

### **3. Product taxes and environmental tax differentiation: Design and implementation**

*New environmentally related product taxes or the differentiation of existing taxes such as VAT or excise taxes can both be used to create incentives for environmental improvement. Successful introduction of well-functioning environmentally related product taxes will generally require close co-ordination between different branches of government, in particular between the environment ministry and the ministry of finance. There are several possible ways to implement environmentally related product taxes. This section addresses such implementation issues as revenue raising, competitiveness and income distribution concerns.*

### 3.1 Incentives for behavioural change

The environmental policy case for environmental product taxation is the potential it has to promote the production and use of “greener” products and to steer economic activity in a direction that causes less environmental damage.

Environmental product taxes have two main channels of potential influence:

- First, if higher taxes on “dirty” products are passed on in higher prices for these products, compared with lower-taxed “greener” products, this will tend to alter consumer choices, leading to a direct switch to greener products. The scale of this change in consumer purchasing will depend on the level of the environmental product tax and on the relative pre-tax prices of green and dirty products.
- Second, producers may also be stimulated to produce or develop cleaner products because they will be subject to less tax.

The area of the economy that has seen the greatest use of environmentally related taxes is the production and consumption of fossil fuels. As noted earlier, taxes on energy products – predominantly motor fuel taxes – constitute about two thirds of all environmentally related taxation in OECD countries, measured in terms of revenue. There are substantial opportunities for taxes on energy products to steer production and consumption in a less environmentally damaging direction, for example by encouraging substitution to less-polluting fuels, by encouraging the use of more fuel-efficient energy-using equipment and vehicles, by encouraging a shift towards greater use of public transport, by discouraging consumption of energy-intensive products and services, and so on.

Examples of other products where there is scope for environmentally related product taxes to encourage consumer and producer switching to environmentally better alternatives include:

- **Disposable products** such as cameras, tableware, etc.;
- **Pesticides and fertilizers.** Higher taxes on pesticides and fertilizers can act to discourage their excessive application by making these products sufficiently expensive that they are used selectively rather than indiscriminately;
- **Batteries.** Higher taxes on the most environmentally damaging types of batteries could encourage switching to less-damaging alternatives. Higher taxes on all forms of disposable batteries could encourage greater use of rechargeable batteries;
- **Packaging materials.** High taxes on all packaging materials might encourage a reduction in excessive product packaging. Selective taxation of the most damaging forms of packaging (e.g. composite materials which cannot be recycled) would encourage a switch to less-damaging (recyclable) packaging;
- **Electrical products** with large end-of-life costs; and
- **Incandescent light bulbs.** High taxes on traditional incandescent light bulbs, which are cheap but very energy-inefficient, could tip the balance of consumer choices towards more expensive but energy-efficient alternatives.

The great advantage of promoting behavioural change through environmentally related product taxes is that it may achieve environmental improvements at lower cost to

the economy than other available instruments. Using price incentives by taxing “dirty” goods more than “green” alternatives allows for more flexibility in producer and consumer responses. Taxes encourage behavioural change but do not force change when it would be excessively costly. In this way, they ensure that environmental policy can be effective without excessive cost.

In theory, emissions taxes provide an attractive alternative to product-based taxes. If based on measured emissions of a pollutant, they can be targeted precisely to environmental damage and can provide clear incentives for reduced damage: a firm which reduces its emissions will reduce the amount of tax it pays. However, the practical use of emissions taxes in OECD countries has been confined to a relatively limited number of areas – principally air pollutants from power stations and water effluents. One reason for the rather restricted application of emissions taxes is that they require measurement of actual emissions, which typically entails significant costs of installation and operation of emission measurement equipment, and the associated reporting and verification.

In fact, in certain cases product-based taxes can achieve outcomes which are as good as those from direct taxation of emissions. These are cases where a product can be taxed on a basis which precisely reflects the emissions associated with its production or consumption. One important example of this is the use of taxes on energy products to reflect the carbon dioxide emissions that would result when they are used. Where taxes are levied on some component of the content of a product (e.g. the sulphur content of fuels), they may provide a reasonable approximation to subsequent polluting emissions.

### ***3.1.1 Tax rate***

In theory, the rate at which an environmentally related product tax should be set should reflect the environmental damage caused by the product or activity in question. In practice, most countries that have introduced environmentally related taxes on products have not based the tax rate on an explicit assessment of the damage caused by each unit sold. This largely reflects the difficulty of making such assessments.

