

Assessment of the Environmental Tax System in Latvia

Jurušs Māris, Brizga Jānis

Abstract

Environmental taxes should play an important part in environmental policy as they help to internalize externalities, reduce damage, and increase the quality of life; besides they allow raising revenue for national and local governments. The aim of this paper is to evaluate environmental effectiveness, economic efficiency, equity impact, administrative feasibility and cost, and political acceptability of environmental (energy, transport, and natural-resource) taxes in Latvia. The study is based on desk research. The results demonstrate little evidence that existing environmental taxes lead to a significant reduction in environmental pollution and waste flows, but they have a significant fiscal effect. Most of the environmental taxes in Latvia apply direct and indirect subsidies, but most of the revenue comes from taxes on energy and transport. Environmental tax rates in Latvia are the result of political compromise and are not backed by the research on environmental costs of the particular activity. This paper fills the gap in environmental policy evaluation by looking at the performance and effectiveness of environmental taxes in Latvia.

Keywords:

Environmental policy, economic instruments, environmental taxes, tax management, OECD.

1. Introduction

Economic instruments have always played an important part in the policy as they help to internalize externalities, reduce damage, and increase the quality of life (Ščasný et al., 2009); besides they allow raising revenue for national and local governments (Andersen et al., 2011). However, these desirable effects are not straightforward to achieve – whether the policy would be effective or not depends on many

factors, including the behavior of households and firms, technology development, and the design of the instrument with respect to involved marginal abatement costs.

At the same time, environmental regulation is also not free of social-economic impact. Use of economic instruments in environmental policy might reduce economic growth and welfare, affect competition and can be more costly for some of the social groups, but there is also evidence of a double dividend; e.g. use of economic instruments in the environmental policy can encourage technology diffusion (Jaffe et al., 2003), boost employment (Bovenberg, 1995), ensure a lower level of emissions, the highest production volume and the lowest market price (Almutairi and Elhedhli, 2014) as well as allow the distorting income tax to be reduced by the revenue that they raise (Metcalf and Weisbach, 2009). That is why science-based and rational environment tax policy is very important in environment tax application. Environment taxes' impact on emission reduction is very different in various countries (Lin and Li, 2011).

Latvia has more than 20 years' experience in designing its environmental policy and respective regulation, where economic instruments have always played an important role. However, there has not been a proper evaluation of the effectiveness of these instruments.

In this paper, we have focused on the assessment of environmental taxes as the most important economic instrument used in Latvia's environmental policy. The aim of the research is to evaluate the effectiveness of environmental taxes by assessing environmental and economic effectiveness, equity impact, administrative feasibility and political acceptability, as well as to come up with recommendations for improvement.

2. Economic instruments in environmental policy in Latvia

Latvia has a wide array of environmental taxes in place, including energy taxes, transport taxes and the all-encompassing natural-resource tax (NRT).

2.1 Energy taxes

Excise duty on energy resources in Latvia applies to mineral oils and natural gas used for transport, heat and power. All excise duty rates in Latvia are above the minimum set out in the EU Energy taxation directive (EU ETD); however, almost all excise-duty tax rates are also below the EU-28 average, putting Latvia towards the lower end of OECD member states in terms of energy taxation. Nevertheless, if we compare the tax burden by purchasing power, the situation is vice versa – Latvia has a higher excise tax burden than the OECD average by purchasing power. Furthermore, at the end of 2015 the government increased the excise-duty rates for fossil fuels using the market situation with low energy prices, thus creating an even higher energy-taxation burden for Latvian consumers. LPG used for

industrial and commercial purposes is already taxed at a higher rate in Latvia than the European Union average.

Several tax exemptions also apply, e.g. biofuels and gas oil used for certain agricultural purposes are exempt from excise duties. Additionally, any fuel used for the following purposes is exempt from excise duties: aircraft and ships, except those used for private recreation and entertainment; power or combined heat and power (CHP) plants; and chemical treatment processes.

There are also several taxes on electricity. The electricity tax was introduced in 2003 in order to promote electricity production from renewable resources. It is levied on electricity supplied to final consumers or consumed by suppliers. Tax exemption has both social and environmental aims. Furthermore, the Tax for subsidized electricity producers was introduced in January 2014. It is paid by companies receiving a feed-in tariff for power generation from renewable energy sources or from CHP plants. Income from this tax is due to be used for a new electricity customer-support fund. This tax is aimed at compensating the increase in electricity prices for households and companies.

2.2 Transport taxes

In Latvia, several transportation taxes are used. There is an annual car tax, as well as a special company car tax introduced in 2011. There was a vehicle registration tax, however, since 2017 it has been integrated into the annual car tax. Additionally, as part of the natural-resource tax, there is also a flat-rate charge of €40 per new vehicle at the time of registration in Latvia (distributors involved in the end-of-life vehicles management systems are exempt from paying the tax).

