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Environmental tax reform and its impacts**

1. Introductory thoughts

Scientists and professionals are more and more concerned about the issue of environmental tax reform. In order to dig deeper into the problem we need to make it clear what do we mean under the concept of environmental taxes. Under environmental taxes – broadly interpreted – we mean not only conventional taxes but fees, allowances, customs duties and other common charges also, namely all payment liabilities which have an environmental impact. In the narrow sense only direct environmental common charges belong to eco-taxes. (For instance energy taxes and other charges connected to environmental load.) It is easy to see that in the usage of various concepts primarily not financial law but economical and environmental law approaches prevail.

One literature point of view adopts a system, based on the OECD's recommendation, in defining the system of charges and tax-like instruments.[1] It considers taxes and charges drawn together as payment liabilities based on the extent and quality of their environmental impact. Taxonomically this stand does not differentiate between taxes and charges from an environmental point of view. Charges are defined as means for highly specific environmental goals while taxes and customs duties are defined as general national economic-political instruments which – as a side-effect – serve environmental purposes also. Therefore this literature standpoint classifies specifically only the charges.

The classification essentially focuses on charges as direct environmental economic instruments thus the classification approaches the standardization from an environmental point of view similarly to the Act on Environmental Protection.[2] Nevertheless the structure of the regime is not completely consistent as other common charges (e.g.: mining allowance) alongside charges and taxes do exist and these other common charges also belong to public burdens as the Act of Environmental Protection refers to it. Besides there is a purely environmental tax among other taxes namely energy tax.

Similar environmental based standardization can be found in the work of other authors. Such a standardization aspect differentiates between the stimulating and

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[1] Bándi Gyula: *Környezetjog*, Budapest, Szent István Társulat, 2011, 280-281.

[2] Act LIII of 1995 on the General Rules of Environmental Protection, 59. § (1) The charges providing cover for the measures abating the loading and the utilization of the environment are: (a) environmental load charges, (b) utilization contributions, (c) product charges, (d) deposits.

income increasing roles of taxes:[3] (a) stimulating taxes; (b) expense covering taxes and charges; (c) income increasing taxes.

The triple differentiation does not exclude completely each others characteristics as for example expense covering charges can also have a stimulating effect. Literature classifies environmental taxes and charges into these three groups according to two aspects. The role of one of the two aspects is to distinguish the various taxes and charges from the general environmental objective. The other is that the extent or the scale of the tax is determined by the amounts deemed necessary to satisfy the intentions behind the levying of taxes. (The income increasing taxes shall be defined on such a manner as the income coming from the taxes shall meet the desired requirements.) Thus we can see that literature is not consistent even in the standardization of the taxes.

2. Some European examples of environmental taxation

Various environmental taxes play a more and more significant role in the European Union; the amount of budgetary revenues from these types of taxes is increasing. The substantial role of environmental taxation begun in the early 1990's, and until nowadays plays an ever-growing role in the systems of asset of environmental policy.

Literature studies show the importance of environmental taxation, summarizing experiences on the field of taxation of energy, fuel, transportation, water and waste materials and other ecological taxes.[4] Some typical taxes among the colorful system are highlighted in this section.

The renaissance of energy and fuel taxes was set off by the Rio Conference in 1992. The Conference marked the emission of greenhouse gases coming from industrial production as the reason of global climate change. The participating states have undertaken the reduction of the emission of greenhouse gases; therefore the EU applies, as an instrument towards the reduction, the taxes levied on energy and the emission of carbon dioxide. The EU considered energy taxation the most effective economical instrument that is why a harmonized energy taxation regime has been adopted.[5]

Taxing fuel has a very long tradition in Europe. Gasoline tax exists in Denmark since 1917 while in Norway the taxation of fuel is in force since 1931.

The taxes on fuel are very different from each other in the Member States of the European Union. The highest tax rates can be found in the United Kingdom.[6]

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[3] Paul Ekins: European environmental taxes and charges: recent experience, issues and trends, in: Paul Ekins (edit.): *Ecological Economics*, Staffordshire, UK, Elsevier, 1999, 39-43.