What tax rate is needed to achieve a switch to less environmentally damaging production and consumption behaviour? This depends on the products in question. Where there are close “green” substitutes for the dirty product, a given rate of tax may encourage a large proportion of consumers to switch to the green alternative and, likewise, producers would be more likely to switch away from producing the taxed dirty product. Where the alternatives are less satisfactory or more costly to produce, less switching is likely.

The tax rate needs to be large enough to make a real difference in the price of the dirty product, so that consumers notice the difference, and producers see a strong reason to change what they produce. It is unlikely that a tax rate of less than about 10% will achieve any significant behavioural change in consumer purchasing or firms’ production decisions, and environmental product taxes are unlikely to be worth introducing unless they are levied at 10% or more. On the other hand, taxes on products that are higher than about 20% of the product price may be difficult to administer and enforce because they risk provoking substantial tax evasion, except where the product is subject to close monitoring and control, as in the case of mineral oils and motor vehicles. This suggests that, as a matter of general guidance, the additional environmental product tax rate on “dirty” products should in most cases lie within a range of 10 to 20% of the product price.

While it is unlikely to be possible to assess exactly how this compares with the environmental damage caused by each unit consumed, the aim should be to confine such taxes to products that are associated with significant environmental damage, so that the scale of the tax is not disproportionate to the environmental damage associated with production or consumption of the product.

Once the initial tax rates are set taking account of the environmental considerations and revenue implications, it may be appropriate to maintain these tax rates for some time – there are a number of examples in OECD countries’ practice where initial rates of environmentally related taxation have not changed for a number of years. However, inflation and other environmental and economic changes will require a procedure for revising the rates.

### **3.1.2 Targeting**

If the aim of the incentive is to change behaviour, it is important that the incentive be accurately “targeted” to the underlying environmental problem, because poorly targeted taxes can impose costs without achieving the desired behavioural changes. The tax needs to be charged at a higher level on “dirty” products than on the “green” alternatives if it is to change the decisions of consumers and producers in favour of the green alternatives. In some cases this may be easy to achieve through differentiation of existing sales taxes (e.g. differentiation of an excise tax on fuel based on its sulphur content), while in other cases accurate targeting may be harder to achieve.

Much depends on how accurately the tax system can distinguish between “green” and “dirty” products, so that higher taxes apply to the latter only. In some cases, identifying the products that should be taxed more heavily is straightforward. Taxes on fossil fuels used by households provide a clear incentive to use less fuel and to invest in energy efficiency measures (better insulation, etc.) that will reduce fossil fuel consumption. In this way, such taxes can provide well-targeted incentives to reduce carbon dioxide emissions from household energy consumption.

In other cases, it may not be easy, as a practical matter, to distinguish between the products that should be subject to an environmental product tax and those to which it should not apply. In practice, for example, it may be difficult to tax sales of paper made from virgin pulp more heavily than recycled paper, since it would be necessary for the taxing authorities to investigate the life history of the products in order to be able to apply the correct rate of tax. At the point where the tax is applied, paper from virgin pulp may look close to indistinguishable from recycled paper.

In another group of cases, the tax structures that are feasible may not accurately reflect the complex pattern of environmental costs caused by individual consumption. High taxes on motor vehicles and motor fuels are frequently used to reflect the environmental costs generated by private vehicle use. However, some of these costs depend on aspects of individual consumption that cannot be reflected in a tax. Thus, for example, some motor vehicle exhaust emissions (e.g. of particulates from diesel engines) are highly damaging in urban areas, where they can harm the health of many people in a densely-settled area, but cause much less human health damage in rural areas, simply because there are fewer people to be harmed. On the other hand, diesel cars typically generate lower emissions of carbon dioxide per kilometre driven than petrol-engine cars and, therefore, cause less climate change damage. Ideally, environmental policy should aim to reduce diesel car use in urban areas, but this is not something that can be accurately incentivised by taxes on vehicles and fuels.