There is currently no air passenger or freight tax, but a passenger departure duty was in place until the end of 2004. The revenue in 2004 (the last year the tax was applied) was €5.40 million (equivalent to 0.024 % of the gross domestic product – GDP), which was reinvested in airport infrastructure. But in 2012 Riga airport introduced a fee (€7 per passenger) for security services.

The road user charge (Euro Vignette) is payment for the use of the main roads of Latvia and has been in place since 1 July 2014. The charge is paid by commercial vehicles which have a gross vehicle weight exceeding 3.5 tons and which are intended or used for the carriage of goods by road.

There are also support mechanisms to promote environmentally friendly transportation in Latvia. New drafts of the sustainable alternative fuels strategy and the electro-mobility development plan 2014–2016 foresee several support mechanisms, e.g. for electric cars – free parking, use of public transport lanes. However, fuel taxes should remain the core instrument for car-pollution control (Montag, 2015).

2.3 Natural-resource tax

In Latvia, one all-encompassing NRT has been imposed since 1991. The purpose of this tax is to facilitate the effective use of natural resources, restrict the pollution of the environment, reduce the use of environmentally damaging products, promote the implementation of new and improved environmentally friendly technologies, as well as to support sustainable economic development and ensure revenue for environmental protection measures and projects. Both basic rates and additional rates are used simultaneously for the calculation of the tax to be imposed on the use of natural resources over the limits.

The activities upon which the NRT is imposed can be divided into the following groups: waste disposal, water abstraction, aggregates, air and water pollution, packaging, harmful goods and coal, coke and lignite. There has been a progressive increase in the several NRT rates, e.g. on PM10 released into the air and waste land-filled. However, taxation on other air pollutants, such as NO₂, has not increased in recent years.

3. Methodology

The research is based on desk research evaluating the effectiveness of the use of economic instruments in environmental policy in Latvia. Different approaches exist to do that. Eurostat measures financial effects of environmental taxation by measuring the share of environmental taxes in total GDP and total state revenues (Eurostat, 2016). However, Filipović and Golušin (2015) recommend using a composite environmental tax indicator – Environmental Taxation Efficiency – to assess the financial effects of environmental taxes. Loganathan et al. (2014) suggest focusing more on environmental impact. Rosiek (2014), Sjögren (2009) and Bovenberg (1995) propose focussing on the social impacts of environmental taxes. This results in a wide variety of approaches to use when evaluating the effectiveness of the environmental taxes.

In this paper the authors propose to use a combined approach developed by the Organization for Economic Co-Operation and Development (OECD) (Ash, 2010; OECD, 1997, 2005) covering all these different aspects:

- **Environmental effectiveness** – measured as the extent to which the tax delivers its environmental objectives to provide a permanent incentive to pollution abatement, technical innovation, and product substitution. The quantitative emissions-reduction effect of a tax depends on the response of the polluter to the price incentive. Some of the main questions: Are emissions levels or resource-depletion rates falling? Are ambient concentrations in the surrounding environment declining?

- **Economic efficiency has two aspects.** Environmental taxes exploit opportunities for abatement by creating incentives for firms and/or sectors with the lowest abatement costs to undertake most abatement of the polluting activity, resulting in an efficient cost-minimizing pattern of abatement activity. A measure of economic efficiency is, therefore, the extent to which there is a tendency to equalize abatement costs across pollution sources. Another aspect of economic efficiency is revenues raised by environmental taxes. They depend on the behavioral response of the taxpayers to the charge. If producers respond to a tax by reducing output and/or investing in abatement activities, then the taxable item (the emissions) will reduce, as will revenues. If the price elasticity of the taxed product or activity is low (in absolute value), an increased tax rate could raise higher revenues. Some of the main questions: What is the tax revenue and what is the level of revenue as a percentage of GDP? Are the revenues earmarked or not? Is the use of the revenues likely to lead to any positive environmental effects (linked to earmarking)?
- **Equity.** Distributive consequences vary according to the type of the policy instrument applied. For example, pollution charges or taxes entail additional payment on the discharge of “residual” pollution; additionally, their distributive impact would depend on how the revenue is used. Similarly, with marketable permits, the distributional effects will differ according to their initial allocation. Some of the main questions: Are there significant differences in the tax burden across different social groups? What are these differences, and are there any specifically disadvantaged groups? Are there measures in place to compensate for distributional effects, and what are these?
- **Administrative feasibility and cost.** All policy instruments, including economic instruments, involve implementation and enforcement structures and costs. The aim is to design environmental taxes to achieve environmental and revenue objectives whilst minimizing the administrative costs of operating the tax. The main question: How big (cost estimate) is an administrative burden, and what constitutes this burden?
- **Acceptability:** It is of crucial importance that target groups be informed and consulted on the economic instruments imposed on them. In general, the success of any (economic) instrument requires certainty and stability over time with respect to their basic elements. The main question: Is this policy incentive acceptable to different stakeholders, e.g. businesses, households, politicians?

