expected to lead to an improvement in the employment situation, and considerable popularity gains can be achieved among the labour force. Here lies the political capital of the “double dividend,” which promises not only an improvement in the environment but also an increase in employment—the second dividend of the ETR. The double dividend captured by the political system thus stems from the fact that the political enforceability of the ETR improves with the prospect of an increase in employment.

Where the utilisation of tax revenues is concerned (in contrast to the imposition of the eco-tax itself) the asymmetries of influence which exist between industrial associations and trade unions on the one hand and environmental associations on the other actually increase the political benefit. The influential groups benefit from the reduction in non-wage labour costs, promising a considerable increase in political support for the government. And given the modest political weight of the environmental associations, the government will not be unduly concerned by the fact that this form of returning tax revenues cannot be expected to generate any gains in support from the environmentally conscious sections of the population. The environmental associations would have benefited from the use of tax revenues for the promotion of ecological projects. In this case, however, the government would not achieve any increase in support among the trade unions and the industrialists.

As far as the criterion of tax base erosion is concerned, it holds that the political benefit derived from the utilisation of tax revenues is higher the more elastic the tax base of the tax to be reduced. Given the immobility of labour, there is little opportunity to avoid payroll taxes, which are thus characterised by a high level of marginal revenue, and any cuts in pension contributions turn out to be correspondingly small. As a result, the advantage of stable eco-tax revenues is matched by a similar disadvantage on the use-of-revenue side. The reduction in pension contributions is ultimately so negligible that the popularity gained from this form of returning tax revenues is due more to its symbolic rather than to its actual significance regarding any increase in employment.

4.3. The ecological tax reform as a bargained agreement

It has been argued above that the design of the ETR in Germany minimised political costs while maximising the benefits of revenue utilisation. All the while, the government was assumed to be a homogenous body trying to maximise a single unified political support function. In reality, however, many governments consist of at least two coalition parties pursuing different objectives. It was thus necessary to extend the framework of the model to take into account the fact that government policy

decisions are the result of unanimous agreements between several parties, homogenous in themselves, which are each trying to maximise their own political support. The political support functions of the individual parties then differ according to the differing weights of the various interest groups.

Based on an extended model approach of this kind, the political enforceability of the ETR in Germany can be explained from a different perspective. It provides the opportunity to consider whether Germany's ETR is the result of log-rolling between the two coalition parties (i.e., the exchange of concessions in different policy fields). Folkers (1983, 201) pointed out that tax reforms are not usually isolated phenomena, but that "normally so-called 'packages' are put to the vote, because this creates opportunities for achieving a balance of interests by way of implicit vote-trading." In the following, the necessary conditions for the existence of a log-rolling situation shall be outlined and applied to the extended model approach. We will then examine whether these conditions were in place when the ETR was introduced in Germany.

According to Bernholz and Breyer (1994, 74), the following conditions must be fulfilled if two groups are to gain advantage from trading their votes on two issues. First of all, both groups must be homogenous in themselves but have contrary preferences regarding the two issues to be voted on. It is sufficient for both groups to have contrary preferences on one issue, if on the other issue one group has no particular preferences, in the sense that it approves of the status quo. Furthermore, each group must have the stronger preferences regarding the issue on which, without log-rolling, that group would be in a minority position. A third condition to be met is that each group must be in a pivotal position regarding the issue on which, without log-rolling, it would have the majority on its side. In the case of unanimous votes, the last two conditions can be reduced to the requirement that both groups must display contrary intensities of preferences in both issues.

For the extended model approach, the presence of divergent preferential intensities can be interpreted in that the parties allocate different weights to the various interest groups, and that the same policies can accordingly lead to greater or lesser gains in popularity for each of the coalition partners. In the case of a tax reform, the conditions for mutually beneficial implicit vote-trading are fulfilled when the parties have contrary preferences regarding changes in two taxes. Furthermore, each party must display a stronger preference for a particular tax policy measure in the sense that the measure in question holds the promise of popularity gains among those interest groups which, from that party's point of view, are particularly influential.

These conditions were fulfilled at the time Germany introduced the ETR. The Bündnis90/Grüne (Green) party is more exposed to the influence of environmental associations, and thus had a stronger preference for an eco-tax increase, while expecting no gain in popularity from a cut in payroll taxes. The Social Democrat party (SPD), on the other hand, takes particular consideration of the trade unions in its decisions, and thus spoke out primarily in favour of a reduction of non-wage labour costs. As far as the SPD was concerned, an increase in ecological taxes could be expected to lead to a loss of popularity, since the environmental associations bear little weight with the party.