A further aspect of efficient targeting of the tax incentive is the form that an environmentally-based product tax should take, and in particular the choice between *ad valorem* taxes, levied as a percentage of the product price, and “specific” or *ad quantum* taxes, levied on the basis of the quantity of the product. Most existing general sales taxes (such as VAT) are levied on an *ad valorem* basis, i.e. on the value of goods sold. By contrast, many of the excise taxes which countries levy on mineral oils and other products are based on the quantity of the product. One strong practical reason for this is that such excise taxes are typically levied at a stage in the production and distribution chain when the final selling price cannot be easily observed.

Generally, the environmental harm caused by dirty products is a function of the quantity produced or consumed rather than its price. Lower quality, cheaper, versions of a product may cause just as much environmental harm, and possibly more, during production or consumption as more expensive versions. If the tax is to be levied on a basis which reflects the scale of environmental harm, taxes based on quantity (e.g. litres of motor fuel) will be a better targeted incentive than an increased *ad valorem* tax on dirty products. This suggests that the scope for using existing taxes to introduce environmental incentives will be greatest in areas where excise taxes are currently levied. The excise taxes on motor fuels could, for example, be differentiated to reflect sulphur content, and excise taxes on motor vehicles could be charged according to the emissions performance of different models. EaP countries that have *ad valorem* taxes on environmentally harmful products should consider shifting the tax base to the quantity of these products.

### 3.1.3 Tax differentiation

The most straightforward way of using environmental product taxes to discourage consumption of environmentally-damaging products is simply to levy a tax on these products. Many of the applications of environmental product taxation in OECD countries have taken this form. However, it is possible that a more complex policy could provide stronger incentives for changes in production and consumption that would result in a greater environmental improvement.

One more complex policy approach would be environmentally motivated tax differentiation, which would simultaneously increase the tax on “dirty” goods while at the same time reducing the existing rates of taxation (e.g. VAT or other sales taxes) on the “green” alternative. Higher taxes could be imposed on single-use batteries, for example, while the existing VAT on rechargeable batteries could be cut. The effect would be to increase the tax advantage in favour of rechargeable batteries, and hence the incentive to switch to the greener product would be strengthened.

Tax differentiation of this form effectively uses some or all of the revenue raised from the higher environmental product tax to finance a tax cut for the green alternative. Another way to achieve the same incentive for consumers to switch to the green alternative would be a still higher tax on the “dirty” good, and this could be done without foregoing tax revenues from sales of the “green” good. However, there are practical limits to how high a rate of tax can be set without stimulating excessive evasion and false accounting, as well as political limits to how high the rate of tax can be set on any product without excessive producer and voter resistance. The combination of tax increases on “dirty” goods and tax reductions on some “green” goods may then be a more politically palatable approach.

### 3.1.4 Evaluation of effectiveness

A significant part of the rationale for product-based environmentally related taxes is that they can change behaviour, especially the behaviour of consumers, in ways that are less costly than more inflexible forms of product regulation, or direct environmental regulation of polluting activities. In general, however, these effects are likely to be difficult to observe, for a number of reasons. First, adjustments in consumer behaviour are likely to be gradual. Consumers may make decisions on the basis of habit and may take time to notice price differentials created by differential taxation. Consumption of motor fuels, for example, is very heavily determined by vehicle ownership decisions, including the type and size of car owned, and the full response to changes in fuel taxes will not occur until the consumer buys a new car. Second, many environmentally related tax measures are introduced as part of a policy package with other related measures, and it is difficult to disentangle the separate effect of the tax change alone. Third, there may be other changes in economic conditions or technologies which will change consumer purchasing at the same time. For these reasons, there are relatively few assessments of the actual impact of environmentally related tax measures.

Rather more evidence exists on the likely impact of such measures, based on wider evidence of how consumption responds to changes in prices. Thus, for example, straightforward increases in the rates of motor fuel taxes will be likely to have effects on the consumption of motor fuel that can be inferred from the evidence on the “elasticity” (price responsiveness) of motor fuel consumption to more general changes in fuel prices. As would be expected, given the important role of vehicle ownership in determining fuel consumption, this is relatively modest in the short term, but becomes significantly larger once the full set of consumer adjustments take place, including changes in vehicle ownership patterns.

## 3.2 Design issues

There are ranges of possible ways to implement environmentally related product taxes. One option makes use of existing product taxes (sales taxes) and achieves an environmental effect through a change in tax rates within the existing system. Another option implements environmentally related product taxes separately from existing sales tax arrangements. The first question of practical design that needs to be addressed is the extent to which the introduction of an environmentally related product tax can draw on existing taxation arrangements and be incorporated within the administration of existing taxes, especially sales taxes.

