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Environmental fiscal reform in Europe: research, experience and best practice

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Policy implications

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In times of fiscal crisis and budget deficits, most governments are faced with the need to increase taxes. The question is – which taxes to increase? Environmental taxation and other environmental fiscal reform (EFR) measures have the potential to raise revenues to meet budget deficits while greening the European economy. Energy taxes, emission trading and removal of environmentally harmful subsidies worth millions are just three measures that can help the EU meet its 2020 energy efficiency and climate change targets and clean up the European environment, while also raising revenue, creating green jobs, protecting the vulnerable in society from price increases, and maintaining the competitiveness of the European economy. Attempts to hold back these policies, as shown by the EU Commission's failure to put forward a

concrete proposal for the revision of the Energy Tax Directive, as well as by current plans to extend subsidies to the coal industry to 2014, are not in the interest of our economy, climate or society.

Introduction

The benefits of strong timely action on climate change significantly outweigh the costs. The Stern Review (2006) predicts that climate change could lead to reductions in global GDP of up to 20% if action is not taken to limit its effects. Environmental fiscal reform (EFR) is a tried and tested policy tool which meets reduction targets efficiently and effectively. The flexibility of EFR can substantially reduce the costs of achieving policy objectives. EFR is associated with benefits such as gains in GDP growth, increased employment, and incentives for innovation. EFR ensures that the transition to a low-carbon economy is achieved at the lowest cost.

After the disastrous results of the COP15 in December 2009 in Copenhagen, progressive national and regional actors are more than ever in favour of using EFR instead of or as a supplement to regulation. Future-oriented governments are very aware that they have to restructure their economy according to the principles of sustainable, low-carbon growth. They will be the world market leaders of tomorrow. EFR are their formula for success.

This policy brief describes the basic principles behind EFR and the current methods of implementation being used at EU level and

within individual EU member states. It looks at examples of EFR that have produced both positive and limited results in relation to both the environment and the economy, thereby impacting upon the two most significant issues faced by EU decision-makers today.

What is environmental fiscal reform?

EFR refers to a range of taxation and pricing measures which can raise fiscal revenues while promoting environmental goals, for example, taxes on natural resource use, pollution charges, fees charged for environmentally damaging practices, and reducing and/or restructuring environmentally harmful subsidies (OECD, 2005).

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The implementation of EFR has significant benefits – environmental, economic, and social. EFR directly addresses environmental problems by increasing the price of polluting or of consuming scarce goods. This sets a *price signal* within the economy which acts as an incentive to change behaviour and internalises part or all of the costs of environmental damage within the cost of polluting. EFR thus results in reduced pollution and improved resource efficiency.

EFR has the further benefit that the revenues raised can be used to reduce distortions in the tax system by means of a so-called 'green tax shift' that reduces taxes on labour or social security contributions. This shift can result in increased employment due to reduced labour costs and innovation effects in response to the price changes, known as the 'double dividend' (Federal Environment Agency, 2004). There is also some evidence that EFR can result in a slightly higher rate of growth than business-as-usual scenarios (see section on the COMETR project below). Clearly, such economic effects also have positive social consequences, notably increased employment and improvements to the environment.

One of the problems faced by EFR initiatives, however, is avoiding the 'rebound effect' – i.e. the notion that energy efficiency improvements in response to increased energy prices will result in consumers using more energy. An example of this is the tendency to leave low-energy lights on more than old-fashioned tungsten bulbs, as 'it hardly matters'. There are, however, a number of measures which may combat this effect: 'Escalators' are tax rates that increase over time by a set amount above the rate of inflation, thus preventing them from losing their 'bite'. The 'Fuel Duty Escalator' in the UK is a prime example of this. Ultimately, the aim is to use the fiscal system to set the price of resource consumption at such a level that it lies in balance with sustainable supplies of renewable or recycled resources and ensures that the biosphere is capable of assimilating the pollution produced (Weizsäcker et al. 2009).

