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OECD ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

The Political Economy of Environmentally Related Taxes

Introduction

Preserving the environment is high on the agenda for both governments and society. Governments in OECD countries are using a variety of instruments to change environmentally harmful behaviour, and taxes have proved a useful string to their bow. Using taxes to achieve an environmental objective, such as reducing emissions of a particular pollutant, is efficient from an economic point of view and offers flexibility to adapt for those affected. Direct regulation of polluting activities, for example by setting legal limits on the emission level of certain pollutants, forces immediate compliance regardless of the comparative cost for different businesses and individuals, and can be more difficult and costly for some than for others. Environmental taxes leave more flexibility for those affected, because they can essentially "buy time" to make changes which will mean they do not have to pay the tax in the future. Thus, a tax on polluting activities or products allows those who can cut emissions cheaply to do so first, while allowing those with higher pollution control costs to pay the tax while taking time to make technological adjustments. This means that the economy as a whole will meet the same environmental objective more cheaply than by using direct regulation. While using taxes to achieve environmental objectives is clearly efficient for the economy as a whole, however, in practice individual businesses or sectors may resist because they will be "losers" in the equation. Governments need to address such concerns about the negative impacts of environmental taxes on sectoral competitiveness and on income distribution if environmentally related taxes are to be a useful tool. This Policy Brief looks at the political economy of environmental taxes and how governments can use them in conjunction with other policy instruments to achieve their environmental objectives. ■

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How do governments use environmentally related taxes?

Over the past decade, the number of environmentally related taxes in OECD countries has increased steadily. A database operated in co-operation between the OECD and the European Environment Agency (EEA), currently details about 375 environmentally related taxes in OECD countries (not counting other measures such as some 250 environmentally related fees and charges). The database includes the energy and transport sectors, and a number of taxes and charges linked to measured or estimated emissions. About 90% of the revenues from the environmentally related taxes stems from taxes on motor vehicle fuels and motor vehicles. Figure 1 illustrates that the tax rates applied to petrol and diesel vary significantly across OECD countries.

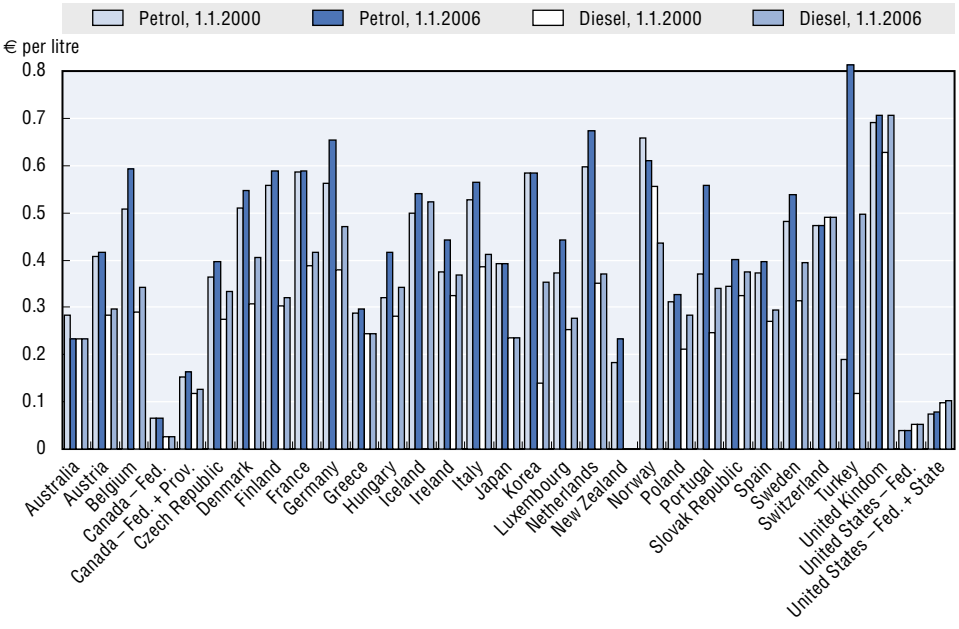
The environmentally related taxes raise revenues in the order of 2-2.5% of gross domestic product (GDP). The amount of revenue raised is, however, not a precise indicator of the environmental impacts of the tax and charges. Taxes and charges can trigger major behavioural changes that cut back on polluting activities, but raise small amounts of revenue because the tax-bases diminish.