[4] Agnieszka Laskowska – Frank Scrimgeour: *E*nvironmental taxation: The European experience, 1-12., in: wms-soros.mngt.waikato.ac.nz/NR/EuropeET.doc (10.07.2012.). The experiences are introduced primarily on the basis of literature sources.

[5] Erdős Éva: Adalékok egy biomassza fűtőmű rendezetlen jogi hátteréhez, in: Csák Csilla (edit.): *Jogtudományi Tanulmányok a fenntartható természeti erőforrások témakörében*, Miskolc, Miskolci Egyetem, 2012, 40-48.

[6] Andrew Field: *UK Environmental Tax Policy and Climate Change Levy*, Brussels, HM Treasury, UK, 2002, 15.

There is a difference between the tax rates of certain products within the countries also. The tax rates of diesel and gasoline are different. Most of the countries uphold the relatively low tax rate of diesel which is caused primarily by the road transportation and road traffic. The effect of the tax can be demonstrated by the fact that in Great-Britain the diesel with ultra low sulphur content is sold in the biggest quantity as it has the lowest tax rate compared to other fuel types.

Primarily, the Member States located in South-Europe (Greece, Spain, Portugal) have the lowest tax rates. This statement is especially true in the case of the tax rates of diesel, which is significantly lower in several European states than in Great-Britain, where the highest tax rates are applicable.

The Member States have chosen specific regulation solutions on the field of the taxation of fuels. In the Netherlands the tax rate of certain energy products is tied to inflation. In 1999 Italy introduced a carbon dioxide tax on fuels but in parallel with it Italy cut back its energy taxes which resulted in the growth of gasoline consumption. In order to get inflation under control Spain decreased subsidies given to renewable energy sources and transportation taxes also.

There is difference between the energy tax rates of the Middle-Eastern European countries also. Hungary has the highest fuel tax rate while Romania and Bulgaria has the lowest fuel tax rates.

Carbon dioxide tax is not typical in these countries but for example Slovenia introduced a carbon dioxide tax. On the field of carbon dioxide and sulphur dioxide taxation the Scandinavian countries are the leading states but Germany, Italy, France and Great-Britain are also using them. Since Denmark introduced a carbon dioxide tax in 1995 the emission level significantly decreased. Another positive effect had occurred because of the tax on the sulphur content of energy products which tax was introduced in 1996 in Denmark. Due to the introduction of the tax the sulphur content of oil products decreased and sulphuric scavenger plants and the technology evolved. Finland introduced it in 1990 and Sweden in 1991 and afterwards the emission rates decreased in the long term in both states.

Certain Middle-Eastern European countries introduced emission taxes and fines already in the 1970's. In the time of their introduction these taxes and fines had no economical function; they gained this role only with the formation of the market economy. In the sense of their ubiquity and success air pollution taxes are various in the region however they are all share a common feature, that is that their income increasing function is more significant than their pollution reducing function. Another important feature is that in several countries of the region (Czech Republic, Poland, Slovakia) environmental revenues get to a separate environmental protection foundation because of the difficult situation of the budget there are only a few available sources in order to achieve environmental objectives. A third important feature is that the primary subjects of these taxes are the big polluting industrial firms.

The air pollution and transportation taxes have serious significance in the improvement of air quality in Europe, however, periodically it is possible that the limit values are exceeded. It is typical in the European countries that transportation is the main source of air pollution, mainly in the big cities ahead of industrial pollution. (Within transportation the pollutant emission of road transportation is the most significant.) The regulation of the European Union took serious measures in order to

reduce the vehicles' emission (catalytic converter, unleaded fuel) but the continuous increase in the amount of vehicles counteracted the improvement.

European countries have various regulation on the field of transportation taxes and fees: (a) taxes, fees connected to the purchase and registration of a vehicle (registration tax); (b) taxes, fees connected to the possession and ownership of a vehicle (vehicle tax); (c) taxes, fees connected to the direct and indirect usage of a vehicle.

These taxes and fees are complex, the regulations of countries mentioned are also complex and there are significant differences in respect of each and every country. But there is one common feature, namely, that these revenues cover a significant part of all environmental revenues.