Environmental taxes often encounter strong opposition because they are viewed by many as regressive, i.e. they affect the poorest the most. However, environmental taxation need not be regressive as long as compensatory measures are introduced to reduce the impact on lower earners, for example by means of reduced social security payments or the introduction of an eco-bonus.

A further issue often raised is that of competitiveness, with businesses claiming that increased costs, resulting from stringent environmental regulations, cause them to lose out on business opportunities or force relocation: this was one argument used by protesters against the UK fuel escalator in September 2000. This can also lead to the phenomenon of 'carbon leakage': a country imports carbon-intensive goods that can no longer be competitively produced domestically because of the EFR. However, research conducted by the OECD in 2009 shows that carbon leakage is in practice limited, and that if all developed countries agreed to strict limitations on their carbon emissions, only 2% of these emissions would leak to other countries outside these agreements (OECD 2009). It also

seems likely that the potential for job creation from low-carbon industry is considerably greater than any potential job losses due to loss of competitiveness or relocation.

Recent research on EFR in Europe – evidence of a cleaner environment, new jobs, GDP growth and improved competitiveness

The following describes very briefly some recent research on EFR, which has revealed that common concerns associated with EFR measures – negative impacts on competitiveness and growth, regressive impacts and job losses – are not substantiated by current research.

The petrE project – productivity and environmental tax reform in Europe – modelled the impact of a tax on carbon required to achieve specified CO₂ emissions reduction targets.¹ Modelling indicated that, while a high carbon price is required to meet EU reduction targets, this would have a positive impact on growth of between 0.2-0.8% of GDP, generate revenues of 1.8-6.2% of GDP, and result in an increase in employment of between 1% and 2.7%.

Similarly, the Green Fiscal Commission found that a broad-based green tax shift alone would enable the UK to meet its greenhouse gas emission reduction targets by 2020. The resulting reduced cost of labour would create about 455,000 extra jobs by 2020, while economic growth would be only slightly negatively affected (Green Fiscal Commission, 2009).

The COMETR project – Competitiveness Effects of Environmental Tax Reforms – investigated and modelled ex post the impacts of environmental taxation on competitiveness and growth.² In those countries that had implemented a revenue-neutral ETR, CO₂ emissions were reduced by an average of 3-4%. For five of the seven countries in the study, modelling revealed a small increase in GDP growth in relation to a business-as-usual scenario. There was also evidence of a moderately positive impact of energy taxes on economic performance consistent with the energy tax pressure having stimulated energy savings and innovative developments that improve competitiveness.

Finally, the study "Climate Change and Employment – Impact on employment of climate change and CO₂ emission reduction measures in the EU-25 to 2030", conducted by the European Trade Union Confederation (ETUC), Instituto Sindical de Trabajo, Ambiente y Salud (ISTAS), Social Development Agency (SDA), Syndex and Wuppertal Institute, showed that by using Market-Based Instruments (MBI) such as ecological taxation to combat climate change, more jobs will be created in energy-efficient industries than those lost in energy-intensive sectors.³

1 For more information, please see: <http://www.petre.org.uk/>.

2 For more information, please see: <http://www2.dmu.dk/cometr/>.

3 For more information, please see: <http://www.tradeunionpress.eu/Web/EN/Activities/Environment/Studyclimatechange/rapport.pdf>.

The European experience

EFR at European level

The European Union strongly supports the use of EFR instruments. Clear examples of such support are the Energy Taxation Directive and the EU Emissions Trading Scheme. More intensive use of MBI is also advocated in the Sixth Environmental Action Programme (6EAP) and the EU Sustainable Development Strategy (including revisions). The European Commission's 2007 Green Paper on MBI for environmental policy and DG TAXUD's ongoing interest in carbon taxation⁴ and other EFR issues further reflect the Commission's interest in this area. Climate Commissioner Connie Hedegaard recently proposed increasing the EU's current target of 20% reduction of GHG by 2020 to 30%, as 20% will require significantly less investment than was anticipated in the 2008 calculations.