This decision needs to balance the requirements of environmental effectiveness and efficient fiscal administration:

- To be environmentally effective, the product tax needs to apply to clearly identified products that are associated with environmental damage in the course of production or consumption while not taxing products that are not associated with environmental damage, and to be levied at a high enough rate.
- Efficient fiscal administration requires that the tax be levied without requiring excessively high administrative costs to government or excessive costs of bureaucracy to taxpayers. A key consideration is that the environmentally related product tax should not jeopardise the efficient administration of other parts of the tax system.

### *Full administrative integration*

Introducing environmental incentives into the structure of an existing product tax system has the potential to create environmentally related product taxes without incurring the costs of setting up and running an additional, separate tax administration. Differentiating the rates of an existing sales tax so that a higher rate of tax is applied to a list of “dirty” goods provides a simple and potentially low-cost route to implementing environmentally related product taxes.

Tax differentiation within an existing system of product taxes has the drawback that the environmental product tax cannot be specified with a completely free hand. It would be necessary to respect constraints arising from the structure and operation of the existing tax system. For example, where environmentally related product taxes are to be incorporated within a sales tax such as VAT, they have to take the form of a percentage of the selling price of the product because that is how VAT works. This limitation may, however, be acceptable, as it avoids the need to incur the costs of setting up and operating a wholly new independent system to run the tax.

Each of the existing product taxes could be adapted as the basis for introducing environmentally related product taxes, either by differentiating the rates of tax currently applied or by more complex reforms.

*VAT* covers the widest range of commodities and transactions but is the least flexible of the existing product tax systems in terms of its ability to accommodate the requirements of additional environmentally related product taxes.

- VAT is a price-based tax, so any environmentally related product tax incorporated within the VAT would need to take this form. Environmental damage may not always be well related to the price of a product. Cheap brands of some product might cause as much environmental damage as more expensive brands, but with VAT the tax will always have to be a fixed percentage of the price.
- Multiple tax rates within a VAT system sharply increase the cost of administration as both taxpayers and the tax authorities can no longer focus simply on the aggregate value of sales by a business. They would need to collect and verify information on sales subject to each of the different tax rates and a firm’s purchases in each of the different tax rate categories. The amount of reported information rises sharply, and new opportunities open up for highly-profitable tax evasion by misreporting sales into a lower-taxed category, a form of evasion that is very difficult to control from purely accounts-based tax audit methods.
- VAT is really only effective at introducing incentives for changes in consumer behaviour and cannot discourage the use of environmentally damaging products *in the course of production*. The reason is that VAT is essentially designed to tax sales to final consumers only. It does this implicitly, by giving credit (i.e. refund) for taxes paid on a firm’s purchases of taxed goods and services. The effect of this is to leave businesses indifferent to the rate of VAT they pay on purchased inputs, since they effectively reclaim that tax when they are taxed on their sales. Whether this limitation matters depends on the nature of the environmental problem being addressed, and whether other, supplementary, approaches are available to deal with this issue.

In most countries *excise taxes* are levied on a limited number of commodities, but these include some of considerable environmental significance, especially motor fuels and vehicles.

- Taxes on motor fuels are often already high compared to other goods and services, but their environmental impact could be enhanced by levying additional taxation on “dirty” varieties of the product (e.g. high-sulphur motor fuel) or reducing tax on its “green” varieties (e.g. unleaded petrol).
- In practical terms, motor fuel excises are generally single-stage taxes levied at a defined point in the production and distribution process. Usually this is well before the retail stage to ensure effective enforcement and low costs of administration. Often excises are levied at the point where motor fuels leave the refinery or large-scale distribution facilities. Up to this point, production and distribution are closely monitored by the revenue authorities to ensure that untaxed output does not escape into the retail system. Once the excise has been levied, the expectation is that it will be largely passed forward in higher prices at each subsequent sale until it reaches the final consumer.
- Because they are levied well before the point of retail sale, at a stage where no market transaction may be taking place, fuel excises are generally based on product quantity (litres) rather than price. This has some advantages when it comes to environmental differentiation, since it is generally quantity rather than value that is most closely related to environmental damage.

