



## Environmentally related taxes: Issues and strategies

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How to make taxation and environmental policies mutually reinforcing?

OECD Member countries face a number of environmental challenges, including the protection of the ozone layer, local air quality, acidification and eutrophication, water supply and water quality, waste management and biodiversity losses. An issue currently high on the agenda in most Member countries is how to reduce greenhouse gas emissions in order to combat climate change and to meet the Kyoto Protocol commitments. Only a few Member countries are yet on track to fulfil these commitments. More generally, Member countries are increasingly concerned about the broader issues raised by sustainable development, and this was a main theme at the OECD's 2001 Ministerial Council meeting.<sup>1</sup>

Over the last decade, economic instruments have been playing a growing role in environmental policies of OECD countries. In this context, a distinctive feature is the increasing role of environmentally related taxes. A recent OECD report describes the current use of such taxes in Member countries and discusses issues and strategies related to their broader application.<sup>2</sup> ■

1. The Communiqué of the 16-17 May 2001 Ministerial Council Meeting stated *inter alia* that "The implementation of instruments such as tradable permit systems, environment-related taxes, and the phasing out of support programmes that are environmentally damaging in agriculture, fisheries, transport, energy, manufacturing and elsewhere, should be pursued, and applied according to national circumstances." "OECD will continue to assist governments by ... identifying how obstacles to policy reforms, in particular to the better use of market-based instruments, and to the reduction of environmentally harmful subsidies, can be overcome; and deepening its analytical work on these instruments."

2. See "Environmentally related taxes in OECD countries: Issues and Strategies", OECD, Paris, 2001.

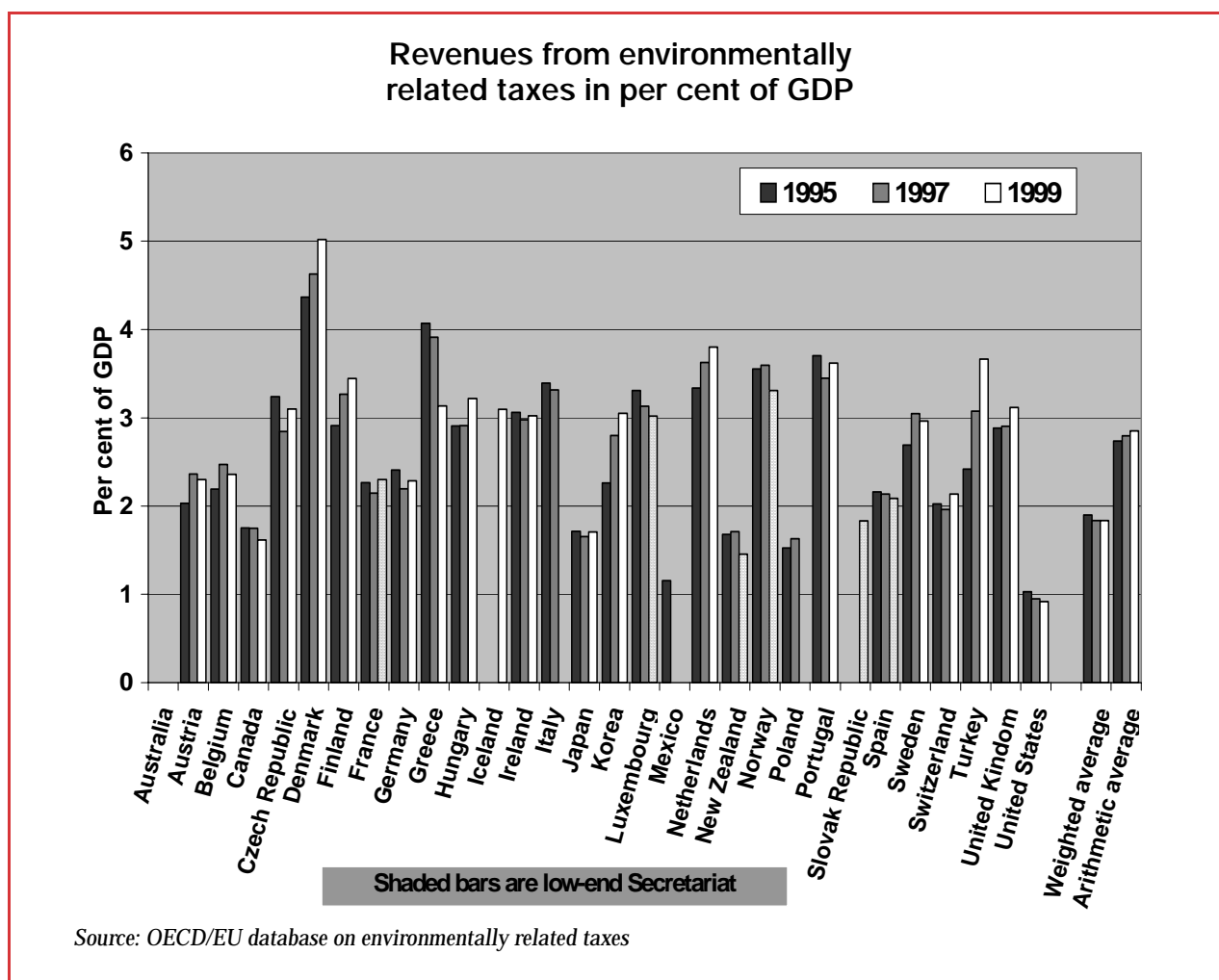
All countries have introduced environmental taxes to a varying extent, and an increasing number of countries are implementing comprehensive green-tax reforms, while others are contemplating doing so. Depending on design features, environmental taxes support the 'polluter pays principle', under which the costs of pollution prevention and control should be reflected in the price and output of goods and services which cause pollution as a result of their production and/or consumption. However, obviously, many factors other than the use of