The desk research undertaken as part of this study provided a significant share of the information on all these aspects mentioned above. The desk research aimed at the following issues:

1. Consulting known data sources for quantitative data on environmental taxes and their efficiency;

2. Consulting literature for information on the efficiency of environmental taxes;
3. Identifying data and information gaps.

The research focused on known data sources and published literature on environmental taxes. The primary sources for the desk research included:

1. The Ministry of Environment and Regional Development (EEA);
2. State revenue service and statistics from Eurostat, Central statistical office (Latvia) and OECD databases;
3. Research articles and studies.

4. Results of the assessment of the environmental taxes in Latvia

4.1 Environmental effectiveness

Certainly, one of the key aspects to be taken into account when evaluating the effectiveness of environmental taxes is their impact on the environment, such as, whether the taxes have changed consumers' behavior and ensured environmental pollution reduction. For environmental effectiveness, taxes or charges should be targeted as closely as possible to the pollutant or resource-consuming behavior. The closer the link between the target and the damage, the better the policy will likely perform in terms of environmental outcomes (OECD, 2013). However, according to Sandmo (1975), the transaction costs of administering and monitoring such taxes can be high, especially where the pollution source is dispersed. An alternative is taxing observable market transactions that are related to pollution, such as the sale of fertilizers and pesticides. Such taxes may also be cheaper to administrate, but they are less directly targeted and may prompt unintended or inefficient responses from polluters (Sandmo, 1975).

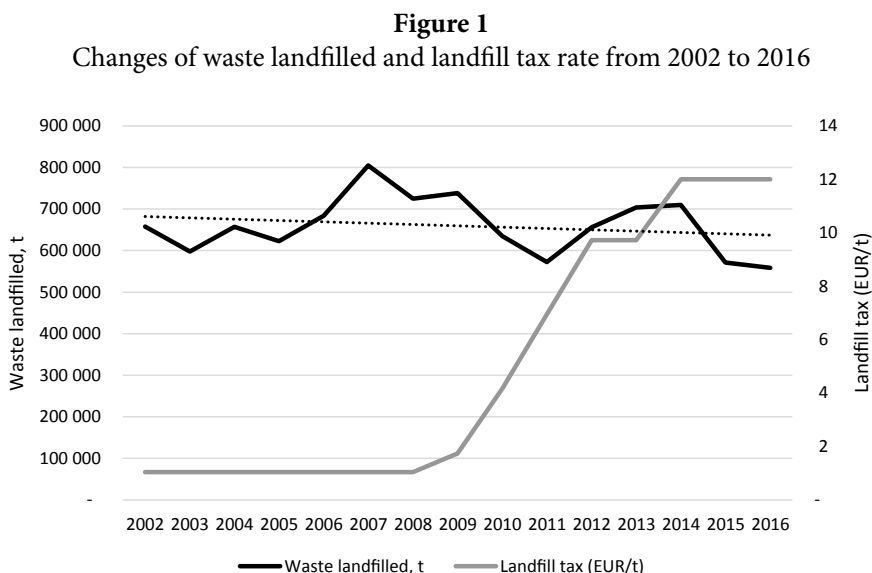
Tax rates should be set high enough to motivate behavioral change in households and/or companies to ensure environmental improvements. In theory, the optimal tax is equal to the marginal external social and environmental damage from the polluting activity (Pigou, 1932). However, in practice, this is not always the case (for more discussion on the Pigouvian tax, see Jacobs and de Mooij (2015), Bovenberg and Goulder (1996), Kampas and Horan (2015)). Environmental tax rates in Latvia, but not only those, are set as the result of political compromise and not economic modeling and have tended to be lower than marginal social and environmental damage (Ozoliņa and Rošā, 2012). When establishing fiscal measures, it is important to consider the full scope of environmental damages and account for variations in environmental risk.

Latvia uses a number of indirect subsidies to encourage pro-environmental behavior of households and firms, for example exemption from excise duty on bio-fuel to stimulate the use of alternative fuel; differentiated tax rates for leaded and unleaded petrol; electricity produced from solar, wind or other renewable energy recourses are exempt from the electricity tax to stimulate the production and use of alternative energy.

Moreover, the car-registration and car-circulation taxes are calculated based on their CO₂ emissions or motor volume for older cars (first registered before the year 2009), with vehicles with higher emission levels charged a higher rate. Despite this, EEA (2014) has found that new passenger cars in Latvia have the highest CO₂ emissions in the EU. However, the carbon intensity of new commercial vehicles is very close to the EU average.