3. Introduction of an Environmental Tax Reform

The European Union set as a high priority objective to ensure sustainable development,[7] growth and employment creation programs that is why it is important to put into practice such an environmental tax reform which places tax burden from the taxes unfavorable to welfare (taxes related to work) to favorable taxes, from a welfare aspect (pollution), with this as a consequence solving the problems of both environmental protection and employment.[8]

The coordination of the EU's Environmental Tax Reform (ETR) is a specifically important task as the EU's ambitious objectives related to the climate change and energy policy can be achieved only in such a way. (20% minimum reduction of the emission of gases contributing to the green-house effect by 2020, to reach 20% proportion of renewable energy sources in energy production by 2020 and to reach 10% proportion of bio-fuels by 2020.)[9]

It is true that the primary implementers of the ecological tax reform are the Member States, primarily on the field of the alteration of their own tax regimes, but the EU's tax policy shall also promote the realization of the tax reform. The ETR shall follow various principles, which are necessary to the optimal introduction, through its realization:[10] (a) it should serve the solution of environmental problems, it must not be a national extra income; (b) it must not increase the total tax load, with the implementation of it other taxes shall decrease; (c) environmentally harmful subsidies shall decrease; (d) it must not effect competitiveness detrimentally; (e) it must not effect layers with lower income detrimentally.

Economic theory considers Environmental Tax Reform as one of the instrument of tax conversion.[11] The excessive taxation of labor force leads to

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[7] Csák Csilla: A közös felelősség a környezeti fenntarthatóságban, in: Tóthné Szita Klára (edit.): *A fenntarthatóság aktuális kérdései*, Miskolc, Világ- és Regionális Gazdaságtan Intézet, 2005, 67-77.

[8] Paul Ekins – Stefan Speck: *Environmental Tax Reform (ETR) – A Policy for Green Growth*, Oxford, Oxford University Press, 2011, 50-65.

[9] Green Paper (2007): *On market-based instruments for environment and related policy purposes*, European Commission, Brussels (28.03.2007),{SEC(2007) 388}, 6-7.; Cf.: Erdős 2012, 40-48.

[10] Green Paper 2007, 1-18.

[11] Kiss Károly: Környezetvédelmi adóreform, Budapest, Lélegzet Alapítvány, 2010, in: www.mgszt.hu (28.07.2013), 209-218. The review of economic theoretical approach is based on the author's work. Cf.: Szilágyi János Ede: Környezetvédelem az európai uniós jogban, in:

unemployment and – as a consequence – decreasing budgetary incomes according to literature positions. Alteration of the tax structure offers two alternative solutions to the economic policy, one possible solution is to slip tax burden to consumption and capital or to environmentally harmful activities and products. However the raise of consumption taxes would have an impact on both working income and capital income, accordingly the possible emerging social tensions should have been compensated somehow and other distorting effects would occur (raise of wages).

The taxation of capital income would also mean an additional source of problem. Otherwise these incomes are originated from an already taxed income and thus the taxation of these incomes would mean a distortion of choice between the present and future consumption. The question is here whether the raise of environmental taxes foster the optimization of tax structure, would the dead weight be lower, that is to say the social deficit of the tax regime which is a very complicated task to prove due to the wide range of green taxes.

According to literature in case of environmental taxes the main question is not among the above mentioned. The main issue is that: is it possible to adjust the major distortions of the tax system; is the internalization of environmental damages possible? Since the measure of environmental damages significantly exceeds the losses coming from the non-optimal taxation. Therefore those products shall be subject to taxation which has a higher environmental load then the average level.