economic instruments also affect levels of pollution in a given country.

As shown in Figure 1, the revenue from environmentally related taxes averages roughly 2% of GDP in OECD Member countries.<sup>3</sup> These taxes are introduced in support of a number of policy objectives, where policy choices typically depend on a balancing of conflicting goals. In the context of environmental concerns, environmentally related taxes introduce a price signal that helps ensure that polluters take into account the

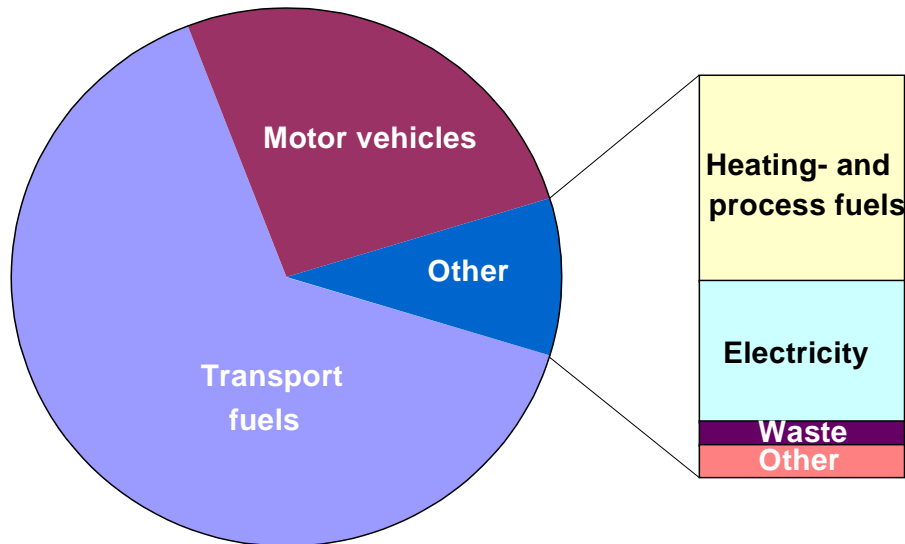
costs of pollution on the environment when they make production and consumption decisions. Taxes are a flexible policy instrument that can minimise control costs for achieving a given pollution target and provide incentives for technological innovation and further reductions in polluting emissions.

Information on the magnitude of the revenues from environmentally related taxes should not be used to draw any inferences about the "environmental friendliness" of the tax system in the countries con-



3. See also the OECD/EU database on environmentally related taxes and charges, available at [www.oecd.org/env/policies/taxes/index.htm](http://www.oecd.org/env/policies/taxes/index.htm).