The situation is similar with other taxes. The overall assessment shows little evidence that existing environmental taxes provide enough incentive to ensure environmental improvements. Also, data on environmental pollution and waste flows do not really support a correlation between tax rates and pollution.

Research looking at the impact of the natural-resource tax rate on waste landfill shows a slight positive trend – the amount of waste landfill has slowly decreased, while the natural-resource tax rates on landfilling have increased (Figure 1).



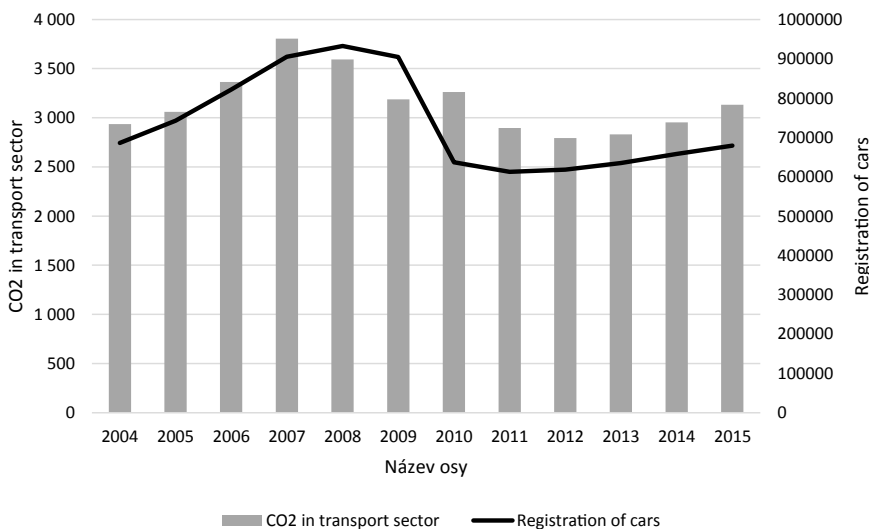
At the same time, it should be noted that this period coincides with the overall reduction in economic activity and a reduction in the numbers of consumers because of the demographic situation, so in practice, it is difficult to determine which

factor is driving the decline in waste landfilled. Regression analysis showed that tax explains 50% of the volume changes in waste landfilled, but other factors are economic growth, population changes (including migration, which is linked to the economic situation) etc. (Brizga and Jurušs, 2013). However, the real impact of the changes in the tax rates will be possible to check in the future as the government has decided to increase the landfill tax to 50 EUR/t by 2020.

A similar analysis was carried out with regard to construction and hazardous waste. The results demonstrate that other factors are more important than natural-resource tax (the tax rate for hazardous waste has not changed in recent years). The construction-waste volume closely related (correlated) to the economic situation and developments in the construction sector. An increase in turnover of construction in 2009 resulted in an increase of construction waste, but during the crisis, it dropped considerably. The most important factors for hazardous waste are recycling options and economic situation. The natural-resource tax rate for landfilling hazardous waste did not change since 2006 but was increased at the beginning of 2017 with the intention to gradually increase it until 2020.

The analysis of the transport-tax impact on the reduction of environmental pollution shows a small but positive effect, although the major driver is the economic situation in Latvia and the number of vehicles registered. The dynamics of numbers of registered cars have shown a tight correlation with pollution trends in the transport sector (see Figure 2).

Figure 2
Registration of cars and CO₂ changes in the transport sector in Latvia



To ensure the environmental effectiveness of the economic instruments it is important to use them in combination with other policy tools and recycle fiscal revenue – channel revenues to environmental projects, referred to as earmarking. This is also the case in Latvia, where transport-sector excise duty on fuel is combined with vehicle-registration and -circulation taxes as well as other policy tools combining environmental, social and economic aims. Also, the natural-resource tax is combined with other policy tools, like voluntary waste-management schemes, investment programs, CO₂ emission quotas and administrative tools. This stimulates better policy coherence and integration, in the long term leading to better environmental effectiveness.

The question of the reallocation of tax revenue has been on the political agenda for several years in Latvia. Previously income from the excise duty on fuels and revenue from the natural-resource tax as well as other taxes had their own special budgets, where these revenues were used for earmarked purposes: e.g. road construction and renovation or environmental protection and education projects. According to the law on budget and financial management (approved on 24 March 1994) special budgets are part of the budget which consists of earmarked revenue, revenue from paid services, transfers, foreign financial assistance, donations and gifts in cash or in kind, as well as expenses that are expected to be covered from these revenues or borrowed from the state budget. However, as of 2004, special budgets were eliminated, and all tax revenues now go into the central budget (some tax revenues from the natural-resource tax are divided between the government and local municipalities).

