Creating and Consolidating Eco-Economics through Financial and Fiscal Instruments. Contribution of Green Taxes

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Abstract: - Ecologic Economics or Eco-economics is a new research field that combines economic issues with issues related to environmental sciences, with the purpose of developing a new type of environment-friendly economy. The development of Eco-economics implies the development of Eco-culture, i.e. changing man, the values which it observes, the mentality regarding his relationship with the environment. The state is the key element in promoting Eco-culture and Eco-economics, the financial and fiscal instruments, especially green taxes and it has a mobilizing and stimulating effect.

Key Words: - Environment, eco-economics, eco-culture, financial and fiscal instruments, green taxes.

1 Introduction

Every nation on Earth is aspiring towards economic growth. But reaching this objective implies carrying out some activities that may affect negatively the environment. States, intergovernmental and non-governmental international organizations, scientists, politicians and also ordinary people are increasingly concerned with environmental costs implied by economic activities, in their desire to maintain a balance between environmental factors and to keep the planet clean and healthy for future generations.

There is a new research field on the table, Ecological Economics or Eco-economics, which combines economic issues with issues related to environmental sciences, with the purpose of developing a new type of environment-friendly economy. This field is in strong connection with Behavioural Economics as it aims to change the economic behaviour of man so as for nature to be less harmed.

Ecological economics has an obvious cultural component. The link between economic growth and culture works both ways [1]. Firstly, culture, as a set of values attached to an individual or a community, influences economic growth and secondly, economic growth determines a change in culture and the development of cultural acts by increasing the capacity to finance it and by creating resources for the consumption of cultural products. Thus, while talking about developing ecologic economics one must also talk about developing Ecologic culture or Eco-culture, i.e. the effort to change man, values which it observes, the mentality regarding his relationship with the environment.

Within this effort, an important role goes to the educational service which has to shape future generations in the sense of a having an eco-friendly mentality and behaviour, creating qualified work force, collaborate with state and private research institutions in order to develop “clean” technologies and products. Other state and private institutions could also intervene in the process of creating and developing eco-culture.

Without doubt, the state is the key figure in promoting eco-culture and eco-economics. It imposes rules, it ensures an institutional framework, applies sanctions, raises funds and distributes them in order to sustain eco-culture and eco-economics through education (teaching, awareness campaigns etc), through research to discover new technologies and ecological products, subsidies, tax reductions or exemptions for environmental-friendly behaviour.

2 Green taxes – instruments for the development of eco-economics

The state uses stimulating and coercive means to support environment policies. Of the stimulating means we have already mentioned subsidies, tax exemptions and reductions; among the coercive ones we can mention fines, closing down production facilities and environment taxes or green taxes. The latter ones contribute in raising public income and shaping human behaviour.
Implementing environment taxes implies coming up with fiscal strategies, creating work groups to study the appropriateness of green taxes, creating institutions charged with the constant monitoring and assessment of social, economic and cultural effects of applying these taxes.

It is true that green taxes represent a small portion of the total public income, compared to the income tax, capital tax, AVT or excises, but it is also true that on a short term, even if they are relatively small, they can affect the activity of economic agents and can lead to distortions of the competition. That is why applying them requires caution and knowledge. It has to be taken into account the level of economic development of the country, the technologies used and the capacity to renew them, the possibility of attracting foreign investments and stimulating them, placing exports on solid grounds. One must be aware of the whole fiscal system and of the increase of fiscal pressure generate by environment taxes.

The grave deterioration of the environment, the negative environment phenomena, like global warming, acid rain, the greenhouse effect, the disappearance of species of plants and animals point to the fact that polluting economical activities can not be tolerated further into the future. Their suppression can be achieved though only gradually, through research development and replacing polluting technologies with “clean” ones. Forbidding polluting activities and the sudden eradication of them by applying coercive measures (fines, regulations, penalties etc) would create serious social difficulties. Within this background, environment taxes seem to allow a gradual passage towards clean technologies, having a stimulating effect beside a coercive character; in the sense of gradual abandonment of inefficient activities (one should not forget that taxes require extra costs).