Shares of total revenues raised from environmentally related taxes



Source: OECD/EU database on environmentally related taxes

cerned without more detailed information on the taxes in the various countries. The link between revenues and environmental effectiveness can be weak for, at least, three reasons. First, some important environmental gains may be achievable in some areas with low levels of taxation. Second, the environmental effectiveness of some taxes depends as much on the relative tax rates between related products (such as gasoline and diesel) as on their absolute rates. Third, some environmental taxes are so effective that they destroy their own base, and so yield little or no revenue. An interesting example of these reasons is provided by the tax on nickel-cadmium rechargeable batteries in Denmark. It was not necessary to apply

very high rates of the tax to reduce the use of these batteries, which are very toxic if disposed of without proper precautions, especially as the less environmentally damaging alternatives were not taxed. Also, revenues from this tax reduced significantly soon after its introduction, demonstrating that its high environmental effectiveness resulted in the near destruction its base.

Taxes on the purchase or use of motor vehicles and fuels, including taxes on petrol and diesel, currently generate most of the revenues from environmentally related taxes (cf. Figure 2). In some countries taxes are also used to address a broad spectrum of other environmental problems. Nevertheless, in

many countries there is scope for expanding the use of environmentally related taxes.

There is growing evidence on the effectiveness of environmentally related taxes in OECD countries as a means to reduce damage to the environment. This can for example be seen from estimates of price elasticities of demand for environmentally harmful products. Available evidence indicates that the responsiveness of demand to changes in the price of, for example, energy often is significantly higher in the long run than in the short run, implying that a consistent long term implementation of environmentally related taxes could reduce energy consumption and improve the envi-

ronment. There are also indications that adjustments of tax rates for competing energy sources can cause significant fuel switching to take place if tax rates on energy products are re-modulated according to environmental criteria.

Green-tax reforms can be implemented by a series of complementary measures, such as restructuring existing taxes, for example on energy or transport, to reflect the polluting characteristics of the different products or activities - or by the introduction of new taxes, e.g. on water use and water pollution, waste, environmentally harmful chemicals, etc. It is also most important to remove or adjust environmentally harmful fiscal provisions, such as tax exemptions or subsidies having detrimental effects on the environment, while giving due notice to the non-environmental objectives the provisions were meant to serve.

The circumstances that impact on the design of the tax system differ between countries. So do the environmental situation and the sources of environmental problems within countries. Countries also differ in their contributions to regional and global environmental problems, for which international co-operation is necessary. In the context of current structural adjustment and regulatory reform in OECD economies, countries should consider the opportunities and potential for greening their fiscal systems, according to their specific economic, fiscal and environmental situation. ■

## How to implement environmentally related taxes?

When implementing environmentally related taxes, the environmental (and other) objectives of the policy measure should be clearly stated from the outset. When deciding on a particular measure, each country should carefully review the range of measures that could potentially be used to achieve those objectives. A thorough analysis of the costs and benefits of each approach, and an assessment of current practices, should be carried out, in order to evaluate the relative merits of the alternative measures.

Often environmentally related taxes can be usefully implemented in the context of policy packages, i.e. in combination with other policy instruments, such as voluntary approaches, command and control regulations or tradable permits. The pros and cons of such policy packages should be analysed further.

### ***International competitiveness***

A major obstacle to the implementation of environmentally related taxes in certain cases is the fear of reduced international competitiveness in the most polluting, often energy intensive, sectors of the economy. To date, environmentally related taxes currently imposed by OECD countries have not been identified as causing significant reductions in the competitiveness of any sector. This can in part be due to the fact that countries applying environmentally related taxes have provided for total or partial exemptions for energy intensive industries. Indeed, the OECD/EU database shows that environmentally related

taxes are levied almost exclusively on households and the transport sector. The exemptions and rebates create inefficiencies in pollution abatement and undermine application of the polluter pays principle (PPP). The finding that the competitiveness positions have not been harmed is also consistent with research on economic performance that shows that skill development and capital investment largely determine sectoral competitiveness. Further, different sectors within countries differ in terms of their exposure to international trade and competition.

Blanket exemptions for polluting products along with rebates for heavy polluting industries can significantly reduce the effectiveness of environmentally related taxes in curbing pollution and will similarly reduce incentives for developing and introducing new technologies.

There are several options for a more effective imposition of environmentally related taxes without reducing the given country's competitiveness. First, one should integrate environmentally motivated reforms with broader fiscal reforms. It is the combined effects of these reforms that will determine the impacts on sectoral and nation-wide competitiveness. Possible negative impacts on the competitiveness of some sectors from the environmentally motivated parts of a broader reform might thus be reduced. It should also be kept in mind that while some sectors may face a net loss in competitiveness due to a tax reform, more environmentally benign sectors could improve their competitiveness. Countries may wish to allow such structural changes to take place over time.

