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**GERMANY'S ECOTAX REFORM 1999 – 2003:
IMPLEMENTATION, IMPACT, FUTURE DEVELOPMENT**

Comparing experiences from the UK and Germany

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Green Budget Germany (Forum Ökologisch-Soziale Marktwirtschaft e.V./ FÖS) is a nonprofit organisation, founded in 1994, with membership open to everyone. We specialize in Market-Based Instruments of Environment Policy (MBI) and participate in the German and European Ecotax and Emission Trading debate with own contributions. We seek dialogue with the business, scientific and political communities. With a number of partners, we launched **Green Budget Europe** as European Platform to advance MBI on September 25th, 2008 in Brussels. Among other publications, we publish newsletters in German and English: ÖkoSteuerNews and GreenBudgetNews.

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1. Introduction

This paper presents the implementation, impact and development of the social-ecological tax reform in Germany. The original version of this paper was a PowerPoint presentation at the “Applied Environmental Economics Conference (envecon)” in London in March 2005¹. Implemented from 1999 to 2003, the tax resulted in general, incremental increases in energy taxation and most of all, on transport fuels. In accordance with the principle of the ‘double dividend’ of environmental taxation, the tax was revenue-neutral and monies raised were used to reduce pensions payments. Thus, the tax constituted a steering mechanism to encourage energy saving and environmentally-friendly behaviour and had the additional benefit of lowering labour costs.

First of all, the paper compares and contrasts the German and British economies and examines the influence of these differences on the political debate – which has become extremely polarised in Germany – on environmental taxation in the two countries. The paper goes on to explain the underlying mechanisms of the social-ecological tax reform – the incremental increase in taxation on fuels and energy in five annual stages – and to evaluate the reform’s preliminary effects.

The paper examines lessons learned from the German debate and the future of environmental fiscal reform from a European perspective. The paper shows that, while the ecotax in Germany has received extremely limited popular acceptance, the majority of arguments against ecological taxation can be refuted by empirical facts. The negative reception for the ecotax in Germany is attributable, at least in part, to a series of marketing errors.

The paper concludes by emphasising the importance of environmental protection and climate change mitigation as central elements of the policy of the European Union in the future. This is what we call our European Dream of the EU as a driving force for sustainability, taking on new challenges and incorporating new instruments and new rules for global sustainability.

2. Comparing the UK and Germany

In spite of a great deal of rhetoric to the contrary, ecotaxes in both the UK and Germany represent only a very small proportion of Gross Domestic Product – in the UK, this amounted to 3.1 percent of GDP in 2003, down from 3.6 percent in 1999. The figures from Germany are similar, where ecotaxes amount to 4.2 percent of GDP. Nevertheless, even relatively low levels of ecological taxation seem to have contributed to the reduction of greenhouse gas emissions in the two EU member states, which are closer to achieving their Kyoto targets than the majority of states in the European Union.²

While ecotax levels are similarly low, there are significant differences between the economies of the two countries. Taxes and social security payments amount to 38 percent of GDP in the UK and 45 percent in Germany – providing one of the strongest arguments in favour of the concept of the double dividend as an integral part of the German ecotax, where the pressing problem of unemployment has rendered the need to lower labour costs (and in particular ancillary wage costs) more urgent than ever before.

The second difference is the relative significance of different sectors to the economies of the two countries. Not only is the share of industry in the German economy one fifth greater than in the UK, but as well, Germany is far more dependent on exports than the UK. German exports are worth more than twice as much as UK exports and 1 in 4 jobs in Germany is dependent on foreign trade.

¹ The presentation can be downloaded from: www.foes.de/pdf/D200503-18_GermanETR-SBs07.pdf

² Although in terms of per capita volume of carbon dioxide emissions, both countries are close to the EU average.

This economic structure has had a very specific impact on the ecotax debate, which continues to focus on issues of international competitiveness in relation to trade and industry. Nevertheless, what such arguments ignore is that rising energy prices do not jeopardise competitiveness as a matter of course, but rather, can result in innovation and improved competitiveness in the long-term as well.