It would thus have been impossible for the two parties to assert their preferred policies without log-rolling, yet it proved possible to agree to the ETR as a package deal, because each party gave up ground

on the issue for which it had a weaker preference. The ETR can thus be interpreted as the result of vote-trading between the environmentally committed Green party and the socio-politically oriented SPD. This view is borne out by the name given to the package: the “eco-social tax reform.” The conditions required for a log-rolling situation were thus created by the 1998 federal election and utilised by the parties’ implicit vote-trading in the form of the ETR.

5. Conclusion: conditions contributing to the success of the ecological tax reform in Germany

After almost twenty years of debate, the ETR was introduced in Germany at a time in which the prevailing conditions appeared anything but favourable. The economic downturn had been accompanied by a decline in the willingness of the German population to support environmental policy interventions. Moreover, while environmental dangers are on the increase, they are of a more global nature and are thus less tangible. Why then did it prove possible to implement the ETR, despite these apparently unfavourable conditions? Based on the analysis carried out in the previous sections, the factors which contributed to the successful introduction of Germany’s ETR shall be identified.

First, there is the party factor. The change of government following the 1998 general election paved the way for beneficial vote-trading in the form of the ETR. If the red/green coalition had not come to power there would probably not have been a national ETR, because the clientèle of the conservative/liberal coalition consists primarily of industrial associations and thus of the most fervent opponents of the ETR. In contrast to the findings of political scientific research, it would thus appear that the new environmental policy is characterised not by continuity but by change.

The second factor is probably the utilization of the double dividend by the political system. By linking socio-political and environmental-political interests, a considerable boost was given to the political feasibility of the ETR. The inherent trade-off between the two achievable dividends was resolved by the creation of an eco-fiscal illusion. It was possible to convey to the public both the environmental-political motivation behind the eco-tax and the positive effects on employment generated by the utilisation of tax revenues. Emphasis of the double dividend created an alliance of support, consisting of environmental associations, representatives of labour-intensive industries, and trade unions. For the first time since the eco-tax debate began, this new alliance of the industrial and trade union interests of those industries standing to benefit from the eco-structural change on the one hand, and the ecological interests of the environmental movement on the other, was able to form a significant counterweight to those industries standing to be disadvantaged by an ETR.

The final, but by no means least important, factor contributing to the success of the ETR is its specific design, which minimised resistance and maximised approval. The decision to tax energy products on a subtly differentiated basis, under the exclusion of coal, meant that a large part of the tax burden—which, moreover, was relatively unnoticeable—could be passed on to less influential groups. Furthermore, opposition from the industrial associations was kept in check by special regulations and reduced tax rates for the manufacturing industry. The gradual introduction of the ETR, with step-by-step increases in

the tax rates, has probably led to a reduction of resistance in the longer term. On the other hand, the choice of utilisation of eco-tax revenue has guaranteed the support of virtually all social groups.

Acknowledgements

The author would like to thank the following for their willingness to take part in the interviews: Peter P. Wrany (Federal Ministry of Finance), Franz-Josef Schafhausen (Federal Ministry for the Environment, Nature Conservation and Reactor Safety), Dr. Manfred Schulz (Federal Ministry of Economics and Technology), Dr. Wolf-Dieter Glatzel (Federal Environmental Agency [UBA]), Wolf v. Fabeck (Solar Promotion Association), Dr. Horst Heuter (Federation of German Trade Unions [DGB]), Dr. Birgit Layes (Association of the German Petroleum Industry), Dr. Armin Rockholz (German Federation of Chambers of Trade and Commerce [DIHT]), Dr. Joachim Hein (Federation of German Trade Associations), Anja Köhne (German Nature Conservation Ring), Matthias Seiche (Federation of Environment and Nature Conservation Germany), Jürgen Mayer (Forum Environment and Development), Dr. Peter Paziorek (CDU), Dr. Reinhard Loske (Bündnis90/Grüne), Birgit Homburger (FDP), and Prof. Monika Ganseforth (SPD).