Pre-announcing the introduction of environmentally related taxes and tax rate increases, and a gradual reduction or phasing out of current rebates and exemptions, are two policy options that could ease implementation, make environmental taxes more effective, while also addressing sectoral competitiveness concerns.

Rather than the use of full exemptions, consideration might further be given to a dual (two-tier) rate structure, with lower tax rates for the more internationally exposed sectors. The negative environmental effects of exemptions and rate reductions can to some extent be limited by ensuring that firms that benefit from exemptions and reduced tax rates sign up to stringent mitigation measures, for instance through “negotiated agreements”, which should be accompanied by appropriate monitoring, verification and sanction systems. Furthermore, in instances where exemptions and rebates are currently given for competitiveness reasons, countries could start imposing environmental taxes on the sectors in question while introducing innovative methods to channel part of the environmental tax revenues back to industry - in such a way that marginal abatement incentives are not reduced.

In some countries, there is also scope for improving the design of current tax provisions to ensure that any remaining exemptions and refund mechanisms are properly targeted to achieve their intended objectives. Careful design and targeting of such provisions would reduce the economic costs of achieving a given environmental target, including obligations coun-

tries have undertaken under the Kyoto Protocol.

When considering obstacles to a broader use of economic instruments – and taxes in particular – it should be kept in mind that alternative policy instruments used to reduce environmental pollution, such as regulations, would also affect firm’s costs and impact on the competitiveness position of individual sectors and the country as a whole. By enhancing the economic efficiency by which a given target is reached, properly designed environmentally related taxes will help minimise adverse effects on competitiveness nation-wide.

An additional way to address sectoral competitiveness concerns is for countries to share information, experiences and best practices as regards possible options and opportunities for expanding the application of environmentally related taxes. Countries concerned with sectoral competitiveness implications of unilateral initiatives could consider possible concerted policy options and changes, decided and implemented at the national level, but within a framework which provides for a multilateral dialogue. The OECD provides a unique forum to facilitate such policy discussions, bringing together tax and environment experts from the governments of 30 developed countries while also providing an extensive outreach programme which now covers over 60 non-member countries.

### ***Income distribution***

The distributional incidence of environmental policy measures is also a key issue in the policy debate. The limited data available show that some environmentally related taxes

can be regressive at least to some extent, impacting more on low-income households than on other households. The taxes can also increase regional income disparities in some countries. However, a complete assessment of distributional effects would also include the secondary impact of any compensation payments, tax reductions, and the induced employment effects. It should also take into account the distribution of the environmental benefits resulting from the tax. In some cases, low-income households would experience the largest environmental improvements following the introduction of new policy measures – as they often live in areas where pollution loads, noise levels, etc., are higher than average.

Mitigation measures (e.g. reduced tax rates for low-income households) to address the regressivity concerns can reduce the environmental effectiveness of the taxes, and should be avoided. Governments should rather seek other, and more direct, measures if low-income households are to be compensated (e.g., through the transfer system). Such compensation measures can maintain the price signal of the tax – and thus provide proper incentives to modify behaviour in an environmentally benign way – whilst reducing the impact of the tax on household income.

### ***The use of tax revenue***

Each country decides on the use of revenues from environmentally related taxes according to its specific economic, fiscal and environmental situation.

Several options are available. The tax revenues could alleviate a budget deficit, contribute to a budget

surplus, or finance discretionary increases in government expenditures. The revenues can also provide room for discretionary reductions in other taxes to reduce distortions (efficiency losses) in labour or capital markets, address competitiveness concerns, or to increase public acceptance of environmental taxes. Certain forms of spending and tax reductions do, however, have the potential to undermine the PPP principle, and therefore require careful consideration.

Where the revenues are earmarked to specific spending purposes, some of this allocation may be environmentally motivated – although the OECD/EU database reveals that the largest amounts of earmarking currently concerns revenues from fuel taxes being allocated to road building and similar purposes. In some cases, earmarking of part of the revenues might enhance the environmental effectiveness or economic efficiency of the tax in question. Earmarking, however, may violate the polluter pays principle. Further, earmarking revenues fixes the use of tax revenue in advance, which may create an obstacle for the re-evaluation and modification of the tax and spending programs. Therefore, the economic and environmental rationale of such earmarking measures should be evaluated regularly to avoid inefficient spending that would otherwise not be financed from general tax revenues. For instance, allocating transport taxes to road infrastructure may lead to over-investment in that sector.