The **Energy Tax Directive (ETD)** 2003/96/EC started as an internal market harmonisation instrument and set minimum rates of taxation on a number of energy products, including petrol, diesel and electricity.⁵ Attempts to revise the Directive are ongoing and are expected to be adopted by the new Commission in 2010.⁶ The changes proposed in the Commission's leaked 2009 document are an attempt to make these rates more consistent in their aims of reducing CO₂ emissions and encouraging energy efficiency in a more systematic way. To this end, the new Commission has proposed to introduce a CO₂ tax distinct from the general energy tax and to change tax rates to reflect the calorific content of each fuel, as well as introducing a new tax structure, that would put an end to low tax levels on harmful commodities such as coal and diesel. These changes would create the much needed incentive for innovation and the expansion of renewable energy sources.

Green Budget Europe and others are concerned, however, that even this initiative will be watered down by individual member states during the adoption process, and that the magnitude of the proposed tax increases is inadequate. The important new CO₂ tax is substantial but not sufficient as a market signal for a change in consumption patterns, as analysis of the European Emissions Trading System (ETS) seems to indicate that only market prices above 35€ per tonne of CO₂ represent an effective incentive to reduce emissions. The new proposal also fails to offset possible increases in inflation – an omission which could be dealt with by indexation of tax rates, linked to the development of GDP or the CPI (consumer price index), or an escalator, which proved a useful tool to gradually introduce environmental taxation in the United Kingdom and Germany.

The **EU Emissions Trading Scheme (ETS)**, launched in 2005⁷ is the largest cap-and-trade scheme in the world. By putting a price on each tonne of carbon emitted, primarily in the sectors of utilities and energy-intensive companies, the EU ETS is intended to drive investment in low-carbon technologies. Unfortunately, the price is still rather symbolic, as most of the allowances are allocated to industry at no additional cost. The development planned by the European Commission by 2013,⁸ however, entails a linear reduction of the cap by 1.74% per year, full auctioning for the energy sector, less exemptions for other industrial sectors, and the development of an OECD-wide trading system, giving rise to the hope that we will soon have a powerful tool to start full internalisation of external costs of CO₂ emissions. Increasing the geographic coverage of the scheme, increasing the number of greenhouse gases included, and reducing the number of exemptions will render the ETS more effective in terms of cost-efficient reduction of GHG emissions.⁹

There is also hope that the EU and indeed all G20 countries will make substantial progress towards eliminating environmentally harmful subsidies in the coming years, as reflected in political developments since the September 2009 G20 meeting in Pittsburgh.¹⁰ In addition, the EU2020 strategy contains a flagship initiative for a 'resource-efficient Europe', which targets subsidy reform. Current Commission proposals to extend coal subsidies to 2014 are thus to be criticised as being inconsistent with this trend.

EFR in the EU Member States: best practice, achievements and limitations

Many of the EU Member States have implemented EFR instruments, ranging from pollution taxes (e.g. on SO₂ and NO_x) to classical energy and carbon taxes, to product taxes and environmental service charges (OECD, 2009). All instruments aim to achieve the same goal: to reflect the cost of environmental damage in the price of the good/service/polluting substance being taxed. Some examples are given below.

Sweden

In Sweden, due to a carbon tax of 0.25 SEK/kg (\$100 per ton), first implemented in 1991 and increased in 1997 to 0.365 SEK/kg (\$150/ton), CO₂ emissions were reduced by 9% between 1990 and 2007. In a business-as-usual scenario it is estimated that CO₂ emissions today would be 20% higher. Economic growth amounted to 48% in the same period, proving that emission reductions can be achieved together with reasonable rates of growth.