3. The Ecotax in Germany

The ecotax in Germany was introduced in 1999. The tax consisted of a series of incremental tax increases on energy in five annual stages and ran from 1999 to 2003. For the most part, the rates of existing taxes were simply increased - the only new tax introduced was the electricity tax. The new tax levels have been retained since this time, but regrettably, there were no further tax increases in 2004 and increases also seem unlikely in 2005. **Exhibit 1** shows a breakdown of ecotax rates.

One of the most positive aspects of the reform is its extremely low administration costs. In Germany, the average administrative cost of taxation as a percentage of its total revenue amounts to 1.6 percent, whereas only 0.1 percent of total ecotax revenue is spent on administration. In contrast, 2.2 percent of income tax revenue and 5 percent of corporate income tax revenue are required to cover the administrative costs of these taxes.

Exhibit 1) Tax Rates on Energy 1998 – 2004 (Euro Cent per Unit Energy)

Energy source	Unit	1998	Δ1999	Δ2000	Δ2001	Δ2002	Δ2003	2003	ΔΣ	
		before ecotax	Annual increase					after ecotax	99-03	
+31%	Petrol	litre	50.1	+3.1	+3.1	+3.1	+3.1	+3.1	65.6	15,5
+49%	Diesel	litre	31.7	+3.1	+3.1	+3.1	+3.1	+3.1	47.2	15,5
+51%	Heating oil	litre	4.1	+2.1	-	-	-	-	6.2	2,1
+200%	Natural gas	kWh	0.2	+0.2	-	-	-	+0.2	0.6	0,4
	Electricity	kWh	-	+1.0	+0,3	+0,3	+0,3	+0,3	2.1	2,1

4. The impact of the Ecotax in Germany

The financial impact of the ecological tax reform in Germany was considerable. Overall, energy taxes increased by 55 percent from 34.1 billion Euros in 1998 to around 52.7 billion in 2003. These revenues were used for the most part (88 percent) to reduce state pension insurance contributions, 9 percent was used for the consolidation of the budget and 3 percent was used for the federal government’s market incentive programme to promote investments in renewable energies, and for the Reconstruction Loan Corporation’s CO₂ building renovation programme for the energy-efficient renovation of old buildings.

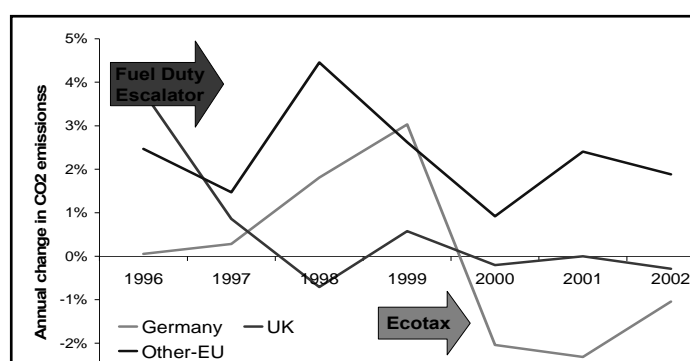
The ecotax enabled state pension costs to be reduced by an average of 480 Euros per employee or calculatively, by 1.7 percent – although due to unrelated pensions payments increases, pension costs fell by only 0.8 percent in real terms. This was a most regrettable policy decision, as it undermined one of the most positive impacts of the tax and rendered the ecotax more difficult to ‘sell’ to the general public. The ecotax nevertheless enabled the stabilisation of the overall tax and social secu-

rity burden on labour while increasing the tax burden on nature by more than 20 percent (from 8 to 10 percent of total tax levies between 1998 and 2003).