Indeed, many existing environmentally related taxes are contributing to environmental improvements. Tax increases are reflected in price increases, and higher prices clearly reduce demand for environmentally damaging products. Fuel use has significantly fallen in recent years for example in response to higher crude prices and fuel taxes. In a number of countries, using the sulphur content of the fuel as one determinant of the level of fuel tax has led to a strong decrease in sulphur dioxide (SO_2) emissions. A tax on plastic bags in Ireland rapidly had the desired environmental effect of sharply reducing plastic bag usage – for one thing, shops stopped giving them away free to customers, and the increased price of the bags encouraged customers to return to re-usable shopping bags. ■

Figure 1.

TAX RATES ON UNLEADED PETROL AND DIESEL IN OECD MEMBER COUNTRIES

1.1.2000 and 1.1.2006



How to deal with the "losers"?

Environmentally related taxes may be efficient, but when implementing them governments have to take into account concerns about any negative impact they might have on the competitiveness of certain sectors, such as energy-intensive or export-oriented industries, and on individuals or households. To meet these concerns, OECD governments often grant exemptions to these taxes – currently there are more than 1 150 such exemptions and several hundred refund mechanisms and other tax provisions. These exemptions generally tend to reduce the environmental effectiveness of the taxes, as well as the economic efficiency with which environmental policy targets are met. How can governments remove, or at least limit, such exemptions while meeting the concerns that some industries and individuals suffer more than others?

Individual firms compete both at a *national* and at an *international* level, and an environmentally related tax can affect their competitiveness at both levels if their competitors are not subjected to a similar tax. For a given firm facing competitive pressures, it matters little whether the competition is from domestic or foreign producers. *Domestic* competitiveness impacts will, however, only to a very small extent have consequences for overall production at the national level. At international level, the issue is more complex. And while there are many good reasons why policy makers *ought to* focus mostly on impacts of environmental policies on the economy as a whole rather than at a sectoral level, *in practice* they tend to be more concerned with any potential "losers" from a policy change. Hence, the focus of discussion here is on *international competitiveness impacts at a sectoral level.*

If energy or carbon taxes to reduce greenhouse gas emissions are implemented in a limited number of countries, they are likely to have negative impacts on the international competitiveness of some industrial sectors in these countries. This has been demonstrated in case studies of hypothetical taxes being applied to CO_2 emissions in the steel and the cement sectors, both highly energy-intensive, in OECD member countries. But this does not automatically mean that governments need to offer widespread exemptions; if governments wish to limit the impacts of such measures on the competitiveness of affected industries, there are ways to do so without much reducing the environmental incentives.

A number of lessons can be drawn from these case studies:

- Individual firms within a given sector will *not* be affected in the same way by any use of environmentally related taxes because they use different input combinations and have different emission profiles.
- It is important to take into account possible adjustments in *related markets* when considering the impacts of a given policy on a particular sector. A part of any initial tax burden placed on a sector is likely to be passed on to input suppliers or to customers.
- If an OECD-wide tax were applied to combat climate change, *significant global reductions in carbon emissions could be achieved,* despite *some* element of "carbon leakage", such as emissions increase in other countries.

- The larger the group of countries that put similar policies in place, the more limited the impact on sectoral competitiveness would be. *For example*, the steel case study indicated that an OECD-wide carbon tax would reduce steel production in Japan by around 9%, while a unilateral tax in Japan would reduce steel production there by almost 18%. The differences in impacts were found to be especially important for the large, energy-intensive, basic oxygen furnace steel makers.
- It is possible to largely overcome the negative sectoral competitiveness impacts by recycling (part of) the tax revenues raised back to the most affected sectors. The way any recycling is done would have different impacts on different firms. However, such an approach would also tend to reduce the environmental effectiveness of the tax. ■

What effects on income distribution?