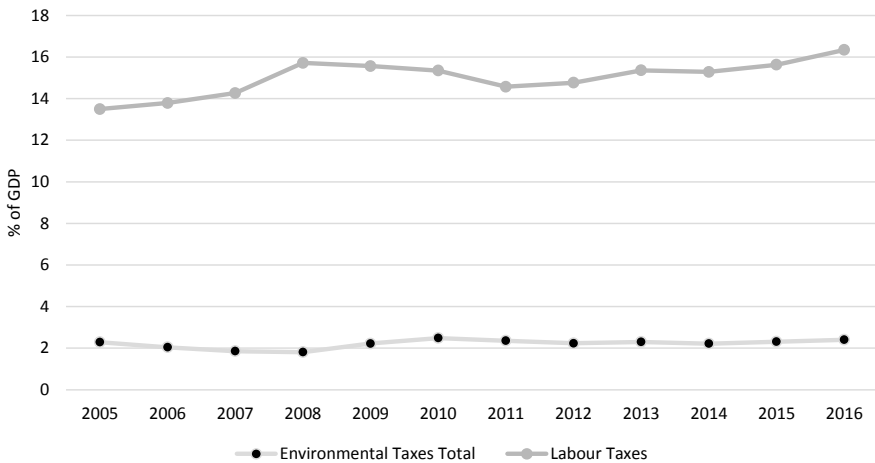
4.2 Fiscal efficiency

Fiscal efficiency refers to how well environmental taxes mobilize additional revenue, minimize distortions in the tax systems (e.g. income or labor taxes), and reduce the drain on public finance (e.g. subsidy removal) (OECD, 2005). However, it should be noted that the revenue raised is not a good indicator of the effectiveness of environmental tax.

Falling revenue normally indicates that businesses are finding more efficient abatement methods. The balance between the revenue-raising and environmental benefits of environmental taxes will depend on how the reforms are designed. While there are opportunities to further both objectives, sometimes a trade-off will be necessary. For example, a pollution tax may be set too low to induce a change in environmentally damaging production techniques, but it may be successful in raising revenue. Conversely, a tax on a relatively unessential or easily substituted but highly damaging input may lead to its complete phase-out, yielding considerable environmental results but minimal revenue (OECD, 2005). This relationship between fiscal and environmental effectiveness is also dependent on the responsiveness of demand to price and tax increases (i.e. price and tax elasticities) (OECD, 2013).

Most of the revenue from environmentally related taxes in OECD and also in Latvia comes from taxes on energy (e.g. fuel) and transport (e.g. motor-vehicle purchase and annual use taxes), but taxes on pollution and natural resources (i.e. natural-resource tax) constitute a relatively small fraction of the total revenue. According to the data from the state revenue service, the total revenue from environmental taxes in Latvia in 2016 was equal to €600 million (72 % more than in 2006). This amount is equal to 2.41 % of GDP and to 7.7 % of the total revenue derived from all taxes and social contributions. At the same time, the revenue from the labor taxes remains relatively high in Latvia – about 16 % of the GDP (Figure 3). The ratio of the total tax revenue to GDP has grown: reaching 31.43 % in 2016.

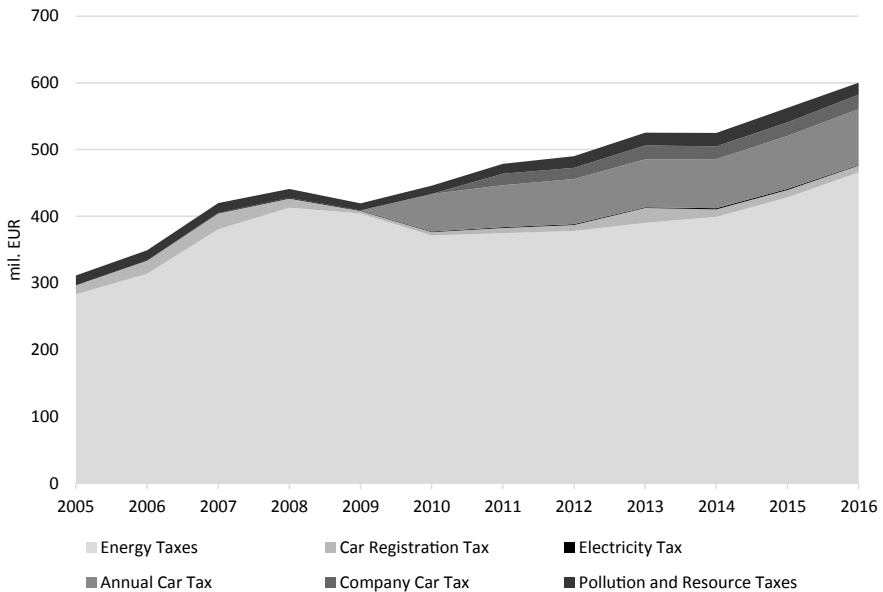
Figure 3
Environmental- and labor-tax revenue as percent of GDP