In addition, during its first five years in force, the ecological tax reform brought tangible environmental improvements:³

- For the first time since the establishment of the Federal Republic of Germany, fuel consumption, and hence CO₂ emissions in the transport sector as well, fell for four years in a row (2000-2003), whereas prior to this they had increased almost every year without exception. As a result, CO₂ emissions were cut by between six and seven percent compared with the high of 1999. As shown in **Exhibit 2**, carbon dioxide transport emissions fell in the UK and Germany against the general trend in the rest of the European Union, a development at least partly attributable to the fuel duty escalator and the ecotax on transport fuels.⁴

Exhibit 2) The Impact of Ecological Taxation on Transport Emissions in the UK and Germany



- The main reasons behind the decline in fuel consumption in Germany (see **Exhibit 3**) – apart from the poor economic situation since 2001 and the phenomenon of ‘petrol tourism’ (customers crossing the border to fill up in countries where fuel prices are lower) – were the adoption of fuel-conserving driving practices, a reduction in mileage driven, and initial success in attempts to reduce the specific fuel consumption of new vehicles.

Exhibit 3) Declining fuel consumption in road traffic (source: Federal Statistics Office)

2000	2001	2002	2003
-2.8%	-1.0%	-2.3%	-2.9%

- A long-standing trend has been reversed and the number of passengers using public transport has increased steadily since 1999 (see **Exhibit 4**).

³ Although we acknowledge that it is difficult to ascertain which developments are directly attributable to the social-ecological tax reform.

⁴ However, in spite of the considerable ecotax increases on petrol and diesel, it is of note that the high price of transport fuels in Germany – and for that matter in the UK – is not even largely attributable to ecological taxation. Transport fuel price increases over the past few years are primarily attributable to rising crude oil prices. Moreover, only one third of mineral oil taxation was attributable to a form of ecological taxation, the fuel duty escalator, in the UK in 2005, while in Germany ecological taxation amounted to less than one quarter of mineral oil taxation in the same year.

Exhibit 4) Increases in the number of passengers on public transport, 1999-2003
(source: Federal Statistics Office)

1999	2000	2001	2002	2003
+ 0.4 %	+ 0.8 %	+ 0.8 %	+ 0.5 %	+ 1.5 %

- Fuel consumption has also reverted to being a key decision-making factor when purchasing a vehicle: The consumer research organisation GfK (Nuremberg) undertook a representative survey of German car drivers and ascertained that for 63 percent of all those questioned, high fuel prices influenced the purchase decision of their next car. According to a recent survey by the market research institute Emnid, 89 percent of respondents claimed that environmental compatibility is their top priority when buying a car.
- As well as the reduction in fuel consumption, the number of natural gas-powered vehicles in Germany also increased by 2,000 between 2000 and 2004, to more than 20,000 in total. This reflects the tax advantages of using natural gas in the transport sector, as well as the commitment to develop a nation-wide network of natural gas filling stations by 2006.
- The number of new registrations of five- and three-litre cars also increased significantly.⁵
- Transport companies are responding to the growing pressure to adapt with increasingly rational vehicle deployment. For example, according to the Federal Office for Freight Traffic, the proportion of unladen mileage driven by German HGVs has been further reduced, whilst laden mileage has increased, both to a slightly greater extent in 2000 than in previous years.
- According to figures provided by the umbrella organisation for German CarSharing providers (Bundesverband CarSharing), the number of customers who are members of a car sharing organisation increased by 26 percent in 2000, 22 percent in 2001, 8 percent in 2002 and 15 percent in 2003 in relation to the previous year.
- The manufacturers of solar thermal installations for the supply of hot water are likewise showing double figure growth rates. On the whole, renewable energies are booming, thanks in part to the ecotax on heating fuels and the market incentive programme for renewable energies funded from the ecotax. At the end of 2002, there were more than 4.2 million square metres of solar panels in total in Germany, twice the number installed in 1998.⁶