Most studies show that environmentally related taxes, especially energy taxes, can have a *direct* regressive impact on the income distribution of households. A less wealthy household spends a larger proportion of its income on heating, for example, than its better-off neighbours; so a tax that increased the price of household energy would hit the poorer family harder. There are several ways in which governments can mitigate or remove this effect, but some of these will reduce the environmental effectiveness of the measure more than others.

Mitigation practices, such as exemptions or lower tax rates for low-income households, reduce the environmental effectiveness of taxes. Governments should use direct *compensation* measures to address concerns for low-income households, *e.g.* through the *social security* or tax *systems*. This can maintain the price signal of the tax, while reducing its negative impact on low-income households.

Governments can offer relief through the personal income tax system, for example by increasing basic personal allowances or introducing tax credits. For individuals whose income is so low that they pay little or no tax, it can be preferable to provide *cash transfers*.

In some cases, distributional concerns have not been addressed at all, or have come up late in the policy design process, and therefore have been tackled in a more *ad hoc* fashion. This can lead to strong opposition and failure to implement effective environmental measures, and implies higher costs to society than necessary. ■

How high are the administrative costs?

It is *possible* to design economic instruments for environmental policy with relatively low administrative costs. For example, taxes on petroleum products are usually levied on a limited number of petroleum refineries and depots, and are hence relatively simple to administer and enforce. Several examples also indicate that the administrative costs of schemes involving a large number of tax payers *can* be kept at relatively modest levels. In the case of the Irish tax on plastic bags, for example, thousands of retailers serve as tax collectors, but the related administrative costs have been modest, since the bag tax was integrated with the existing Value Added Tax collection system (see Box 1).

However, many economic instruments involve a large number of special provisions that increase their administrative costs. Such mechanisms are often introduced for non-environmental reasons, such as addressing competitiveness or income distribution concerns. So, there can be a trade-off between the size of the administrative costs and the measures used to create a "fair" or "politically acceptable" scheme. ■

Are environmentally related taxes politically acceptable?

Whether the general public "accepts" an economic instrument, such as an environmentally related tax, depends to a great extent on public awareness of the environmental problem being tackled and whether this tax is seen as making a significant contribution to reducing that problem. Clearly it is advisable to "prepare the ground" by providing correct and targeted information to the public on the causes and impacts of environmental problems before introducing environmentally related taxes.

Political acceptance also depends on the perceived "fairness" of the instrument in question. A lot of the attention concerning "fairness" is related to expected sectoral competitiveness impacts and/or impacts on low-income households.

There are several things governments can do to deal with the competitiveness issue, while ensuring that they maintain incentives at the margin for the firms to abate their emissions.

Timing is crucial – a tax reform that seems impossible to implement at one time may become feasible when the circumstances are more favourable. A gradual phasing-in of taxes can also help, by softening the immediate

Box 1.

THE PLASTIC BAG LEVY IN IRELAND

A tax on plastic bags was introduced in Ireland in 2002, with a tax rate of EUR 0.15 per bag. The tax has contributed to a reduction in the use of plastic bags by more than 90%, leading to a considerable reduction of the litter problem.

From an administrative point of view, it was originally thought most efficient to levy the tax on producers and importers of plastic bags, thus limiting the number of collection points.

However, domestic producers of plastic bags argued that the proposed tax rate would represent some 1 500% of the net-of-tax price of the bags, which could make smuggling an issue. From an environmental perspective, it was also argued that levying the tax at the point of sale could provide a stronger signal to consumers to avoid using plastic bags.

Based partly on these arguments, the tax is in fact levied at some 5 000 points of sale. Each retailer is obliged to pass on the full amount of the levy to their customers – and local authorities ensure that they do so.

To limit the administrative costs of such an approach, the Irish Office of the Revenue Commissioners developed a solution where the collection of the tax was integrated into the VAT collection system. This entailed a one-off set-up cost of some EUR 1.2 million and annual administrative costs in the order of EUR 350 000. The retailers' extra administrative costs seem to be more than off-set by cost savings, in terms of forgone plastic bag purchases and through additional sales of bin liners.

cost impact and giving companies time to adjust – this can be an incentive to introduce "cleaner" processes to avoid the tax, thus achieving the environmental objective.

Applying the new taxes to broad-based tax bases, and introducing them as part of broader fiscal reform, can also make it easier to win political acceptance, and thus make the tax easier to implement.