Revenues can also be used to enable reductions in other taxes. This can reduce the efficiency loss generally

incurred by the collection of tax revenues – if the taxes being reduced are more distorting than the environmentally related taxes being introduced. This question depends on the final incidence of the taxes in question, where different taxes may have different tax burden effects.<sup>4</sup>

One particular, and often debated option, is a shifting of the tax burden from labour to pollution, with the expectation that a lower tax burden on labour would encourage labour demand and/or work effort. This can contribute to an increase in employment and/or a decrease in unemployment, while improving the environment (the “double dividend” hypothesis). The theoretical and empirical evidence for a double dividend is not conclusive. Nevertheless, a number of governments are implementing revenue-neutral green tax reforms, inter alia with the intention of realising a double dividend. If it could be demonstrated conclusively that positive employment effects follow from switching the burden of taxation to pollution from labour, this evidence could counterbalance the competitiveness and equity arguments used against implementing new or higher environmentally related taxes. There is a need to carry out ex post evaluations of these policies, inter alia to reject or confirm the double dividend hypothesis.

### **Acceptance building**

Building acceptance is a key condition for effective green tax reforms. Given this, countries may wish to pursue several complementary efforts, including identifying – sim-

ply and clearly – the objectives behind an environmentally related tax; disseminating information; and allowing sufficient time for public hearings or other forms of consultation. This could include the creation of “green tax commissions” and inter-ministerial working parties. A reasonable period for consultation enables public and private stakeholder groups to influence policy and the government to explain wider policy objectives behind contemplated reforms. Such involvement can lend public legitimacy and support to environmental efforts. In some cases, public acceptance of an increase in environmentally related taxation can be enhanced if, at the same time, increased spending on related issues is announced, or by the use of policy packages.

As noted above, where exemptions and rebates from environmentally related taxes have been previously granted to industry to encourage acceptance of a given environmental program in response to perceived competitiveness concerns, alternative means to build acceptance should be considered. One should, for instance, consider innovative options for revenue recycling to industry without removing marginal abatement incentives. Generally, such measures should be implemented on a provisional and transitory basis. ■

### **Further OECD work**

OECD will continue to work on a number of issues related to environmentally related taxes:

4. All taxes, including taxes imposed on pollution, are ultimately borne by individuals as consumers, workers, employers or investors. However, final tax incidence – that is, how its burden gets passed on to individuals through some combination of higher prices, lower wages, and/or lower returns to capital – can differ depending on the specific tax and the characteristics of the affected markets.

- The database on environmentally related taxes will be up-dated regularly, and it will be broadened to include a fuller coverage of relevant fees and charges, in addition to environmentally related taxes.
- The material contained in the database will be analysed further with the aim of helping Member countries formulating efficient policies and measures to improve environmental conditions and promote sustainable development.
- Continue surveys and assessments of ongoing “green fiscal reforms” in Member countries.
- Review and assess empirical evidence for competitiveness impacts identified as an important obstacle

for the widespread use of uniform environmentally related taxes – and the various policy options to compensate such impacts.

- Undertake research on the combined implementation of taxes and other instruments (tradable permits, voluntary agreements, etc.) used by different countries in the pursuit of common environmental goals.
- Organise meetings of senior tax and environment experts from OECD governments interested in environmentally related taxation to facilitate a sharing of information, experiences and best practices. Such meetings offer parties a forum for considering possible concerted policy changes, decided

at the national level, to address sectoral competitiveness concerns.

- Through the OECD outreach programme, share information, experiences and best practices with non-member countries. ■

## For further information

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## For further reading

- **Environmentally Related Taxes in OECD Countries: Issues and Strategies**, 2001  
ISBN: 92-64-18731-6, 30 euros, 100p.
- **Policies to Enhance Sustainable Development**, 2001  
ISBN: 92-64-18661-1, 20 euros, 108p.
- **Sustainable Development Critical Issues**, 2001  
ISBN: 92-64-18695-6, 90 euros, 420 p.
- **OECD Environmental Outlook**, 2001  
ISBN: 92-64-18615-8, 75 euros, 328p.

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