References

- Arbeit & Ökologie Briefe. 1995. Ökologische Steuerreform—die konträren Standpunkte von IG Bergbau, IG Chemie, IG Metall, und ÖTV. *Arbeit & Ökologie Briefe* 17:13–15.
- Bach, S. 1994. Warum sind alte Steuern gute Steuern? *Wirtschaftsdienst*. 74:151–156.
- Bernholz, P. and F. Breyer. 1994. *Grundlagen der Politischen Ökonomie, 2: Ökonomische Theorie der Politik*. 3. Ed.. Tübingen: Mohr.
- Bovenberg, L. and R. de Mooij. 1994. Environmental levies and distortionary taxation. *American Economic Review* 94:1085–1089.
- Brennan, G. and J. Buchanan. 1980. *The power to tax. Analytical foundations of a fiscal constitution*. Cambridge: Cambridge University Press.
- Bundesverband der Deutschen Industrie (BDI). 1994. *Umsteuern mit Ökosteuern?* Cologne: BDI-Drucksache Nr. 278.
- Coughlin, P., D. Mueller, and P. Murrell. 1990. Electoral politics, interest groups, and the size of government. *Economic Inquiry* 28:682–705.
- Deutscher Bundestag. 2002. Regierung rechnet 2002 mit Ökosteuer-Einnahmen von 14,3 Milliarden €, *heute im Bundestag*, 25, Berlin: Deutscher Bundestag.
- Deutscher Gewerkschaftsbund (DGB). 1999. *Stellungnahme des DGB zum Entwurf eines Gesetzes zum Einstieg in die ökologische Steuerreform*. Düsseldorf: DGB.
- Dixit, A., G. Grossman, and E. Helpman. 1997. Common agency and coordination: General theory and application to government policy making. *Journal of Political Economy* 105:752–769.
- Downs, A. 1968. *Ökonomische Theorie der Demokratie*. Tübingen: Mohr.
- Folkers, C. 1983. Zu einer positiven Theorie der Steuerreform. In *Staatsfinanzierung im Wandel*, edited by K.-H. Hansmeyer, 189–211. Berlin: Duncker & Humblot.
- Frey, D., V. Brandstätter, and B. Schuster. 1994. Das ökonomische Modell aus psychologischer Sicht. In *Stand und Entwicklung der Finanzpsychologie*, edited by C. Smekal and E. Theurl, 65–105. Baden-Baden: Nomos.
- Gawel, E. 1994. *Zur Neuen Politischen Ökonomie der Umweltabgabe*. Köln: Cologne University Discussion Paper No. 92.

- Gawel, E. and F. Schneider. 1996. *Umsetzungsprobleme ökologisch orientierter Steuerpolitik: Eine polit-ökonomische Analyse*. Linz: Linz University Discussion Paper No. 9621.
- Hettich, W. and S. Winer. 1984. A positive model of tax structure. *Journal of Public Economics* 24:67–87.
- . 1988. Economic and political foundations of tax structure. *American Economic Review* 78:701–712.
- . 1993. *Optimal representative taxation, information and tax reform*. Konstanz: Sonderforschungsbereich 178: Discussion Paper No. 210.
- . 1997. The political economy of taxation. In *Perspectives on public choice*, edited by D. Mueller. Cambridge: Cambridge University Press.
- Kirchgässner, G. 1993. Akzeptieren die Bürger Steuererhöhungen? Einige Bemerkungen im Zusammenhang mit der Erhöhung des Treibstoffzolls. *Aussenwirtschaft* 48:153–174.
- Meyer-Krahmer, F. 1979. *Politische Entscheidungsprozesse und Ökonomische Theorie der Politik*. Frankfurt am Main: Campus.
- Neck, R. 1983. Zur politischen Ökonomie von Steuerreformen. In *Staatsfinanzierung im Wandel*, edited by K.-H. Hansmeyer, 141–169. Berlin: Duncker & Humblot.
- Pommerehne, W. and F. Schneider. 1978. Fiscal illusion, political institutions, and local public spending. *Kyklos* 31:381–408.
- Rey, P. 1990. *Der Einfluß von Interessengruppen im ökonomischen System der Bundesrepublik Deutschland auf politische Entscheidungsprozesse, dargestellt am Beispiel der Umweltpolitik*. Unpublished doctoral thesis, University of Bremen.
- Schmölders, G. 1960. “Unmerkliche” Steuern. *Finanzarchiv N. F.* 20:23–34.
- . 1970. *Finanz- und Steuerpsychologie*. Hamburg: Rowohlt.
- Schneider, F. 1999. *Induzieren ökologische Steuerreformen einen Lenkungseffekt oder nur volle Staatskassen? Einige volkswirtschaftliche Überlegungen*. Heidelberg: Institute of Economics, Heidelberg University.
- Schneider, F. and J. Volkert. 1999. No chance for incentive-oriented environmental policies in representative democracies? A public choice analysis. *Ecological Economics* 31:123–138.
- Seigle, C. 1990. A theory of the politically optimal commodity tax. *Economic Inquiry* 28:586–603.
- Verband Industrielle Kraftwirtschaft (VIK). 1995. *Ökologische Steuerreform—Auswirkungen auf den Produktionsfaktor Energie*. Essen: VIK-Berichte No. 206.