4 For example, DG TAXUD arranged a conference on 30th November 2009 entitled "What Taxation for a Low-Carbon Economy"; the conference presentations and the webstream-video is available at: http://ec.europa.eu/taxation_customs/taxation/gen_info/tax_conferences/low_carbon/index_en.htm.

5 See the actual rates in Annex I, Tables A, B and C of Directive 2003/96/EC of 27.10.2003 <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2003:283:0051:0070:EN:PDF>.

6 Draft proposal for a revised ETD (2009) available at: <http://www.foes.de/pdf/Energy%20Taxation%20Interservice%20proposal2%20%282%29.pdf>.

7 The scheme is based on Directive 2003/87/EC, which entered into force on 25 October 2003.

8 The Directive 2009/29/EC amends the 2003/87/EC Directive, and can be accessed here: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:140:0063:0087:EN:PDF>.

9 For more information see Euractiv 2009: <http://www.euractiv.com/en/energy/energy-climate-change-integrated-eu-policy/article-160957>.

10 For details see: http://www.oecd.org/document/57/0,3343,en_2649_33713_45233017_1_1_1_1,00.html.

Crucial for Sweden's success was the ongoing willingness of all political parties to implement elements of EFR. This was achieved, at least in part, by granting rates of only 50% of the general carbon tax and imposing no energy tax for industrial consumers, in order to prevent the loss of a competitive edge. (OECD 2000).

Germany

In Germany, the ecological tax reform – a tax on energy, including electricity, natural gas, heating and transport fuels – contributed to a 2-3% reduction of overall CO₂ emissions between 1999-2003, while 250,000 additional jobs were estimated to have been created, mainly in the energy efficiency and renewable energy industry. Transport fuel consumption fell by 17% by the end of 2008 in comparison with the 1999 level. Public transport passengers increased by 3-5% per annum between 1999 and 2008.¹¹ However, these two impacts were also driven by a temporary and sharp increase in world oil prices. The latter helped further to draw public awareness to the urgency of improving energy efficiency.

The United Kingdom

Interest in EFR in the UK started in the period leading up to the publication of the 1990 Environment White Paper. Following this, the fuel duty escalator (FDE) was introduced in 1993 and was retained until 1999. It entailed an annual increase in fuel duty, above the rate of inflation, of 3% in 1993-94, 5% from 1994-95 to 1997-98, and 6% from 1998-99 to 1999-2000. The government also introduced tax cuts to the standard rate of income tax of 1% in both 1995 and 1996 (from 25-23%). Loss in revenue resulting from these cuts amounted to approximately £4.7bn – more or less the same as the revenues generated by the FDE from 1993-1997. In 1998-1999, a further income-tax cut of one percentage point cost around £2.3bn, which was more than compensated for by the revenues from the FDE in the same period.¹²

Regrettably, the combined impact of oil price rises in previous years and price rises attributable to the escalator resulted in widespread protests in the UK in 2000 and the FDE was abandoned for several years. One reason for the lack of public support for the FDE was the poor and inconsistent communication strategy of the government in the face of protests. In spite of the clear connection between income tax cuts and the FDE, the two were never explicitly linked. Neither were the obvious advantages of the FDE communicated: it raised significant revenues, reduced distortionary taxes, introduced elements of the polluter pays principle to car travel and rewarded labour by reducing employee rates of tax (Green Fiscal Commission, 2009).

11 For details see: <http://www.foes.de/themen/oekologische-steuerreform/?lang=en> and: <http://www.foes.de/pdf/GBGMemorandum2004.pdf>.

12 For more information on the FDE and its relationship to income tax cuts, see the Final Report of the UK Green Fiscal Commission, October 2009, available online at: http://www.greenfiscalcommission.org.uk/images/uploads/GFC_FinalReport.pdf (accessed on 25.01.2010).