*Import duties* provide a third option for integrating environmentally related product taxes with existing taxation.

- In many countries, oil and refined oil products are mainly imported, and taxation at the border can be a substitute for excises levied on domestic production. Indeed, if there is no domestic production, the system may be based entirely on taxation at the point of import. If border formalities are effectively enforced, this may be the cheapest way to levy a high rate of tax without provoking large-scale evasion.
- WTO rules generally require that any environmentally related product taxes apply equally to both domestic production and equivalent imports. Such taxes should not be used as an indirect way of introducing trade protection to favour domestic production over imports. This limits the extent to which the administrative arrangements for import duties can be useful in setting up a system of environmentally related product taxation, since provide no mechanism for levying an equivalent tax on domestic producers.

### *Stand-alone operation*

Where it is impossible to integrate an environmentally related product tax into the structure and administration of existing sales taxation, it may be necessary to consider a stand-alone system of environmental product taxes, levied on one or more products that damage the environment in the course of their production or use. This is potentially costly, requiring administrative operations that may duplicate many which are already undertaken for the existing product taxes. However, it does have the advantage that the tax could be designed in the way most appropriate to the environmental problem being



addressed, largely unconstrained by other tax policy choices or by existing administrative structures and processes.

In practice, a significant proportion of the environmentally related product taxes operated in OECD countries are largely independent of the main product taxes. One reason is that they can then be levied on the basis of attributes more directly related than product price to environmental performance, as in the taxes levied in Denmark on the basis of weight.

Stand-alone operation of an environmental product tax would require the following:

- **Identification of relevant producers and importers.** Legislation could require producers and importers of certain commodities to register, and these declarations could then be used as the basis for identifying potential taxpayers. Some resources would need to be devoted to tracking down firms that have failed to register. It would be desirable to make firms liable indefinitely for any tax arrears due to a failure to register, plus a significant additional penalty.
- **Periodic (annual or quarterly) taxpayer returns** of amounts sold of each of the commodities subject to the environmental product tax.
- **Significant audit and investigation resources** need to be deployed to verify the accuracy of these taxpayer returns. The competent authority needs to be given appropriate powers to obtain access to the firms' financial and sales records on a basis equivalent to the powers held by the principal tax agency.
- **Assessment of the tax due.** There is a significant move in international tax administration towards giving taxpayers the initial responsibility for calculating the tax due and depositing a corresponding payment with the tax authorities. This speeds up the process.
- **Arrangements for tax payment.** Taxpayers need to have an incentive for early payment, which can be given by charging an appropriate interest rate on late payments. If subsequent investigation demonstrates that additional tax has been due, the tax agency needs to have powers to collect it and to levy an appropriate penalty for the initial under-payment.

Even where the operation of the tax is wholly separate from the operation of existing taxes, there are good reasons to design the operations of the environmental product tax to mirror those employed in the existing tax administration. This means that experienced staff can be hired from the existing tax authority, increasing the chances that the new system can be established quickly and effectively. Following the administrative practice of existing taxes reduces the risk that taxpayers will be confused by different procedures for different taxes.

#### *Intermediate options*

Between the two extremes of full integration and wholly separate administration, there are a range of intermediate possibilities in which a new product tax could be introduced, making use of aspects of the operation of other existing taxes while not being fully integrated within the existing tax system. These could include:

- Subcontracting the administration of the environmental product tax to the agency collecting the general product tax, without any legislative integration. The tax authority would then administer and collect two taxes. Combining certain

activities (e.g. tax inspection) would achieve some efficiencies compared with two parallel tax systems administered entirely separately. Arrangements would need to be made to share the operating costs between the two systems.

- Information exchange or pooling between the general tax authority and the environmental product tax administration. It would be very useful to an agency trying to run a stand-alone system of environmental product taxes to receive from the general tax authority a list of firms involved in the relevant industry. It might also be useful for both authorities to share information about the level and pattern of activities of the firms that they both tax, since information gathered by one authority may be useful to the other administration. Both, for example, would obtain information about the level and pattern of firms' production and sales, and sharing this information allows for some cross-checking.
- Separate assessment of the environmental product tax and the general sales tax, but combined tax collection, payments processing and enforcement.