3 Types of taxes and their stimulating effect

Pollution is done both within the production process as in the distribution and trade processes. Concerning production, in order to avoid and reduce pollution, there are several international trends: cutting back on polluting and energy-consuming activities; intensifying research to discover and use alternative energies like solar energy, wind energy, bio-energy, wave energy, discovering and using eco-friendly technologies and products; building special storage spaces for waste and recycling it. Both coercive and stimulating instruments are used, including financial and fiscal ones. The introduction of standards, permits and authorizations, of green taxes but also of subsidies has considerably modified the economic behaviour of man in the last decades.

The trade of goods also generates pollution: energy consumption and waste. As a solution, energy taxes and public health taxes are used. Both production as well as the distribution and trade produce pollution through transportation. The intensification of economic activities has lead to an increase in traffic and car parks. This is the reason why the focus of states has turned towards this field. The body of EU law in the field of transportation has the target of promoting services useful to users and to the environment and covers transportation by road, rail, air, sea and internal navigation passageways. It includes technical standards, safety standards, social standards and competition standards. Harmonizing the internal legislation of EU member states with the community legislation with the aim of reaching targets established by the six environment programmes adopted within the EU requires the adoption of several economic measures, including the application of several environment taxes.

In the following we will present types of taxes that can be applied.

- The energy tax

The production of electric and thermal energy is based on fossil fuel and generates chemical pollution of the atmosphere, water, soil and also thermal pollution. That is why these aspects should be reflected in the cost of every unit of energy produced. A reduction in the quantity of fossil fuels used to heat people’s homes has to be stimulated by the state by carrying out programmes concerning the thermal insulation of homes and the increase of heating installations’ efficiency. Taking into account that oil resources are about to run out, that using this fuel is polluting and costly, there is the issue of alternative energy sources. Concerning nuclear energy, it is considered to be clean, but one must keep in mind that its production may generate tritium for example, which is released into the atmosphere, where it is combined with water vapours and returns to the ground through rain. In the EU, the energy tax – a burden for users – must be harmonized within the member states. In 2003, the EU has regulated the taxing of energy products. Directive 2003/96/CE of the Council has restructured the community framework for taxing energy products and electricity, has established minimum applicable limits for taxes on energy products used as fuels or hating materials. The provisions allow the reduction of competition distortion concerning oil products (mineral oil) and
other energy products. The aim is to encourage the use of energy so as to reduce the dependency on imported energy and also on obtaining environmental advantages – the reduction of greenhouse gas emissions that can produce the greenhouse effect. The directive authorises member states to offer fiscal advantages to subjects who fulfil the environment targets or who improve energy efficiency [2].

- The lead emission tax

The internal combustion engine used on vehicles and machinery has its origin in the invention of Nikolaus Otto, who created the first four stroke engine with the support of two important persons, Daimler and Majbach. Since then the principle of the engine has remained unchanged and, despite improvements, the efficiency has remained at a very low level. Only 30% of the energy used is sent to the vehicle, the rest being wasted into the atmosphere, especially as heat. High octane petrol allows the engine to run very efficiently. A process used to increase the octane figure consists in adding an anti-detonator to petrol, for example tetra-ethyl lead, a process known as reforming. The tetra-ethyl lead is a liquid derived from lead, with a high toxic rate. The organic anion of lead affects the main nervous system and produces agitate sleep, nausea, low blood pressure, walking and memory disorders, convulsions and even coma. It is easily volatile in heat; it is released in the exhaust gases and enters the organism through breathing. This is why an extra tax is applied to leaded petrol or (old) engines that use this kind of fuel. In fact, the lead emission is taxed. This tax is easily to administer, it requires only a decision to increase the price and it determines the increase of prices and the reduction of peoples’ buying power. Additionally, the budget income from this tax is instable and in a continuous decrease.