Denmark

One of the first countries to introduce a CO₂-tax on energy consumption for households and businesses was Denmark, as early as the late 1970s. Initially implemented for fiscal purposes, the tax was later used to encourage energy efficiency and a switch to less CO₂-intensive fuels. Revenues generated were used to reduce labour-related taxes, with additional compensatory measures introduced to lessen the effects of indirect environmental taxation on lower income groups, e.g. increased child support. As part of a package of policy measures to improve the environmental performance of businesses, the energy and CO₂-taxes on business energy consumption were reformed in 1996, to include natural gas in the energy and CO₂-tax base and to expand the energy tax base to cover business use of energy for "household type" purposes. The level of CO₂-tax reimbursements was further lowered and made conditional on the conclusion of energy-efficiency agreements. The Danish Environmental Protection Agency (DEPA) estimates that CO₂ emissions were reduced by 24% between 1990 and 2001 compared with a business-as-usual scenario (University College Dublin, 2009).

The 1996 package also introduced a tax on the sulphur-dioxide (SO₂) content of fuels, resulting in an 80 per cent reduction in sulphur emissions between 1995 and 2000 (DEPA, 1999). Denmark now has the lowest SO₂-intensity per unit of GDP in the OECD area.

The Netherlands

A tax on flight tickets, such as is already in place in the UK, Ireland and France, was implemented in the Netherlands in 2008.¹³ The ticket tax added a surcharge of €11.25 to every short-haul flight and €45 to flights over 2,500 km. An impact assessment analysis from the Association for European Transport and contributors made the following estimates on the 5 million travellers (Association for European Transport and Contributors, 2008: 10):

- around 10% will choose to travel by train or car,
- around 45% will travel to/from a foreign airport,
- around 45% will refrain from journeys they would have made in a business-as-usual scenario.

This clearly demonstrates the potential of such a tax for reducing CO₂-emissions. Trains and cars emit much less CO₂/km than aeroplanes, and a reduction of the quantity of journeys taken suggests that many flights would not take place if the real cost of fossil-fuel based travel were taken into account. Unfortunately, at the time, Belgium and Germany¹⁵ had no ticket taxes, so that a significant market share in air travel moved away from the Netherlands to these two countries. As a result, the Netherlands abolished the tax on 1st July 2009. Although this instrument has proven extremely effective in other

13 Belgium abandoned its plans for a ticket tax in 2008 after fierce opposition from the aviation industry, airlines and regional airports. For more information: <http://www.transportenvironment.org/News/2008/11/Air-ticket-tax-in-Ireland-Belgium-backs-down/>.

countries, such as the UK, in this case we witness an example of the prisoner's dilemma (Axelrod, 1984). If a group of states were to implement such a measure – diminishing the benefits to consumers of crossing borders before flying – the measure would be much more effective.

France

Attempts were recently made in France with proposals to introduce a carbon tax of €17/tonne. Unfortunately these plans met with several difficulties. Following lengthy negotiations, the first proposed tax was ultimately declared 'unconstitutional' for fairness reasons, because it contained too many exemptions for industry. In spite of initiating a review process, which set out to include previously exempt industrial sectors, the unpopular proposals were dropped following a heavy defeat for the ruling party in regional elections. On a more positive note, France has successfully approved and introduced regulation for 44 environmental taxes/charges within the *Grenelle de l'Environnement* process.

Conclusion: EFR can raise revenue for budget deficits while incentivising the shift to a low-carbon economy

EFR can fulfil sustainability criteria and achieve significant emissions reductions. When an environmental tax is levied on a polluting practice, a price incentive is created which generates environmental benefits while stimulating innovation and leading to the creation of jobs in new low-carbon industries. However, EFR continues to face considerable political opposition due to fears from business that they will lose competitiveness and fears amongst other groups that environmental taxation is regressive. Neither of these results is by any means inevitable: EFR can and should incorporate measures to maintain competitiveness, create employment, and protect the vulnerable in society.

In many countries, budget deficits are such that governments will have no choice in the coming months and years but to increase taxes. The only question that remains is which taxes should be increased? Green groups and many leading economists are calling for increases in green taxation and other environmental fiscal reform measures, because only such measures have the potential to provide a solution to the current economic and environmental crises. In the face of the current global economic situation, EFR makes more sense than ever before.

