

## GREEN TAXES - AN INSTRUMENT OF THE SUSTAINABLE DEVELOPMENT IN THE EUROPEAN UNION

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### **ABSTRACT**

*Many countries supporting Agenda 21, including the European Union and its Member States, recognize that much action is necessary to improve the environmental situation. During the last decade, the environmentalist movement has renewed its attack on the desirability of economic growth and has redoubled its call for drastic measures to ward off environmental catastrophe. Because of the threats implicit in the long-term effects of global warming, damage to the ozone layer, and the loss of biodiversity, modern countries must employ economic instruments for environmental protection and natural resource management. The increased use of green taxation has shown positive results in some countries through a shift from labor taxation towards pollution or resource-use taxation. Improved environmental indicators clearly underline the necessity to adopt this instrument in the future. The aim of that paper is to show the importance of using green taxes as an economic instrument to integrate an environmental regulatory regime. Environmental taxes can be divided into four broad categories: energy, transport, pollution, and resource taxes. Energy taxes are by far the most significant, representing around three quarters of the environmental tax receipts and around one twentieth of the total taxes and social contributions. Using statistical data, this paper will analyze and compare levels of green taxes in the European Union (for each of the member states), their evolution, and their impact upon the natural and social environment.*

Keywords: green taxes, sustainability, external effects

### **INTRODUCTION**

Since the early 1970s and as reflected at the 1992 Earth Summit, sustainability and respect for the environment in the context of development have become a global political goal, marked by the following international agreements: Agenda 21, the Rio Declaration on Environment and Development, the Statement of Forest Principles, the United National Framework Convention on Climate Change and the United Nations Convention on Biological Diversity. The Agenda 21 plan of action is especially seen as a global consensus on the road map towards sustainable development (*Global Environmental Outlook*, 1997). It is generally recognized in Europe that government actions needed to protect and improve the environment are necessary when activities of private enterprises have „palpable external effects that are not internalized through market processes.”

Without a strong and adequate state intervention, the governments concluded that, there is a risk if private enterprise production methods and consumer behavior

will continue to burden the environment „in ways that are incompatible with the interests of the national economy” (*German Federal Ministry of Finance, 2001*).

One major approach to resolve this issue was to introduce tax instruments for specific environmental reasons. Ecological taxation normally means applying a cost reflecting the environmental impact caused by production, use and waste of a certain product, during its entire life cycle.

The European Union and many of its Member States have gained experience in the use of tax and fiscal policy tools, to pursue environmental goals. The introduction of taxation instruments is integral for sustainable development, being part of the Ecological Fiscal Reforms of each country.

One of the most common policies used to tackle the problem of pollution is the so-called green or environmental tax. Green taxes (also called „environmental taxes” or „pollution taxes”) are excise taxes on environmental pollutants or on goods whose use produces such pollutants.

The term „environmental taxation” is used for varied charges and from different administrative levels and actions. It can span from water charges, waste collection charges, landfill tax on a local level, to an overall energy tax or specific chemical tax on national or supranational level. The definition of an environmental tax commonly applied by the European Union, the OECD and the International Energy Agency (IEA) is a tax whose base is: „a physical unit of something that has proven specific negative impact on the environment (*Eurostat, 2004*).

Economic theory suggests that taxes on polluting emissions will reduce environmental harm in the least costly manner, by encouraging changes in behavior by those firms and households that can reduce their pollution at the lowest cost.

Usually, these taxes are placed on a product that damages the environment, or on a complementary product. There are several groups of environmental taxation in use, since the mid-90s in the European Union at the Member States level. These cover energy taxes (including excise duties on car fuels and carbon dioxide taxes), followed by transport taxes, whereas taxes on pollution and resources, are still of minor importance in terms of revenue raised. The concrete examples of green taxes which proved to be a productive solution, includes: input taxes for fossil fuels and uranium, vehicle excise duty, landfill tax, the new carbon tax, energy taxation, electricity taxes for end-users and careful tax rebates for industrial installations taking part in emissions trading. The Irish Government also recently introduced a tax on plastic bags in a bid to reduce consumption and encourage recycling. All these tax instruments must be designed carefully and their effect on the environment has to be monitored.

