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Agenda Item 1

ENVIRONMENTAL TAXES AND GREEN TAX REFORM

Background paper

Introduction

Environmental taxes offer opportunities for greater environmental effectiveness at lower economic costs.

1. Tax instruments offer important opportunities to protect the environment. They provide a means of injecting appropriate signals into the market, of eliminating or reducing distortions and of internalising externalities, while at the same time improving the efficiency of rigid and cumbersome environmental regulations that are costly and difficult to implement. Environmental taxes are generally transparent and easy to implement and enforce, and the revenues generated may be used to reduce other more distortionary taxes such as taxation of labour inputs.¹ On the other side, they may be difficult to differentiate when local environmental impacts differ. While the choice of the most appropriate instrument for environmental policy will depend on several factors, in different cases environmental taxes will allow to achieve greater environmental effectiveness and economic efficiency. They may generate important revenues and provide opportunities to contribute to fiscal reform and better functioning economies more generally. This notes focuses to some of the main obstacles to their larger use.

What they are and how extensively are they used?

Environmental taxes are unrequited payments that may influence economic

2. Systematic data collection on the size and structure of environmental taxes in OECD countries is fairly recent. A statistical framework on the use of these taxes developed by the OECD, broadly define environmental taxes as compulsory payments on tax-bases deemed to be of particular environmental relevance. In other terms, what matters is the potential effect on the environment, as determined by

1. However, by providing incentives to reduce emissions and pollution, environmental taxes will cause a decrease of the tax base and of the revenue they generate. In practice, the base of major existing environmental taxes such as energy and carbon seems to be stable or growing even after these taxes have been introduced.



decisions and environmental outcomes.

changes in the behaviour of producers and consumers, rather than the expressed purpose of the tax. Payments are “unrequited” as the benefits provided by government to tax payers are not in proportion to their payments. While in theory this broad definition encompasses both taxes on emissions and pollution and those on natural resource management, in practice information is still limited to the first category. In the OECD framework these taxes include unrequited payments on waste, fossil fuels for transport and stationary purposes, electricity consumption, transport and ozone depleting substances.

Their diffusion has been increasing in the 90s, but overall the revenues they generate remain low.

3. Comparable data for 18 OECD countries show revenues from environmentally-related taxes accounting for 1 ¾ per cent of GDP in 1995 and ranging from 1 per cent in the United States to 4.5 per cent in Denmark with around 90 per cent of these revenues coming from non-industrial sources. Although the revenues generated are still low, the diffusion of environmental taxes has been raising over time, with a first wave of environmental taxes introduced in the early 1990s in the Nordic countries and the Netherlands. This trend continued in the second half of the 1990s, in the aftermath of the Kyoto agreements to limit emissions of greenhouse gases. In 1999 alone, carbon taxes were introduced in Italy, Germany, United Kingdom and France, partly offset by reductions in payroll taxes.²

Evaluation studies

Several evaluations confirm their environmental effectiveness.

4. Despite their increasing diffusion in OECD countries in recent years, only a few evaluations of the environmental effectiveness of eco-taxes have been carried out. Such evaluations are generally hampered by the fact that experience is often too recent; that tax rates are generally low; that environmental taxes are often combined with other instruments, making it difficult to disentangle their relative importance; and that other unrelated changes in the economy and the environment will normally occur at the same time. Nevertheless the body of evidence on their performance in meeting environmental objectives is growing, and it suggests that eco-taxes have worked effectively (OECD, 1997b). Evidence of substitution away from products that are subject to environmental taxes ranges from tax differentiation between different types of gasoline (leaded and unleaded, in most OECD countries) and diesel fuels (in Sweden), to taxes on CO₂ (Norway), SO_x (Sweden), and non-hazardous waste (in Denmark and the United States) [OECD, 1997b].

Green tax reform

The introduction of environmental taxes is part of a broader agenda to “green” the tax system...

5. In a number of cases, the introduction of environmental taxes is part of a broader agenda aiming to “green” the tax system. Several OECD countries have undertaken reforms to “green” their tax system since the early 1990s, including Denmark (1994-98), Finland (1997), the Netherlands (between 1971 and 1996), Norway (1991 and 1998), and Sweden (1991). In addition to the introduction of new eco-taxes applied to products that create pollution when they are manufactured,

2. Expected revenues from these carbon taxes are estimated at around 0.1 per cent of GDP in Italy, 0.2 per cent of GDP in Germany and the United Kingdom.

consumed, or disposed of, this greening of the tax system may involve the removal or modification of existing subsidies and of tax provision that are damaging for the environment.

...through the phasing out of subsidies ...

- Large amounts of direct subsidies are still granted in OECD countries to a number of environmentally relevant economic sectors (such as agriculture, fisheries and energy), encouraging production and pollution. In other sectors, implicit subsidies are provided through the below-cost provision of services that encourage the use of natural resources and of the environment.³

...and the reform of tax provisions damaging the environment.

- Existing taxes may also have effects that are damaging for the environment, requiring their elimination⁴. In other cases, there may be room for restructuring existing taxes to tax more those products and activities that pollute more.⁵

These tax reforms are often applied in a context of revenue neutrality, with additional eco-taxes compensated by the reduction of other taxes in order not to increase the fiscal burden. These tax shifts may allow to lessen political resistance to the introduction of new environmental taxes.

“Double dividends” from green tax reforms?