In general, political acceptance could be strengthened by creating a common understanding of the problem at hand, its causes, its impacts, and the impacts of possible instruments that could be used to address the underlying environmental problem. One way to build such a common understanding is to involve relevant "stakeholders" in policy formulation, for example through broad formal consultations and/or working parties preparing new policy instruments. Green tax commissions, with participation from relevant ministries, industrial organisations, trade unions, environmental organisations, etc., can be a useful way to communicate between the stakeholders involved. ■

How to combine them with other measures?

Besides taxes, there are other policy instruments that governments can use to meet an environmental objective, such as regulations, emissions trading, voluntary approaches and information tools such as labelling. In practice, environmentally related taxes are not used in isolation – for example, in many cases one or more regulatory instruments will also be applied. The mere existence of such instrument mixes, however, does not constitute proof of their environmental effectiveness and economic efficiency.

A first requirement for applying an environmentally effective and economically efficient instrument mix is to have *a good understanding of the environmental issue to be addressed*. For example, a tax can be reasonably effective in reducing the total amount used of a given type of product, and the choice between different product varieties, but could be less suited to address how a given product is used, *when* it is used, *where* it is used, etc. Hence, additional instruments could be needed.

On the other hand, in some cases, it seems that more environmental targets than necessary have been defined. This could be the case in the waste management field, where specific recycling targets for items such as packaging have been established in many OECD countries, frequently without any clear evidence that the types of waste being targeted represent a larger threat to the environment than other types.

A second requirement for designing efficient and effective policies is to have *a good understanding of the links with other policy areas* – such as energy policies, housing policies, agricultural policies, transport policies, etc. The design of instruments applied in these areas can have direct environmental impacts on their own, but also major impact on the effectiveness of environmental policy instruments. Investment in public transport can by itself lead to less road traffic, and thus less air pollution, noise, etc. Such investments can also enhance the positive environmental impacts of any increases in taxes on

motor fuels, as they would make it easier for households and firms to respond to the price increase by changing from private to public transport means.

A third requirement is to have a *good understanding of the interactions between the different instruments* in the mix. Various instruments can interact with environmentally related taxes in a number of ways; for example:

- A labelling system can help increase the effectiveness of a tax by *providing better information* to the users on relevant characteristics of different products the tax applies to, *e.g.* the energy efficiency of appliances. This will increase the price-sensitivity of demand for the product.
- The combination of a tax and a voluntary approach can *increase the "political acceptability"* of the former – by limiting any negative impacts on sectoral competitiveness – but at the cost of reduced environmental effectiveness or increased economic burdens placed on other economic actors.
- Combining a tax and a tradable permits system can help *limit compliance cost uncertainty* – compared to the application of a trading system in isolation. On the other hand, such a combination could *increase the uncertainty related to environmental effectiveness* – unless additional provisions are put in place.
- A regulatory instrument applied alongside an environmentally related tax might *unnecessarily restrain the flexibility* for polluters to find cost-effective abatement options offered by a tax. ■

Where do we go from here?

Over the last decade, the use of environmentally related taxes in OECD countries has increased steadily. Several countries have implemented comprehensive "green tax reforms" or environmental policy "instruments mixes" where taxes play a key role. All OECD member countries apply several environmentally related taxes. Experience over the last decades has proven that environmentally related taxes can be effective and efficient instruments for environmental policy.

The environmental effectiveness and economic efficiency of the environmentally related taxes applied in OECD member countries could, however, be improved further if existing exemptions and other special provisions were scaled back, and if the tax rates were better aligned with the magnitude of the negative environmental impacts to be addressed. ■

For further information

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The OECD Policy Briefs are available on the OECD's Internet site:
www.oecd.org/publications/Policybriefs

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For further reading

More information on the publication **The Political Economy of Environmentally Related Taxes** is available at *www.oecd.org/env/taxes/politicaleconomy*.
ISBN 92-64-02552-9, 199 pages, € 28.

Many background documents used in the preparation of the book are available at *www.oecd.org/env/taxes*.

A database on environmentally related taxes and other instruments used for environmental policy can be found at *www.oecd.org/env/policies/database*.

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