References

Association for European Transport and Contributors (2008) Forecasting the impact of a ticket tax in the Netherlands, URL: <http://www.etcproceedings.org/paper/download/3495> [accessed on 13 September 2010].

Axelrod, R. M. (1984) *The Evolution of Cooperation*. New York: BASIC Books.

Danish Environmental Protection Agency (1999) *Economic Instruments In Environmental Protection in Denmark*, Danish Environmental Protection Agency, Ministry of Environment and Energy, pp 55-57, pp 93-96, 150. Available at: www.mst.dk [Accessed on 21 June 2010].

Federal German Environment Agency/ Umweltbundesamt (2004) Hintergrundpapier - „Quantifizierung der Effekte der Ökologischen Steuerreform auf Umwelt, Beschäftigung und Innovation“ UBA Dessau. [Online] Available at: <http://www.umweltbundesamt.de/uba-info-medien/dateien/2811.htm> [Accessed on 21 June 2010].

Green Fiscal Commission (2009) Final Report, October 2009, available at: http://www.greenfiscalcommission.org.uk/images/uploads/GFC_FinalReport.pdf [accessed on 25 January 2010].

HM Treasury (2006) *Stern Review on the Economics of Climate Change*, UK. [Online] Available at: http://www.hm-treasury.gov.uk/sternreview_index.htm [Accessed 17 June 2010].

Nienhaus, B./Knickel, K. (2004) *Ökologische Finanzreform in der Landwirtschaft – Situation, Bewertung und Handlungsempfehlungen*, Gregor Louisöder Umweltstiftung, Naturschutzbund, Förderverein Ökologische Steuerreform. [Online] Available at: <http://www.nabu.de/landwirtschaft/oekofinanzreform.pdf>, S.66 [Accessed on 17 June 2010].

Organisation for Economic Co-operation and Development (OECD) (2005) *DAC Guidelines and Reference Series – Environmental Fiscal Reform for Poverty Reduction*, OECD Paris, p. 12, [Online] Available at: <http://www.oecd.org/dataoecd/14/25/34996292.pdf> [Accessed 17 June 2010].

Organisation for Economic Co-operation and Development (OECD) (2000): *Workshop on Innovation and the Environment*, available at: <http://www.oecd.org/dataoecd/25/0/2108273.pdf> [accessed 13 September 2010].

Organisation for Economic Co-operation and Development (OECD) (2009) *OECD/EEA data-base on instruments used for environmental policy and natural resources management*. [Online] Available at: <http://www2.oecd.org/ecoinst/queries/index.htm> [Accessed 17 June 2010].

Schou, J. S. (2003) *Experiences with taxes/ levies on fertilisers and pesticides in European Countries – Contribution from Denmark*. [Online]. Available at: <http://files.foes.de/de/downloads/tagungvilm2005/denmarkstudy.pdf> [Accessed on 21 June 2010].

University College Dublin (2009) *Economic Instruments – Charges and taxes Energy Taxation* (Denmark), [Online] Available at: <http://www.economicinstruments.com/index.php/climate-change/article/120> [Accessed on 16 June 2010].

15 Germany announced in June 2010 the introduction of a tax on international air tickets as part of its austerity package.

Weizsäcker, E. et al. (2009) *Factor Five: Transforming the Global Economy through 80% Improvements in Resource Productivity*. Sterling USA: Earthscan.

Wright, S. A. L. (2006) *The Failure of the Dutch MINAS policy: a transaction cost analysis*, in: Aravossis, K., Kakaras, E., Brebbia, C.A., and Kungolos, A., 2006. *Environmental Economics and Investment Assessment*. Southampton: WIT Press. Available at: <http://www.witpress.com/contents/c0462.pdf> [Accessed on 21 June 2010].

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