Environmental taxation can be used as one of the most effective tool in speeding the necessary transition from the environmentally harmful use of fossil fuels to renewable sources of energy, energy efficiency and rapid increase of use of renewable and climate-neutral energies. The green tax models are just one important tool in a necessary range of policy instruments. The increased use of green taxation has shown positive results in some countries through a shift from labor taxation towards pollution or resource-use taxation. Green taxation can lead to technological modernization and a shift in consumer behavior. It can be applied on different levels, from local to international.

## **MATERIALS AND METHODS**

Green taxes began with the simple aim of discouraging people from damaging the environment by making them pay for using natural resources. For example, burning fossil fuels in power stations causes acid rain; it damages the environment and should be taxed. Raising the tax on motor fuel would encourage people to use more energy-efficient cars or to use them less, or both. Taxing the dumping of waste in landfill sites would encourage recycling and alternative ways of dealing with waste and might help to reduce the total amount of waste created, and so on.

That original aim still applies. But it is no longer the only one. Green taxes are now seen as part of a wider restructuring of taxation – eco-tax reform – which will encourage not just environmentally sustainable development, but also will assure better economic performance, more jobs and greater economic justice within and between the nations. One reason green taxes make sense from an economic, social and environmental point of view is because they tax „bads” instead of „goods”.

However, critics charge that green taxes are regressive because they hit poorer people relatively harder than richer. For example, if a tax on household energy raised the cost of heating, cooking and lighting, poor people would find it harder to pay and harder to invest in energy efficiency to reduce the higher rates. The regressive effect would be greater if green taxes replaced taxes on incomes and profits – which many poorer people never had to pay in the first place.

At the same time, critics consider that subsidies for emissions reductions do not have the same effect as emissions taxes. Subsidies increase the benefits of belonging to the subsidized group and may result in more polluters, each polluting less, with no net decrease in emissions.

One proposed green tax that has recently gained favor is the carbon tax. This would impose an excise levy on the carbon-based content of fossil fuels as a means of reducing greenhouse gas emissions that contribute to global warming. Estimates vary widely of the external costs associated with these fuels, whose combustion releases carbon dioxide into the atmosphere. In a recent review of twenty-eight published studies, the median incremental damage estimate was \$14 per ton of carbon, but a handful of estimates found damages above \$350 per ton.

Instead of these critics, the environmental taxes have a lot of advantages. The main advantages of the environmental taxes are:

1. They can provide incentives for the behavior that protects or improves the environment;
2. Can enable environmental goals to be achieved at the lowest cost and in the most efficient way;
3. By internalizing environmental costs into prices, they help to signal the structural economic changes needed to move to a more sustainable economy;
4. They can encourage innovation and the development of new technologies;
5. The revenue raised by environmental taxes can also be used to reduce the level of other taxes, which can help to reduce distortions in the economy, while raising the efficiency with which resources are used.

6. Pollution can be regarded as a cost of producing goods and services. A pure environmental tax aims to ensure that polluters face the true cost of their activities by charging them for the damages caused to others.
7. Direct taxes on emissions are economically efficient because they give polluters an incentive to reduce their pollution up to the point where further reduction would cost more than paying the tax. At the same time, direct emissions taxes are also cost-effective because they ensure that pollution reductions are undertaken by those who can do so most cheaply. Firms that find pollution abatement costly will choose to continue to pollute and pay more tax, while those who find it less costly will cut their pollution rather than pay more tax.

## **RESULTS AND DISCUSSION**

The introduction of the environmental tax reforms gained increasing support during the 1990s. The basic idea was to shift the tax burden from the production factor labor towards the use of natural resources and environmentally harmful goods and activities. With the publication of *Jacques Delors'* (1993) White Paper on Growth, Competitiveness and Employment, the idea of such a fiscal reform became politically attractive, as it offered a mean to promote simultaneously growth, jobs and a better environmental quality.

Similar ideas have been later endorsed also in many strategies and actions of the European Union. In the Member States the ideas of green tax reforms have met varying success. Among others, Denmark, Finland, Germany, the Netherlands, Sweden and the United Kingdom have introduced the elements of green tax reforms over the last decade. They have increased environmentally related taxes and used additional tax revenues to finance tax cuts on labor or personal income, with the intention to boost employment. At the same time, they have taken measures, in the form of rate reductions or refund schemes, to protect producers from any negative effect on competitiveness arising from increases in input costs. For example, the Czech Republic introduced an environmental tax reform in 2008, which increased and would increase the tax rates of most energy products over the period 2008 – 2012 and would use the tax revenues to support the state employment policy. Despite this interest, environmental tax revenues have not been growing in recent years at the EU average level. In 2008, revenues from environmental taxes in the EU-27 (in the GDP-weighted average) accounted for 2.4% of GDP and for 6.1% of total revenues. Compared to 1999, when environmental taxes reached their peak level (2.9% in relation to GDP and 7.0% out of total taxation), the fall is quite significant.