Due to the broadening of the environmental tax base and the introduction of new taxes (e.g. transport tax; tax on coal and excise tax on natural gas) the share of energy taxes in environmental tax revenues in Latvia has been decreasing since 2005. Nevertheless, energy taxes account for most of the environmental tax revenue: 73 % in OECD and 7.6 % (466 million euro or 1.87 % of GDP) in Latvia (see Figure 4). Over the last 10 years, these revenues have increased by 22 %. Most of these revenues are from excise duty on fuels – in 2016 it was 54 % of all energy tax revenues and 5.9 % of the general government tax revenue. The excise duty rates on fuels in Latvia are some of the lowest in the EU but exceed the minimum rates set by the EU ETD. Diesel accounts for the majority of energy use in the transport sector but is taxed at a lower rate than petrol mostly to protect commercial and public transport. This has led to an increasing share of diesel passenger vehicles in Latvia, rising from 15 % in 2007 to 40 % in 2014 (CSDD, 2014). This could accelerate air-

pollution problems, like increasing PM10 pollution in urban areas, which already is a problem in some of the towns.

Figure 4
Environmental tax revenues, thousand EUR



Other energy taxes are relatively marginal. Revenue from excise duty on natural gas contributes only 1% of all revenues from energy taxes. Revenue from subsidized electricity tax in 2016 was 29 million euro, which was 86% of what was budgeted for. Revenues from the electricity tax in 2016 was €0.92 million (0.15% of all revenues from environmental taxes) or 0.004% of GDP.

The second biggest revenue source is the annual car tax, which contributes €83.7 million (0.34% of GDP) or 14% of the total environmental tax revenue, but the revenue from the vehicle-registration tax in 2016 was €10.3 million (0.04% of GDP), and the revenue from the company car tax was €21.6 million (0.09% of GDP). Revenues from transportation taxes are fluctuating according to the economic situation in the country, which has an impact on the number of cars registered.

Income from other environmental taxes is relatively marginal. Taxes on pollution and resources (i.e. natural-resource tax) constitute a relatively small fraction of the total revenue, only €17.9 million (equivalent to 0.07% of GDP) in 2016, which is 3% of the total environmental tax revenue. Unfortunately, the current natural-resource-tax accounting system does not allow for separate accounting for different sections of the natural-resource tax revenue.

As in other OECD countries, there is room to adjust the rates and the structure of environmental taxes to better reflect environmental externalities, including those related to climate change, air pollution, and waste. Carbon prices implied by excise duties on transport fuels are well above those of fuels used in other economic sectors. The higher prices could be justified by the use of taxes on road fuels to internalize social costs specific to road transport, such as accidents, noise, congestion and local pollution, in addition to greenhouse-gas (GHG) emissions and road-infrastructure costs (OECD, 2013). Accounting for these externalities results in lower carbon prices implied by excise duty on transport fuels.

4.3 Equity

In most cases, environmental taxes will cause losses for some of the stakeholder groups. Therefore identifying winners and losers is a critical element of good policy design. To mitigate the negative effects, it is important to design well-targeted compensatory measures and social safeguards. Reforms produce different effects in the short, medium and long terms, and perceived “winners and losers” will accordingly change over time (OECD, 2005).

Low-income households are generally more vulnerable to environmental taxes as they tend to spend a larger proportion of their budget on transport, food, and housing than other income groups – consumption categories responsible for most of the environmental impact (Druckman and Jackson, 2009; Weber and Matthews, 2008). However, the regressivity of pollution taxes depends also on other factors: a country’s overall level of economic development; the climate and cultural characteristics of jurisdictions, along with features of the housing-stock and transportation and electricity-generation infrastructure; in addition conclusions about regressivity can be influenced by measurement – regressivity is diminished when evaluated using proxies for lifetime earnings; regressivity is also generally reduced when indirect tax effects are considered in addition to the direct effects (Pizer and Sexton, 2017).

Metcalf and Weisbach (2009) suggest that a distributive effect of environmental taxes should be compensated through adjustments to the overall tax system rather than through the design of the environmental taxes themselves. The reason for this is that attempts to redistribute through adjustments to an indirect tax are in general less efficient than adjustments to direct taxes (Atkinson and Stiglitz, 1976). If labor taxes are high, as in the case of Latvia, then environmental taxes distorting consumption choices will lead to a large welfare loss and significant social cost (Stern and Coria, 2012).

Welfare loss of private consumers and the distributional effect should be compared with the environmental benefit when designing environmental taxes. Thus, policymakers should consider the price elasticity of the affected goods and service, as taxes may be more regressive when demand is inelastic. At the same time, in-

creased cost recovery on publicly provided services can provide room for a reduction of taxes and free up government resources for other spendings (OECD, 2005).