In the 1990's Environmental Tax Reforms were launched in the OECD member states when, after the introduction of various taxes and charges, the proportion of revenues from ecological taxes increased within the total tax revenues. Besides, the existing tax regime was altered and became environmentally friendly.[12]

The Environmental Tax Reform is based on the double dividend principle that means that the reform may have double effect: betters the environmental conditions and promotes the build-up of employment in the meantime. In itself environmental taxes are extra expenses to the members of society but the Environmental Tax Reform entails tax conversion which prevents the raise of tax burden. In the spirit of budgetary income neutrality environmental taxes can be levied only in that case if other conventional taxes, primarily the taxes levied on living labor, decrease according to literature.[13]

The Environmental Tax Reform is applied efficiently in the Scandinavian states, the Netherlands, Germany, the United Kingdom, Switzerland and Austria. It is easy to draw the conclusion through their cases that the implementation of the ETR is strongly related to the level of development of environment policy.[14]

Szilágyi János Ede (edit.): *Környezetjog. Tanulmányok a környezetjogi gondolkodás köréből*, Miskolc, Novotni Alapítvány, 2010, 51-72.

[12] Herich György: *Nemzetközi adózás*, Pécs, Penta Unió Kft., 2006, 487.

[13] Kiss Károly: *Energiaadók az Európai Unióban*, Budapest, BKÁE-KJ, 2002, 211. Several economists argue the actual influence of the double dividend according to the author, i. e. it is not sure that the cutting of labor costs ends up in the growth of employment. Bovenberg and Ploeg admits the environmental effects of environmental taxation but according to their standpoint tax conversion leads to the consumption of more free time and lower production level. Thus employment decreases.

[14] Kiss 2002, 212.

Nevertheless the Environmental Tax Reform diminished after the initial enthusiasm as due to the resistance its positive effects were slightly successful and problems emerged related to its introduction.[15]

Households and the institutional sector defied the extension of environmental taxes (significantly apply to energy sources) because of the energy price increase and the emerging problems in the field of competitiveness due to the lack of international harmonization.[16]

4. Effects of the Environmental Tax Reform

What effects may the Environmental Tax Reform have? The effects have influence on the following fields:[17] (a) budgetary income neutrality; (b) sectorial effects; (c) environmental effects; (d) income effects; (e) competitiveness.

Budgetary income neutrality means that revenues coming from environmental taxes are used to cut back other conventional taxes. (This can be meant to reduce personal income tax rates or social security tax rates.) Thus the reduction of the total tax burden becomes available.[18]

Sectorial effects mean that besides the total economy and total society budgetary income neutrality the reform has different effects on certain sectors. Energy intensive sectors are affected significantly by energy taxes as on the one hand their energy consumption is high but on the other hand their labor force expenses are low. Cutting back labor force expenses does not compensate the increasing expenses caused by energy taxes so these sectors (oil industry, chemical industry and metallurgy) suffer from an unfavorable situation. Those states, that introduced eco-taxes, solved this problem by granting benefits, reliefs and exemptions to energy intensive sectors from under environmental taxes.[19]

On the other hand sectors with high labor force intensity and low energy consumption land in more favorable position.

The environmental effects prevail in case of the taxes effective in the earlier discussed countries but the quantification of them is hardly possible due to the various benefits and exemptions. It is important to emphasize that in case of certain products and energy price elasticity is low thus the introduction and the increase of these taxes slightly affect the consumption. Strange, that the decrease in the environmentally harmful emission as a result of the economic crisis of 2008 was bigger than of the

[15] Kiss 2012, 211-217.

[16] Jacob Klok: Energy *Taxation in the European Union. Past Negotiations and Future Perspective*, Institutio de Estudios Fiscales, Working document 21/2005. In: www.ief.es (20.06.2012.) 5-11.

[17] Kiss Károly: *Zöld gazdaságpolitika*, Budapest, BKÁE, 2005, 139-146.

[18] Kiss 2010, 140. In Denmark the tax burdens of employment were reduced with the introduction of the green tax reforms in 1994, later in 1996 new energy taxes were introduced and, as a compensation, social security tax was reduced. Sweden used the energy tax introduced in 1988 to cut back personal income tax rates, while in Germany the additional revenues deriving from energy taxes were used to reduce social security tax.

[19] Kiss 2005, 142. A depressive tax rate is often applied namely the more energy a consumer uses the less tax it pays. In the Netherlands the tax rate for natural gas and electricity consumed exceeding the amount of 1 million KWh m^3 and 1 million KWh is 0.

earlier introduced environmental policy instrument including the effects of environmental taxes.