We can observe a steady fall in the level of environmental taxes from 2004 onwards. This development measured at the weighted EU average level hides, however, substantial differences between the Member States. In fact, the share of environmental taxation out of total taxation has increased since 1995 in a number of the EU Member States (Denmark, Estonia, Latvia, Netherlands, Austria, Poland and Slovakia), but remained stagnant or decreased in the others. Many big Member States figure in the last group, which explains the falling trend of the EU weighted

average. In new Member States, the increase has been largely driven by the EU accession process, although, some of them made use of the occasion to increase energy tax levels beyond the strict requirement of the EU provisions. At the same time, in some old Member States environmental taxes have been increased recurrently, often as a part of broader fiscal reforms.

To understand the fall of environmental tax revenues in relation to GDP it should be kept in mind that environmental taxes are levied per unit of physical consumption and usually fixed in nominal terms. Hence, unlike ad valorem taxes, their real value in relation to GDP tends to fall, unless they are adjusted for inflation or otherwise increased at regular intervals. The problem could be easily solved by indexing the nominal tax rates to inflation, but only one Member State, Denmark, uses this option. There may be several reasons for the real value erosion of environmental taxation. First, energy demand has a tendency to grow slower than the income, which implies that the share of taxes paid on energy goes down, when the economy grows. Secondly, energy tax increases in recent years may have also reduced energy consumption and thus eroded the tax base of energy taxation, although the expenditure on energy as such may not have decreased. Thirdly, the governments may be simply unwilling to increase the tax rates on products, which affect the energy costs of households and industry. There was no compelling cause to do so either, as the EU minimum rates on mineral oils was kept constant from 1992 to 2004, when the Energy Tax Directive (2003/96/EC) came into force. The growing popularity of non-fiscal instruments such as emissions trading and high world prices for oil in the early 2000s might also have led to a reduced appetite for additional environmental taxation, at least as far as energy is concerned.

From a historical point of view, the fiscal instruments of „green taxation” have become established in the European Union with front runners in Western Europe, EU-15 and adaptation to Southern and Eastern Europe.

The European Environment Agency (EEA) has published two reports on the use of environmental taxes in EEA member countries, in 1996 and 2000. Chapters in the annual EEA environmental signals reports in 2000 and 2002 provide further information on the use of taxes and charges, their revenues and emerging environmental tax reforms.

August 2003 figures published by Eurostat show a general trend since 1990 toward increases in green taxes, accompanied by a reduction in taxation on labor.

In July 2005, the European Commission proposed that all EU states should increasingly base car taxes on CO<sub>2</sub> emissions. In 2006 the EEA Report „Using the market for cost-effective environmental policy” was published. This report presents an assessment of the main developments in the use of market-based instruments in European environmental policy. The EEA Technical report „Market-based instruments for environmental policy in Europe” is a longer in-depth version of the report „Using the market for cost-effective environmental policy”. The EEA published the report „Effectiveness of environmental taxes and charges for managing sand, gravel and rock extraction in selected EU countries” in 2008. Market-based (or economic) instruments are being used increasingly in environment and sustainable development policies.