Additionally, the distributive issue can be dealt with by setting a tax-free threshold for essential use or introducing a tax progressively (higher taxation on greater consumption). The OECD (2015) and the Council of the European Union (2013) recommend that Latvia take action to reduce taxes on low-income earners by shifting taxation from labor to areas such as excise duties, property, and environmental taxes. Latvia is slow in ensuring this tax shift – differentiated income tax has been discussed for several years but little progress has been achieved; however, the government is slowly increasing annual non-taxable maximum (€1380 as of 2017) and minimum monthly wage (€380 as of 2017). In 2016 Latvia also introduced the so-called solidarity tax on annual income exceeding €52,400.

Compensatory measures – such as lump-sum payments, calculated on the basis of average tax payments per households – or tax shifting – the reduction of other taxes (e.g. value added tax) – can also be used. However, it should be noted that attempting to address both environmental issues and distributional concerns risks undermining the ability of the tax to do either and can lead to administrative complexity (Ash, 2010).

Transfers of tax revenues as payments for environmental improvement offer a wide range of options to take account of pressures on the environment while considering distributive equity and empowering local communities with the financial resources needed to address environmental challenges. For example, as regards the excise duty on natural gas, government has promised to provide social-support mechanisms to poor households (by means of apartment benefits) to limit the potential increase in tariffs following the full liberalization of the household electricity market in 2014. There are several other examples regarding social aspects of environmental taxes in Latvia. There is a 30% reduction of the car-registration tax for families with 3 or more children and a total exemption for disabled persons. As the excise duty impacts the cost of public transport as well as the supply of food and other basic necessities, the government is trying to keep the tax rates low. Therefore, there have been no significant changes in tax rates during the latest period, as the economic growth has been slow.

4.4 Administrative feasibility and efficiency

Environmental taxes cannot be successfully applied without an effective legal, regulatory and administrative framework (OECD, 2013). This requires a long-term commitment from governments to design, build support for, implement as well as evaluate and redesign a tax system that is capable of levying, collecting and redistributing revenues and of transparent, competent and accountable public financial management. Weaknesses in this field hamper investment, economic growth and sustainable development (Cottrell, 2008).

Environmental taxes can provide a relatively simple way of raising revenue while incurring low administrative costs. Furthermore, additional revenues can help cover administrative costs (OECD, 2005). Nevertheless, when designing an instrument, trade-offs may have to be made between environmental effectiveness and administrative feasibility (see section on environmental effectiveness).

Effective environmental tax management requires the ability to accurately monitor, at a reasonable cost, the environmentally sensitive activities being targeted (Markandya, 2005). Currently, tax management in Latvia is the primary responsibility of the Ministry of Finance, but other sectoral ministries involved are the Ministry of Economics (energy), the Ministry of Transport (transport), and the Ministry of Environment and Regional Development (environmental resources and pollution).

Most of these ministries (except the Ministry of Environment and Regional Development) lack environmental capacity, and environmental policy integration in Latvia is very weak (Lagzdīņa, 2010). Improving this capacity would help to enhance transparency, which can, in turn, foster greater public support for environmental taxes.

One of the main principles used by the Ministry of Finance when designing environment taxes is ease of its administration – collection and monitoring. Many taxes in Latvia, such as those on energy, have multiple exemptions and rebates, including rebates that may be costly to administer; other taxes can be open to abuse through evasion, e.g. when the car-registration tax was set higher than in the neighboring countries people started registering their vehicles in Estonia and Lithuania.

According to the data of the State Revenue Service, generally, the total tax collection is relatively efficient in Latvia. There are no specific data available on the costs of the collection of environmental taxes. However, the State Revenue Service calculates the key performance index of tax collection – the costs of one collected euro, which in 2015 in Latvia was 0.0143 euro (State Revenue Service, 2014), and it has decreased during the last few years. At the same time, there are some taxes, e.g., the excise duty, that have high administrative feasibility, as collection costs are very low for this tax compared to value-added tax or corporate income tax.

4.5 Political feasibility

The political feasibility of environmental taxes is very context-dependent. Factors that should be taken into consideration among others include characteristics of the problem to be addressed (e.g. visibility and immediacy of biodiversity impacts); socio-political factors and public perceptions of the problem; and factors linked to circumstance, e.g. energy taxes are easier to increase when energy prices are low (Cox, 2007). Politicians in Latvia, when deciding on taxes and their rates, rarely take environmental considerations into account, but mostly follow the fiscal aims of the tax and socio-economic arguments trying to balance outside pressure (arising from

the European Union environmental policy and acts) and the interests of domestic social partners (business and trade unions).

Environmental taxes give rise to a redistributive effect and therefore to political opposition (Felder and Schleiniger, 2002). Sometimes, relatively small and unrepresentative but well-organized interest groups can exert a disproportionate influence on policy and can undermine necessary reform (Olson, 2009). In Latvia, one important stakeholder are local municipalities, as 60 % of the natural resource tax revenues are redistributed to local municipalities to be used for environmental protection purposes. Together with property and income tax, they constitute a significant part of income for the municipal budgets.