“Green” tax reforms have the potential to generate a “double dividends” when used to finance a cut of the tax-wedge on labour.

6. Tax shifts may also provide opportunities for better economic outcomes when they allow the phasing out other more distortive taxes. Several countries have used the revenues from environmental taxes to finance a reduction of the tax wedge on labour, to reap a possible “double dividend” of better environmental effectiveness and higher employment. While the existence and size of this “double dividend” is controversial⁶, most model evaluations suggest positive, although small, effects, at least for the range of eco-taxes currently considered. For example, model-simulations undertaken by the Norwegian Green Tax Commission suggest that increases in eco-taxes equivalent to around 1 per cent of GDP and offset by reduced employers social security contributions may lead (in most cases) to a 0.5 per cent increase in employment. In any case, for a significant employment effect to

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3. For example, in the United States, it is estimated that only 25 per cent of the cost of government-supplied irrigation water is recovered through user charges; and only 80 of the total costs of road infrastructure and services --excluding environmental externalities-- is paid by road transport users through road related taxes and tolls.
 4. Examples include tax provision affecting transport use, such as the exclusion from taxable income of free parking space provided by employers or of use of company cars, and land tax provision that can lead to degradation of wetlands or overexploitation of forests.
 5. For example, in the case of energy taxes (that are already high in most OECD countries) there may be scope for moving from flat rates (e.g. per litre) to rates based on the content of polluting components.
 6. Key issues for this assessment include: *i)* the influence of lower payroll taxes on labour demand ; *ii)* the degree of shifting of lower payroll taxes from firms to tax payers; *iii)* the sharing of the burden of the eco-tax between wage earners and other tax payers; *iv)* the labour supply response to change in taxes and in environmental quality.

take place, more than marginal reductions in labour taxation (and increase in environmental taxes) will be required and these effects will vary significantly between countries, according to differences in labour market conditions.

Obstacles to greater reliance on environmental taxes

Greater use of environmental taxes continues to be hampered by...

7. The still relatively little use of environmental taxes may be surprising in the light of their potential advantages and of the ambitious environmental targets chosen by several OECD countries, e.g. the Kyoto Protocol. In addition to a general mistrust in governments i.e., fears that environmental taxes will be maintained even after their environmental objectives are reached this seems to reflect two main elements. First, while all environmental measures will have costs, these are more visible in the case of taxes, strengthening resistance to their introduction. Second, concerns about the effects of environmental taxes on specific groups (distributional effects) and sectors (competitiveness effects), and calls for offsetting measures.

Distributional effects

...concerns about their effects on poorer households...

8. Environmental taxes that apply to mass consumption products can have effects on low-income households according to the structure of their consumption basket. Most empirical research has focused on effects stemming (directly) from differences in the energy intensity of expenditure and (indirectly) from the impact of environmental taxes on the prices of goods and services used in production for different income groups in the household sector. In general, these studies indicate some regressive effects for carbon and energy taxes and for taxes applied to necessities such as water and electricity, but little discernible effects from taxes on specific polluting products that generate modest revenues (OECD, 1997a).

9. When these effects run counter the equity objectives of tax and transfer system, they may be offset in a number of ways. First, the "regressive" impact of eco-taxes may be offset by a progressive distribution of environmental benefits (e.g. air quality improvements benefiting poorer polluted suburbs). Second, the revenues generated by these taxes may be used to counter the first-order effect. Measures for offsetting the undesired distributive effects of eco-taxes through *ex ante* mitigation (in the form of tax exemptions or rebates from environmental taxes) and *ex post* compensation (in the form of tax-free allowances) risk eroding the marginal incentive effects of the tax. Other options include reductions in other regressive taxes and a better targeting of public transfers to low income groups.

Competitiveness effects

...and on the competitiveness of affected firms and sectors.

10. Business concerns on the implications of environmental taxes for the competitiveness of selected firms and sectors are also a significant obstacle to their greater use. Competitiveness is an obvious concept for firms that can gain or lose market shares and go out of business, but less so for nations. At this level, competitiveness is equivalent to maximising economic development, a process that requires continuous structural adjustment, shift of economic resources between



sectors and firms and associated adjustment costs. In this context, environmental policy is just one of the many forces for structural change as societies strive to find a better balance between economic, social and environmental objectives so as to achieve sustainable development.

11. While all environmental measures have implications for competitiveness of individual firms, one difference between taxes (and permits trading) and other forms of regulations is that firms not only pay for the abatement costs but also for the remaining emissions. As environmental taxes will have a stronger "direct" effect on the competitiveness of individual firms than alternative instruments, offsetting measures may be justified by the need to reduce short-term adjustment costs. Tax exemptions and other forms of sectoral differentiation of environmental taxes have been introduced in a number of countries but at the cost of weakening the incentive effect of environmental taxes. Further, exemptions to heavy polluters may end up with other groups and less energy/pollution intensive industries facing a higher tax rate than would be otherwise the case, if the environmental objective remain the same. Other mechanisms for neutralising the competitiveness effects of environmental taxes may include the use of border tax adjustment, i.e. the application to imports of domestic taxes on like products, and the remission of domestic taxes on exports.

Questions for discussion

12. On this background, questions for discussions include:
- Does the experience with environmental taxes in Member countries confirm their environmental effectiveness and economic efficiency?
 - What are the main obstacles to greater use of environmental taxes in OECD countries?
 - Is there a role for international co-operation and harmonisation in supporting their diffusion?

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