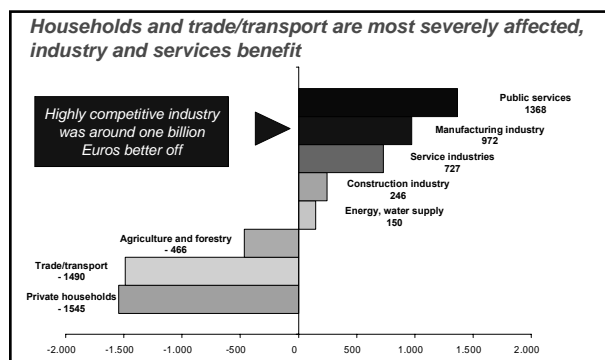
5. An analysis of the Ecotax in Germany

While the majority of arguments against the ecotax are poor and can be easily refuted, the 1999 German ecotax reform does have considerable potential for improvement.

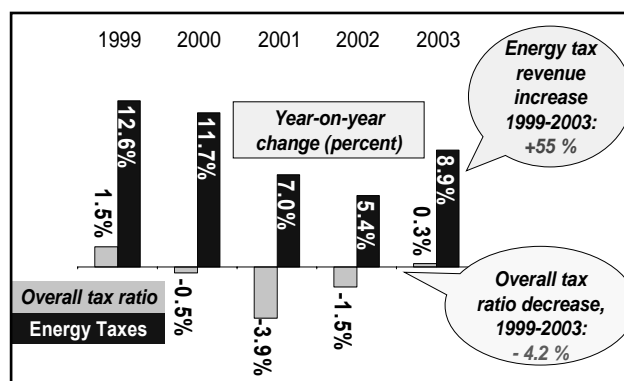
As mentioned above, critics of the ecotax continue to claim that ecotaxes jeopardise the competitiveness of German industry. In fact, German industry receives net tax relief to the tune of €4 ¼ billion per annum as a result of the ecotax (see [Exhibit 5](#)).

⁵ Low-mileage vehicles that travel 100 kilometres (at an optimum speed) on five and three litres of fuel respectively.

⁶ This list of environmental improvements is taken from Green Budget Germany’s 2004 Memorandum: www.foes.de/pdf/GBGMemorandum2004.pdf

Exhibit 5) Net Winners and Losers of the Ecotax by Industrial Sector (in million Euro)

Similarly, it has been claimed that ecotax increases the overall tax burden, when in fact this has decreased and resulted in net relief for the vast majority of taxpayers, as shown in **Exhibit 6**.

Exhibit 6) Energy Tax Revenue and Total Tax Revenue in Comparison with the Previous Year

A more legitimate criticism perhaps is the concern that the ecotax base will be eroded over time – yet this hurdle will need to be overcome in the long-term or not at all: revenues from mineral oil tax, for example, have not decreased over time as a result of tax increases. A common argument is also that energy taxes hit the poor (particularly non-earners) harder than the rich – however, this can be compensated for, at least in part, by energy-cost support or other instruments. Fears that ecotaxes could only be introduced on a global scale for competitiveness reasons have also proven unfounded – as the unilateral introduction of ecotaxes in many European Union member states has shown. Finally, claims that ecotaxes do not have ecological results are false, as the summary of tangible environmental improvements above has shown.

Many criticisms of the ecotax can be refuted. Nevertheless, as mentioned above, there is considerable room for improvement to the 1999 German ecotax. There are more loop holes and exceptions to the tax than necessary and many environmentally damaging subsidies survived the ecotax reform untouched. For example, coal – which is heavily subsidised in Germany – was totally excluded from the ecotax and tax rates on heating oil and natural gas was not increased sufficiently⁷. In the long term, it will prove necessary to revise the complicated system of tax relief for energy-intensive industry within the ecotax system, as ecotax rebates to the tune of 97 percent can hardly be regarded

⁷ As shown in exhibit 2, tax on heating oil was only increased once in 1999 and tax on natural gas twice in 1999 and 2003.

as incentivising energy saving. One possible option might be the total exemption of such industries, which are in any case now covered by the European Union's Emissions Trading Scheme.