### 3.3 Revenue considerations

Environmentally related product taxes raise revenues. In some cases, especially with taxes levied at high rates on motor vehicles and fuels, these revenues can be substantial. In other cases, where the rates are lower and the sales of the taxed commodity are smaller, the revenues may be quite modest.

The revenue obtained from an environmental product tax is affected by any behavioural responses to the tax. If the tax succeeds in encouraging consumers to shift away from the taxed “dirty” goods to less environmentally damaging products, this will reduce the revenue. These changes in consumer behaviour may take some time to occur, so the revenues from environmentally related product taxes may diminish over time.

Revenues from environmentally related product taxes are also affected by changes over time in the tax rates and in economic conditions. The most important of these is the effect of inflation. One strong advantage of taxes that are levied as a percentage of the selling price of a product is that they increase automatically when the price of the product rises. Taxes levied on the basis of product quantity, such as motor fuel taxes levied per litre, need to be deliberately adjusted each year in order to keep pace with inflation. This process of regular adjustment can introduce considerable unpredictability into the level of the tax and its revenues, especially if the adjustment of tax rates becomes a matter of political discussion and controversy. There is a real danger that the tax may be steadily eroded through inflation, if legislators are unwilling to be seen to be voting regularly for tax increases. With taxes that are levied as a percentage of price, the inflation adjustment is automatic, and tax increases may be less controversial.

The use of revenues generated by environmental product taxes varies. The revenues from high rates of tax on motor fuels and other energy products are of real significance to the overall public revenue in many countries and are not allocated to any particular environmental purpose.

Revenues from smaller environmental product taxes are sometimes “earmarked” to an environmental budget line. In some cases this may be a fund related to the disposal of the product concerned. Some countries, for example, levy taxes on the sale of certain products to cover the eventual costs that will be incurred in end-of-life waste management and disposal costs. This includes cases where product charges are levied in order to fund

industry-run agencies handling collection and disposal of end-of-life products under EPR, as discussed in Chapter 5.

Revenue earmarking has advantages as well as some drawbacks. A public commitment to assign revenues from an environmental product tax to an environmental clean-up fund or another environmental purpose can strengthen support for environmental product taxation both from voters and from businesses. A more complex package of measures could combine the introduction of environmentally related product taxes with spending measures financed by some of the revenue generated, with the aim of increasing the scale of consumer response. A good example of this in OECD countries has been public spending to promote efficiency investments in order to increase the responsiveness of energy consumption to higher energy prices.

On the other hand, there are well-known reasons to limit the extent of revenue earmarking. Although revenue earmarking to environmental funds has been quite widespread, very few other taxes are earmarked in this way, for good reasons. Assigning revenues of a tax to a particular budget line risks long-term inefficiency and rigidity in the allocation of public spending, as spending programmes linked to buoyant revenue sources grow at the expense of those funded from taxes with less-buoyant revenues. These changes can be arbitrary and inefficient. If an environmental tax reduces the consumption of a particular “dirty” good, revenues accruing to the corresponding environmental budget fall automatically, while the need for public environmental spending is not necessarily reduced.

There are significant benefits from allowing revenues from environmentally related taxes to contribute to the general public budget. Additional revenues from environmental product taxes may allow the government to reduce other taxes (on labour or investment) and/or lower public borrowing and/or increase public spending. In some OECD countries this has been a powerful way of gathering public support for environmental taxes. In Sweden and in the UK, for example, some environmental taxes have been introduced along with an explicit public commitment to use the revenues to reduce income taxes or payroll taxes paid by employers.

### **3.4 Legal and institutional issues**

#### ***3.4.1 Inter-departmental co-operation in policy development and implementation***

Countries differ in how they divide responsibility between different ministries or government departments. In most countries, however, the successful introduction of environmental product tax policies has required co-ordination and co-operation between two separate branches of government:

- Environment ministries, responsible for policies to protect the environment from pollution and other forms of damage; and
- Ministries of finance, responsible for the design of the tax system, for policy decisions about tax rates and revenues, and, in most countries, for the management or oversight of the revenue collection agency responsible for the day-to-day operation of the tax system.