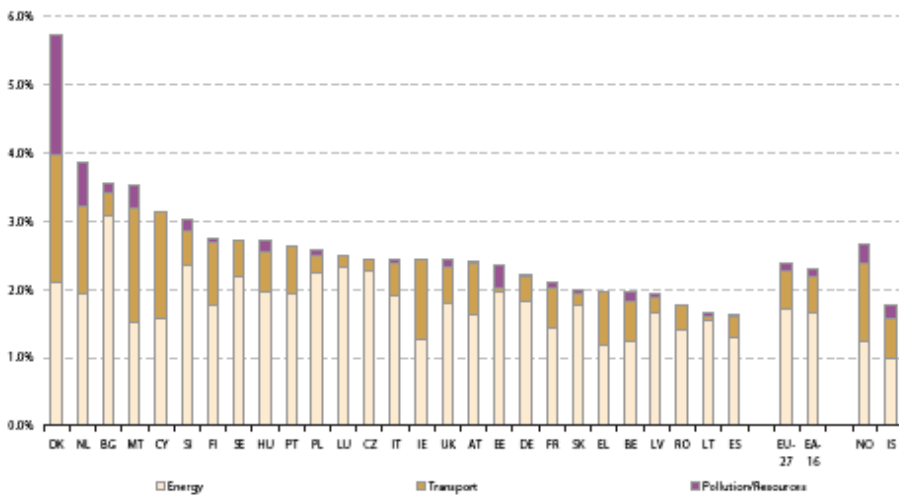
The EU introduced its first market-based instrument in January 2005. In the context of its climate change policy, the EU Greenhouse Gas Emissions Trading Scheme operates tradable carbon dioxide allowances helping to reduce emissions in a cost-effective way. The European Commission has also adopted a Directive establishing minimum tariffs for energy and energy products. The aim of the directive is to curb energy use and emissions.

Environmental taxes can be divided into four broad categories: energy, transport, pollution and resource taxes. The situation concerning environmental taxation and energy taxation differs broadly in the EU Member States. This results from traditional differences of tax schemes, sovereignty of EU Member States in the most important field of taxation. Energy taxes are by far the most significant, representing around three quarters of environmental tax receipts and around one twentieth of total taxes and social contributions. In the EU-27, transport taxes correspond to, on average, slightly less than one quarter of total environmental tax revenues and 1.4% of total taxes and social contributions (in the weighted average). The remaining two categories, pollution taxes and resource taxes, raise only a marginal amount of revenue: together they make up just 5% of total environmental taxes.

Figure 1 shows the environmental tax-to-GDP ratio by Member State and breaks it down by type of tax.

**Figure 1**

**Environmental tax revenues by Member States and type of tax, 2009,  
in % of GDP**



Source: Eurostat, 2010

The relative importance of each type of green tax varies across countries, but in general, most Member States tend to fall in a band ranging from 2% to 3% of GDP, or slightly higher. Only four Member States show levels below 2% of GDP,

while in four other countries environmental tax revenues exceed or are equal to 3.5% of GDP. At 5.7% in 2008, Denmark displays by far the highest level of green taxes followed by the Netherlands (3.9%). The lowest environmental tax revenues in relation to GDP are instead found in Latvia, Lithuania, Spain and Romania, all below 2% in 2008. The predominance of energy taxes is common to most Member States.

However, in some countries, the contribution of transport taxes is significant: for instance, in Ireland, Cyprus and Malta they account for nearly half of environmental taxes. In Denmark, transport taxes also raise significant tax revenues, but on account of the high level of pollution and resource taxes in that country, constitute somewhat less than a third of environmental taxes. The high level of pollution and resource taxes in Denmark is largely due to the hydrocarbon tax, which is a tax on the profits obtained from the extraction of hydrocarbon and therefore tends to increase proportionally to those profits.

## **CONCLUSIONS**

The green taxation reform may offer the opportunity for a real social and economic change, all over the world. Environment, climate change and sustainability are the key themes of the new taxation strategies, which encourage and support the necessary transition to a greener economy.

The increased „greening” of the taxes over recent years has presented a new set of challenges for the businesses. Taxpayers need to understand the taxes that apply to them, to comply with the various reporting requirements and to ensure that the environmental tax effects of business decisions are considered upfront. A significant number of businesses are still largely unaware of how they are affected by the environmental taxes – but as the impact of these taxes continues to grow, we expect that more and more businesses will consider taxes as a reason to „think and action green”. It is not just the environmental taxation the only one that encourage taxpayers to act in a more environmentally responsible fashion – the traditional tax framework is increasingly being changed to reward the „green” behaviour.

More generally, the economic nature of taxes means that any tax change may result in an environmental impact. These impacts can often be unintended. This illustrates the difficult balancing act faced by the Governments in setting policies and how important it is for policymakers to consider the environmental effects of any tax or economic policy changes.

Perhaps, the only certain concept for the future of the environmental changes is the further change. The Governments have already signalled potential areas where they intend to expand their environmental policies.

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