The household opposition to a tax proposal might typically be less well organized than that of local municipalities and industries. However, the public generally holds a view of taxes solely as a means of raising revenue (Dresner et al., 2006a), but politicians can win the public support best by clearly earmarking the tax expenditure (Dresner et al., 2006b; Hsu et al., 2008; Kallbekken and Aasen, 2010; Sælen and Kallbekken, 2011; Steg et al., 2006). Also in Latvia, energy and transport taxes are accepted by society as a necessary evil to support state-revenue flow.

A high level of transparency is necessary for building support for reform and challenging those who are opposed to it. This is particularly effective when there is good information on the magnitude of subsidies, as well as their negative environmental, economic and social impacts (OECD, 2011). Scheduling and announcing future changes in taxes provides stakeholders with an opportunity to prepare and adapt and provides opportunities for consultation with affected stakeholders (OECD, 2005).

5. Conclusions

Latvia has a wide suite of environmental taxes in place. This includes a natural-resource tax, energy taxes, and transport taxes. Environmental tax rates in Latvia are the result of political compromise and are not backed by research on environmental costs of a particular activity (environmental externalities). Nevertheless, most environmental taxes have recently increased, including a progressive increase in the tax rate on waste landfilling and PM10 released into the air. However, Latvia is still facing some important environmental challenges to be addressed (EEA, 2015), e.g.:

- overexploitation of some natural resources, e.g. forests, fish resources;
- poor waste-recycling performance;
- increasing material-resource consumption;
- increasing GHG emissions from the transport sector and air-pollution problems in the major urban centers.

Results of this study show little evidence that existing environmental taxes lead to a significant reduction in environmental pollution and waste flows. Other factors like economic growth have been more important drivers of resource use and pollution. Low tax rates, many exemptions, refunds and rate reductions diminish the environmental effectiveness of these taxes in Latvia. Environmental effectiveness is also influenced by the socio-economic situation in the country and limited policy integration in some of the sectors.

To better address environmental problems and increase the efficiency of environmental taxes Latvia should redesign its environmental taxes, but also take into account that environmental tax policy in Latvia inhabits important trade-offs between tax administration, equity, environmental and fiscal effectiveness, e.g. increasing energy taxes would lead to improvements in energy intensity but in the short term could influence national competitiveness. However, an example from British Columbia demonstrates that well-designed environmental taxes can both be environmentally effective and have a minimal effect on growth and low-income earners (Murray and Rivers, 2015).

Most of the revenue from environmental taxes in Latvia comes from taxes on energy (e.g. excise tax) and transport (e.g. car registration tax and annual use tax). Latvia has a higher excise tax burden than the OECD average compared by purchasing power. Taxes on pollution and resources (i.e. natural-resource tax) constitute a relatively small fraction of total revenue. Increasing environmental tax revenue demonstrates low tax elasticities as businesses are not finding more efficient abatement methods. Therefore, more science-based decision-making when planning for environmental taxes should be used and supported by academic and scientific research on the changes in the household and company behavior as a response to fiscal incentives (tax and subsidies).

The OECD in its recommendation (OECD, 1991) argues that applying temporary assistance measures for easing transition problems is economically more desirable than granting exemptions to the instrument. However, Latvia seems to be going in a different direction, applying direct and indirect subsidies (tax breaks and lower tariffs) to several sectors. Some of these subsidies are to support pro-environmental behavior, others are socially driven (e.g. lower excise duty for fuels used in the heat and power sector), but some have an economic angle (e.g. lower excise duty on fuels for agriculture). These subsidies relate to historic liabilities.

In several cases, a combination of taxes and voluntary instruments is used to tackle a particular environmental problem, e.g. in the case of waste management, where tax exemptions are offered in exchange for involvement in waste-management systems.

Both the OECD and the EC in their assessments of Latvia's tax system conclude that there is too high a tax burden on the workforce in Latvia, especially on the low-income earners, and suggest moving the tax burden from the labor to envi-

ronmental and property taxes. The government has reflected this in its national development plan for 2014–2020, but it has struggled with long-term fiscal planning for a long time, never properly following up on these recommendations. To improve this the Ministry of Finance has drafted the tax strategy for the next five years, adopted by the government in 2017. It brings more clarity to the mid-term tax policy but has limited support for the ecological tax reform. Therefore, Latvia will need to adopt additional measures to consolidate its fiscal position and make environmental taxes more efficient in solving environmental problems. Opportunities for fiscal consolidation lie in the improved efficiency of the tax system and raising additional revenue from environmentally related taxes while also reducing environmentally harmful tax expenditures. This could contribute to achieving positive environmental and economic outcomes in the future.

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