In most countries that have introduced successful and well-functioning environmentally related product taxes, the development of these taxes and their subsequent implementation has required co-ordination between the environment ministry and the ministry of finance. The involvement of the environment ministry is needed to

ensure that the taxes have a clear environmental logic. The ministry of finance needs to be involved to ensure that the taxes are compatible with the rest of the tax system and make full use of the experience and resources of the existing tax administration. With respect to imported goods, these functions are usually carried out by the customs service. In addition, the ministry of economy is usually responsible for strategic planning and analysis of the impact of taxes on resource efficiency and key economic indicators.

The first step in effective policy development in this area is to establish the procedure for this crucial co-ordination. This may take the form of an inter-ministerial task force or a similar mechanism to develop a joint policy proposal and implementation plan.

The extent and nature of the inter-departmental discussion and co-operation on policy development and implementation needs to reflect the tax design option that has been chosen, whether or not to integrate environmental product taxes into the existing structure of VAT. But whatever decision is taken about the implementation mechanism, there are important gains to be made from co-ordination and co-operation between agencies, and even a wholly-separate environmental product tax mechanism would be able to benefit from extensive points of contact and information exchange with the existing fiscal administration.

The cross-ministry perspective is also useful in developing an effective and well-coordinated response to the concerns about competitiveness and the household tax burden that have often been raised in public discussion of proposals for environmentally-related product taxes. These issues are discussed in more detail in Sections 3.5 and 3.6.

Various forms of stakeholder consultation may be required in the course of developing a policy proposal and legislation. Different countries have different practices regarding the extent of consultation with industries (via business associations) that may be affected by proposed legislation. Generally speaking, the consultation procedure should ensure that policy development is better informed about the cost implications for businesses. At the same time, it opens opportunities for aggressive lobbying by firms which may compromise the environmental and revenue-raising effectiveness of the instrument. More extensive consultation may be needed if the decision is taken to develop a stand-alone system of tax administration for the environmental product taxes.

The experience of OECD countries suggests that meaningful inter-departmental co-operation put in place at an early stage greatly improves the functionality and political sustainability of environmentally related product taxes.

### ***3.4.2 Longer-term institutional issues***

In addition to the need for inter-agency co-ordination in the process of policy development, there are some important longer-term issues concerning the institutional location of responsibility for rate-setting and for future policy development.

Assigning the responsibility for setting and modifying environmentally related tax rates is an important factor of the system's long-run effectiveness. If the decisions are made by the ministry of finance alone, and the revenue accrues to the general public budget, there may be a risk that revenue considerations will dominate policy choices at the expense of environmental effectiveness. A similar risk could arise if the tax rate decisions are made by the environment ministry and the revenues accrue to an environmental fund it manages. Since the environment ministry may have relatively few revenue sources, there is a danger that revenue rather than environmental considerations will dominate its decision-making about the tax rates.

There is no simple institutional assignment that will ensure that an appropriate balance will always be drawn between revenue and environmental considerations, or indeed that wider considerations such as those relating to taxpayer burdens are given appropriate weight. However, defining clear principles for setting the tax rates based on their environmental rationale may guard against the taxes being used solely for revenue-raising without regard for environmental effectiveness.

### ***3.4.3 Institutional issues and the achievement of policy stability***

Stability in tax rates is important if the system is not to be disruptive to business and ineffective in achieving its environmental goals. Frequent change will alter the incentive to produce greener products. Firms may need to make substantial investments in order to switch to producing greener products, and they are unlikely to make these investments unless they are confident that the incentives provided by product taxes will be maintained consistently over time.

This suggests that considerable attention should be paid to institutional arrangements for enhancing stability in product taxes:

- An important starting point for stability is to ensure that the introduction of product taxes is based on cross-party consensus, rather than partisan controversy.
- Stability is more likely if the initial legislation is realistic rather than overly ambitious about the tax rate. A very high initial tax rate may encourage political opposition and policy reversal.
- Stability requires policy-makers to avoid frequent minor adjustments which cause costly disruption without any real benefit. One possible strategy to discourage “tinkering” is to pre-announce an intended time path for the tax rate as a guide to future policy decisions. While it is not possible to guarantee future finance ministry decisions, announcing a long-term strategy for the tax rate may help to emphasise that these taxes are different from conventional taxes directed only at revenue-raising.

## **3.5 Addressing competitiveness concerns**

Most OECD countries that have introduced environmentally related product taxes have found that the announcement of these measures has prompted concerns about their potential adverse impact on the competitiveness of domestic producers, and hence on national output and employment.