Another important field of the literature's analysis in case of environmental taxes is the effects on income.[20] Environmental taxes are imposed on products defined as basic necessity targets (energy, transportation). Taxing these products mean disproportionate burden to low-income households, as proportionally they spend more money on satisfying their basic necessities then households with higher revenues. Taxing energy may have regressive effects as low-income households spend relatively big percentage of their income on these products. At the same time transportation related taxes have bigger – disadvantageous – effect on households with higher income.

It is easy to see that in order to earn the acceptance of environmental taxes certain layers of household should be compensated on such a manner which moderates the regressive effect of these taxes. Two alternatives exist in literature. The ex ante method which tries to moderate the effect in advance in the framework of the tax regime by reducing taxes on incomes and the social security tax. The other one is the ex post method in which compensatory solutions allow the moderating of the regressive effects of environmental taxes.[21]

Beside households, undertakings bear a considerable part of the environmental tax burden where the problems of competitiveness are in the focus of literature analysis.[22] Environmental taxes can worsen competitiveness as these taxes make energy more expensive and thus lead to the raise of the expenses of the production.

This effect can be reduced with decreasing other taxes and ensuring benefits and exemptions by the ETR. However these exemptions may hinder the effective working of environmental taxes. According to literature standpoint derogations in national energy prices have a greater effect on competitiveness than that the environmental taxes could influence.

Introducing or increasing taxes on the other hand may encourage the growth of energy efficiency thus counteracting tax expenses. Energy efficiency related investments may increase productivity which affects competitiveness. New environmental industrial branches may come into existence which may become fast growing sectors of the economy and may increase state revenues.

[20] Katri Kosonen – Gaetan Nicodeme: The role of fiscal instruments in environmental policy, *Taxation Papers*, 2009/19, 1-13.

[21] Kiss 2005, 145. In Germany the unneeded results were eliminated by the reform of the personal income taxation, in Denmark social policy (welfare) instruments were introduced for low-income households, while in the Netherlands the tax should be paid only above certain consumption threshold.

[22] Paul Ekins – Stefan Speck: Competitiveness and Environmental Tax Reform, Briefing Paper, Seven March/2010, Green Fiscal Commission, London, in: www.greenfiscalcommission.org.uk (10.06.2012) 1-10.

5. The efficiency of the Environmental Tax Reform

In the course of the implementation of an eco-tax reform there can be several obstacles and it has to meet several aspects in the sense of its efficiency:[23] (a) the integration of environmental policy and financial policy; (b) the fair adoption of the soon to be introduced taxes; (c) the utilization of tax revenues.

In order to achieve an efficient green tax reform environmental policy and financial policy shall be coordinated. Within the framework of the tax reform the already existing taxes should be restructured from an environmental point of view, new eco-taxes shall be introduced and the distorting subsidies shall be eliminated. The effectiveness of green tax reforms can be enlarged by the introduction of other economic instruments, tax reliefs, tax exemptions and by the forming of voluntary agreements.

The fair and correct construction of the initiated taxes is also very important from the point of view of environmental taxation. The regulation of tax base and the character of the tax shall be regarded from the viewpoint of efficiency. (For example it is still undecided whether input or output tax will be applied in the regulation.) In case of the initiated taxes the simple applicability is an important consideration namely the assurance of low administrative expenses. Besides economic effects the consideration of social effects are also an important aspect when the determination of tax rates takes place.

The utilization of tax revenues covers three main fields. That can quite easily happen that the budgetary authority uses these revenues as a simple way to raise its income. More often these revenues serve as the financial background for environmental subsidies, environmental measures and reduction of other taxes. Such tax increasing which serves as a merely budgetary income raise is not an optimal way of using green tax reforms. Although the stimulating effect is clear but its effectiveness is lower if such revenues aggregate only the budgetary incomes.

[23] Fucskó József – Kis András – Bela Gyöngyi – Krajner Péter – Valené Kelemen Ágnes: Ökológiai adóreform II., Budapest, Magyar Környezetgazdaságtani Központ, 2000, in: www.zpok.hu/-makk (10.07.2012.), 181-184.