Another way of increasing engine performance (easy start-up, good fuel burning, power increase, noise reduction) is the optimum reduction of its number of revolutions. The setting can be made mechanically, electronically, in a combined manner and it could be supported by the state through offering financial incentives for this operation.

- Sulphur emission tax

The car market remains divided between the two types of engines: Otto, running on petrol and Diesel, running on Diesel fuel. In the West, the proportion of engines equipped with Diesel engines reaches almost half. In Romania, the proportion of new imported cars with Diesel engines was 54% in 2005, as national production is dominated by cars equipped with Otto engines (94%).

One of the advantages of the Diesel engine is its low consumption rate (up to 2.5 litres less than the Otto engines) and the fact that it runs on Diesel fuel, which has long been considered to be less expensive than petrol. The secret of reducing consumption, polluting emissions and noise on this engine is the revolution regulator, which sets the number of revolutions by correctly dosing the injected Diesel fuel. The electronic control of the injection pump has radically transformed this type of engine. Nevertheless, the burnt fuel has higher sulphur content than petrol, the engine performance being influenced by the cetane number, volatility and the content of sulphur. The incomplete burning of fuels causes polluting emissions (carbon oxide, nitrogen oxide, sulphur oxide). That is why internal and international institutions impose harsher and harsher restrictions concerning the permitted levels of emissions and characteristics of Diesel fuels. The request for Diesel fuel with a low content of sulphur demands new technologies for refineries, the tendency being to decrease sulphur oxide and solid particle emissions.

Still, the polluting effect of the Diesel engine is a lot more complex and includes polluting with other hydrocarbons:
- Formaldehyde, which can potentially cause cancer;
- Carbon oxide (CO), which prevents proper oxygen feeding of the brain and presents a high risk for people with heart conditions;
- Nitrogen oxides (NO and NO2) which contribute to smog formation and acid rain, also affect eyes and lungs;
- lead particles which attack the main nervous system and kidneys;
- Carbon dioxide (CO2), which contributes to the greenhouse effect.

The disadvantages of using classical Diesel fuel causes the bio Diesel fuel or ecological Diesel fuel to come more and more into discussion – fuel having the same characteristics as Diesel fuel, which is obtained from vegetable oils and can be used alone or together with Diesel fuel. Ecologic Diesel fuel requires the observance of quality specifications and of those specifications regarding polluting emissions and requires new manufacturing tendencies. Among the key specifications for Diesel fuels we can mention the cetane number (influences emissions and noise; additives are used to increase the cetane number), sulphur and hydrocarbon emissions (we have already presented the negatives effects), lubrication (high density determines high emissions).

In conclusion, in order to reduce pollution caused by this type of engine, the requirement is for an
increase in engine performance and an increase in Diesel fuel quality, the two being tightly connected. To increase Diesel fuel quality, for basic compounds (hidrofined Diesel fuel and hidrofined oil) we add corrective components and additives (currently finite oil products without additives are no longer manufactured).

The sulphur emission tax is easy to administer, it only requires a decision to increase the price for Diesel fuels rich in sulphur, which makes sulphur-free Diesel fuel to become less expensive than Diesel fuel with sulphur, but the budget income obtained have represents a small portion in the total income of the state.

- Smoke emission tax
  Smoke emission is caused by the advanced wear of the engine, by its setting or by the low-quality fuel. The smoke emission tax is applied gradually, depending on the level of deviation from the permitted value, and can be added to the annual car tax. It brings low budget income, it requires purchasing emission measuring devices and modernizing technical review units.