These concerns have been particularly vocal where the taxes apply to products used as inputs to production. Proposals to increase taxes on industrial energy use and on motor fuel, in particular, have sparked heated debate about the effects on national producers and employment. In the case of taxes on the carbon content of fuels, introduced to reduce greenhouse gas emissions, there have been concerns that not only would national producers be disadvantaged in comparison with producers abroad who did not have to bear such taxes, but also that the loss of competitiveness of national producers would cause “carbon leakage” to production locations abroad, which would offset any benefits from the domestic emissions reduction.

With the exception of fuels, however, most of the focus of environmentally related product taxes in OECD countries has been on consumer products, which raise much less concerns about adverse competitiveness effects. In principle, any such taxes should apply

equally to the sale of all products of a particular sort, whether domestically-produced or imported. While there might be some reduction in the overall market for the taxed “dirty” products, this effect is likely to be relatively modest compared with the dramatic changes in output that could arise if imports and domestic production were treated differently.

Even though the overall effects on the competitiveness of domestic firms may be modest, some significant lobbying should be anticipated, especially if some national firms focus their production particularly on the “dirty” products that will be adversely affected by the product tax. If the objective is to improve the environment by reducing consumption of these products, there may be little that should be done to respond positively to the concerns of the firms affected. It will be important to ensure that the measure is not watered down to the point where it is ineffective.

It is also important that policy instruments such as environmentally related product taxes not be subverted by industrial pressures to advance the interests of particular producers. A firm that succeeds in having its “dirty” products exempted from an environmental product tax while the full tax is borne by its equally “dirty” competitors will gain significant business advantage and additional profits. The prospect of these profits may well justify the firm’s self-interested lobbying to secure such tax advantage. Policy-makers need to be aware of this risk and mount an effective defence of the product tax policy against unjustified lobbying.

One tactic to counter business lobbying to secure exemptions and other unjustified tax privileges is to commission an objective assessment of the environmental case for the tax and to justify the products that are to be included within the scope of the tax on the basis of clear environmental criteria. The tax is much more likely to be defensible against erosion if the products included have been selected on the basis of clear criteria applied systematically across all competing products than if the selection of products has been arbitrary.

Another defence against self-interested business lobbying is public support for the proposed measure. Transparency in discussion about the reasons for the reform may help to build wider public understanding and support for the tax measure. Well-publicised earmarking of revenues for some environmental purpose may also help to consolidate public support and reduce vulnerability to lobbying.

Packaging the tax with explicit reductions of other taxes may be an alternative strategy. A number of countries have been able to introduce quite significant environmentally related taxes in this way. In the UK, for example, a number of environmental tax measures intended to have incentive effects have been introduced on a revenue-neutral basis, with the additional tax collected on the “dirty” activity being used to finance a cut in the payroll tax paid by employers. Not all firms gain equally from the use of the revenue in this way, but it does create gainers as well as losers. Some firms that stand to gain from quite significant tax reductions may provide a counter-weight to the lobbying of the firms which stand to lose.

### 3.6 Addressing income distribution concerns

Some proposals for environmental product taxes have prompted concerns about the impact on poorer households. The main focus of these concerns has, again, been the taxation of energy, and in particular the taxation of household energy supply for heating, lighting and other household consumption. In some countries, both in the OECD area and among transitional and developing economies, household energy spending is a high

percentage of poorer households' incomes, so additional taxes on household energy constitute a much higher proportion of household incomes among the poor than among the rich.

Although the taxation of household energy consumption results in a heavier additional tax burden for poor households, the additional tax paid, in money terms, is bigger for households with higher incomes (because they use more energy). The revenue generated can be used in a number of ways, depending on political and policy judgments, to compensate poorer households for the additional energy tax they would pay, including:

- Paying higher pensions and social benefits to poorer households;
- Paying for energy efficiency improvements in poorer households – better insulation, buying fuel-efficient appliances, etc.; and
- Reducing other taxes, in particular those which already bear heavily on poorer households.

There are few, if any, other commodities where environmental product taxes raise any real distributional concerns. Most products, apart from energy, that have been subject to environmental product taxes are either products consumed disproportionately by the rich, such as motor vehicles, or are small items in most household budgets, such as batteries, disposable cameras, etc.

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