An important drawback as regards the acceptance of the ecotax on the part of the general public resulted from extremely poor ecotax marketing on the part of policy makers. As a result, revenue neutrality and the concept of the double dividend were neither understood nor accepted by the general public. In spite of the majority of industry being net winners from the reform, as **Exhibit 5** shows, relief to ancillary wage costs in the guise of reduced pensions payments remains largely unrecognised and opposition continues much as before.

Green Budget Germany has developed a programme containing a series of demands for the improvement of the social-ecological tax reform and its development as a more wide-ranging ecological fiscal reform.

6. Green Budget Germany's demands for the improvement of the Ecotax

Unfortunately, the political situation in Germany in late 2004 and 2005 – with elections planned for 2006, extremely high rates of unemployment of approximately 12.6 percent and economic stagnation (for which ecotax has regrettably proven to be a useful scapegoat in the past) – requires that Green Budget Germany takes a cautious approach to the subject of ecotax reform. For this reason, the demands outlined in Green Budget Germany's 2004 Memorandum⁸ focussed not only on the introduction of further incremental ecotax increases, but also on other, more palatable issues.

Green Budget Germany's more cautious suggestions include:

- The introduction of equal ecotax rates on diesel and petrol (as in e.g. the UK and Switzerland).
- The development of a more ecologically sound vehicle tax based on the environmental pollution caused by the vehicle in question. Any changes are to be revenue-neutral.
- An end to tax relief for air travel: VAT should be paid on all international flight tickets, kerosene should be levied on internal flights (and in the long-term, on international flights as well).
- The taxation of alternative fuels to 50 to 75 percent of their energy content in order to meet infrastructure costs, to be implemented by 2020 at the latest.
- The reduction of the VAT rate on all rail tickets purchased in Germany from 16 to 7 percent in order to create fair competitive conditions for long-distance air travel.
- The revision of current exemptions to the ecotax for energy-intensive manufacturing industries.
- The earmarking of ten percent of ecotax revenues for the promotion of renewable energies. Although not in favour of earmarking ecotax revenues in the long term, Green Budget Germany nevertheless supports this primarily populist measure to undermine arguments that ecotaxes are not ecological because their revenues are not invested in environmental projects.
- The abolition of taxes on the use of oil and gas in electricity generation. Combined Heat and Power (CHP) generation should be promoted as a deliberate policy measure.
- Environmentally harmful subsidies are to be phased out at the earliest possible opportunity.

⁸ Available for download at: www.foes.de/pdf/GBGMemorandum2004.pdf

- The federal government must launch an information campaign on the socio-ecological tax reform to dispel widespread myths prevalent among the general public and to provide objective information on the concept, effects and benefits of the reform.

7. The European context

The German ecological tax reform reflects a wider consensus within the European Union reached by the early 1990s on the most viable form of ecological taxation. This consensus includes concentration on energy; cautious, incremental tax increases (of between 3 and 5 percent per annum) based on detailed macro-economic models; revenue neutrality for all forms of ecotaxation and within this context, burden shifting from labour to nature; export protection (i.e., exemptions) for energy-intensive sectors; and finally, a European dimension to ecotax debate and reform.

Sustainability is a central part of what we refer to as our European Dream of the European Union fulfilling its role as the driving force for global environmental fiscal reform and climate change mitigation. In this respect, the EU has already provided leadership by example, introducing EU Energy Tax Directive 2003/96/EC in 2003, which laid down minimum rates of taxation on energy for all EU member states, and launching an Emissions Trading Scheme designed to facilitate the achievement of Kyoto emissions reduction targets on 1st January 2005.

What role the European Union will play in the future remains to be seen, but the hope must be that it works towards achieving a just and sustainable world order, globally shared responsibility for peace and security and worldwide protection of our global climate and resources. What the future now needs is new rules and new tools, and what the European Union offers us is the possibility of being world leaders in the achievement of this goal.