- Car age tax
  The purpose of this tax is the renewal of the car park in order to avoid the negative effects on the environment caused by old automobiles. It is not favourable to old and cheap cars but to new, less polluting ones. That is why it is an unpopular tax and has competition connotations. Because of the social reaction, this tax must be accompanied by financial and legislative measures (advantageous crediting, paying in instalments etc) through which the state can support the purchase of new vehicles and stimulate the handing over of old ones (by increasing the disposal incentive). The budget resources obtained by applying this tax depend from one country to another, but we may speak of a stable income in time, keeping in mind the technical progress. It does not imply high operating costs (the annual correction of the tax is nevertheless necessary).

- Catalyst tax
  This tax presents an advantage for those vehicles which possess gas “treating” systems, insuring the conversion from polluting to non-polluting gasses.

- Noise tax
  We take into account the noise produced ny the vehicle at different speeds and at various revolutions. The purpose is to minimise sound pollution. It is unpopular because it implies costs for settings, car maintenance, we reduces the buying power of the car owner. The budget income is small but stable, but this tax requires that both the technical review and service units as well as police units be equipped with sound measuring devices.

- Tyre tax
  It is included in the tyre price, which it increases. It is combined with stimulating the collecting of used tyres by offering incentives. Practically, when disposing of used tyres the tyre tax is returned, the purpose being to reduce pollution generated by used tyres, to avoid throwing them carelessly and to stimulate the collecting and renewal of tyres in order to increase traffic safety. The income obtained is small but stable in time, but applying the tax requires the development of a collecting network.

- Lubricant tax
  Lubricants are oils that increase the performance of the car and prevent component wear. The lubricant tax works on the same principles as the tyre tax. It increases the cost of lubricants but it is recovered when disposing of the used lubricant. The pollution caused by vehicle wear and disposal into the environment of used lubricants is avoided. The tax requires a collecting system for used lubricants, legal provisions to forbid pollution through lubricant dumping and sanctions. The resources collected are small.

- Cooling liquid tax
  Engines are not very energy efficient as approximately 70% of the fuel turns into heat. The cooling system has to remove this heat, in order to avoid the engine overheating. The optimal temperature is 90 degrees Celsius. Cooling is done with antifreeze or air. As most engines are cooled with antifreeze, the issue of pollution caused by cooling liquids and their taxation came into discussion. It is based in the same principles as the tyre and lubricant taxes.

- Battery tax
  It prevents dumping of batteries and avoids specific pollution (there are acid batteries, lead batteries etc with a high toxic content). It is bases on the same principles as the previous ones, but because the collecting and recycling is difficult, this tax has a low application rate.

- Sanitation taxes
  They come from the need to insure the storage and recycling of waste in order to maintain a clean environment. It requires the allocation of resources to find adequate solutions for storage and recycling.

These are transport-related types of taxes [3], without pretending to have mentioned all of them. As the previous analysis has shown, their main purpose is to protect the environment, to create an
environment-friendly behaviour. Subsequently budget resources are also obtained, although the proportion of green taxes in the total of budget revenues is low. In the same time, these taxes can have a stimulating effect on the production and can lead to the development of new activities.

4 Conclusion

Environment taxes or green taxes represent an important field for future fiscal systems in countries all over the world, with the potential to increase budget resources, taking into account that the production, distribution and sale activities generate pollution. Developing these taxes require collaboration between the Ministry of Finances, the Ministry of Economy, the Ministry of Research, support from the law-making authority, i.e. political support, and not least of all public echo. Optimizing the fiscal system is a concern for all countries as a well-structured fiscal system has beneficial effects on the economy. Green taxes must not excessively increase the fiscal system, their main role being to protect the environment. Thus, by keeping the environment clean and healthy, the budget resources that should be directed towards repairing damages to the environment will be allocated towards supporting other state tasks, like education, research, social care, international cooperation. The protection of the environment, including through financial and fiscal means, creating and consolidating the ecologic economics and ecologic culture requires a medium and long term strategy and avoiding amateur behaviours. As an EU member state Romania must use the financial and fiscal instruments in accordance with the community legislation and practice so as to lead to achieving the proposed target without disturbing national and community economy.

References: