THE ROLE AND IMPORTANCE OF TAX POLICIES IN PREVENTING ENVIRONMENTAL POLLUTION

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ÇEVRE KİRLİLİĞİNİ ÖNLEMEDE VERGİ POLİTİKALARININ ROLÜ VE ÖNEMİ

Abstract

Environmental pollution has been a vital issue day by day due to the increase of production and consumption activities, the rapid increase of the world population and varieties of people’s needs accordingly. The dream of leaving an indigenous and unpolluted nature for the future generations has been getting difficult because of polluting the nature and besides since no measures have been adequately taken to prevent pollution of the environment. Today the states have used the tax policies to reach the goals on environmental policy and by taxation of factors damaging environment, it has been mainly aimed that those who degrade the environment should bear the penalty of the degradations they do, rather than increasing public incomes. Environmental taxes are known as green tax, carbon tax, emission tax and pollution tax in the literature. In this study, at first it will be explained the contributions of environmental taxes and their implementations in different countries in the literature, then compared environmental taxes in our country with implementations in different countries; finally the lacks on this topic and some theoretical approaches will be analyzed.

Keywords: Environment, Pollution, Tax, Tax Policy

Öz

Çevre kirliliği her geçen gün üretim ve tüketim faaliyetlerinin artmasından, dünya nüfusunun hızlı artışından ve buna bağlı olarak insanların ihtiyaçlarının
çeşitlenmesinden dolayı çok önemli bir konu haline gelmiştir. Tabiatın kirlenmesinden ötürü ve bunun yanında çevre kirliliğini önleyecek yeterli önlemlerin alınmamasından dolayı gelecek nesillere kirletilmemiş ve bozulmamış bir tabiat bırakma hayali zorlaşmaktadır. Günümüzde devletler çevre politikaları ile ilgili hedeflere ulaşmak için vergi politikalarını kullanmaktadır ve çevreyi bozan faktörlerin vergilendirilmesi ile esas hedeflenen şey, kamu gelirlerini artırma, çevre kirletme vergisi olarak bilinir. Bu çalışmada, önce literatürde farklı ülkelerdeki uygulamaların ve çevre vergilerinin katkıları açıklanacak, sonra ülkemizde çevre vergileri farklı ülkelerdeki uygulamalarla karşılaştırılacak, son olarak da bu konudaki eksiklikler ve bazı teorik yaklaşım ele alınacaktır.

Anahtar Kelimeler: Çevre, Kirlilik, Vergi, Vergi Politikası

1. Introduction

Today we are living in a technology age and it has reached such a phase that people live with it at every part of their life times. Due to living in a technology age, it can be said that having high technology is an advantage for most of the countries if they have adequate technological equipments used by people. On one side, while technology and industry are enabling on various areas of human life, on the other side, they are bringing along huge problems to be solved. In this sense, environmental degradation is one of the most important problems that the governments should tackle with. In particular, since the beginning of the 20th century, there has been an increasing pressure on the governments to find some solutions for preventing the environmental degradation.

Protection environment and preventing pollution has been at the top agenda of society and so the governments, thus many instruments have been used to stop the environmental degradations. It has been proved that environmental taxes are very beneficial instruments as understood from different studies (Özdemir, 2009: 20).

One can say that this is not only a country’s problem, but also a problem of the world as well. So, both some countries and organization like The World Bank, the OECD, EU are trying to solve these problems by using different instruments such as taxes, subsidies etc..or by taking measures to protect environment. According to the OECD’s recently issued book (Taxation, Innovation and the Environment, September 2011: 1), Governments have a range of tools at their disposal, including regulations, information programmes, innovation policies, environmental subsidies and environmental taxes. Taxes in particular are a key part of
this toolkit. Because environmental taxes have many important advantages, such as the ability to raise public revenue and transparency. Also, environmental taxes have been successfully used to address a wide range of issues including waste disposal, water pollution and air emissions.

While fiscal purposes of taxes, having an important role for financing public services, is to enable revenues for the states, nonfiscal purposes of taxes regarded as regulatory-auditory can be seen with the concept of modern state.

Human and environment have permanently been in interaction with each other since their existence. Destroying of ecological structure by humans especially reached into a considerable dimension with industrial revolution and it was disregarded at the beginning. But the environmental issues gradually increased in the future years and ecological balance started to spoil.

Imposing taxes as an environmental policy is based on the essence of leaving negative externalities from some production and consumption behaviors. Theory of economics qualifies such externalities as social cost. Such externalities can be internalized as imposing taxes on the goods and services of consumptions or taxation of different phases of production process with social cost. With the taxation of economical activity harming environment, taxes on the tax payer can be increased for causing to decrease harming behaviors. In this case, amounts of revenues collected increase as long as amount and price of product causing externalities increases (Ferhatoğlu, 2003: 2).

To the extent that improved environmental quality causes households to spend less on medical care, households can consume more other goods, including leisure. That increased leisure creates a general-equilibrium welfare loss, diminishing the benefit of reduced pollution. In contrast, when pollution causes increased time lost to illness, the sign of the benefit-side tax-interaction labor leads to a welfare gain, the increased leisure creates an offsetting welfare loss (Williams III, 2003: 325).

2. Tax Concept and Emergence of Environmental Taxes

A tax is simply described as a financial charge or other levy imposed on an individual or an institutional unit by a state. There are two main kinds of taxes; direct tax or indirect tax.
The most important characteristics of taxes are that they are compulsory, unrequited payments, in cash or in kind, made by institutional units to government units. They are described as unrequited because the government provides nothing in return to the individual unit making the payment, although governments may use the funds raised in taxes to provide goods or services to other units, either individually or collectively, or to the community as a whole (Steinbach and et all, 2009: 3).

Naturally, environmental taxes are not the same taxes with the compulsory taxes of a state and they are also defined differently. According to the definition (2009: 3) in the guideline issued in 2001 by the European Commission (Eurostat, DG TAXUD), the OECD, the International Energy Agency and experts on environmental accounts at national level, it is as the following: “A tax whose tax base is a physical unit (or a proxy of it) of something that has a proven, specific negative impact on the environment.”

On the other hand, environmental taxes are also called “green taxes” or "pollution taxes" and they are a kind of excise taxes on environmental pollutants or on goods whose use produces such pollutants. As to economic theory, taxes on polluting emissions can cause reduction of environmental harm in the least costly manner, by encouraging changes in behavior by those firms and households that can reduce their pollution at the lowest cost (www.taxpolicycenter.org/briefingbook).

The environmental policies cannot be changed easily because of the complicated political processes involved. Then, the environmental damage can be reduced with an appropriate environmental policy, which would be required to change in response to the behavior of the other governments. In such a situation, the governments follow a step-by step procedure for revising the environmental policy from one period to the next (Ohori, 2011: 41).

Environmental taxes could make a significant contribution to tax revenues in two particular areas: energy taxes and road transport congestion charges. In both cases, the available tax base is broad, high tax rates may be justified by the environmental externalities, and demand is inelastic (Fullerton, Leicester and Smith, 2008: 50).
3. Literature on Environmental Taxes

Fundamental factors of spoiling ecological balance has been the activities of production and consumption. But for a long period, discipline of economics has focused on only the increase of production and consumption, the environmental impacts caused by these activities have been disregarded. During this period when people didn’t think that a healthy environment was necessary for public welfare, the environment was regarded as a free property. However, as it is commonly regarded, the environment isn’t a free property, it is globally public property (Kargi, 2010: 190).

The environment is a physical, biological, social, economical and cultural atmosphere where the creatures continue their relationships and interact with each other for their life times (TÜİK, 2009: 1).

Concern with protecting the environment for the benefit of present and future generations is now at the centre of the international agenda. Awareness of the extent of the damage done to our environment through unsustainable economic activities is steadily growing. In particular there is growing awareness of the need for international actions to implement realistic and workable solutions for the reduction of these man-made environmental impacts. And as Principle 16 of the Rio Declaration states, individual countries should endeavour to internalise their environmental costs through the use of economic instruments. The same principle also states clearly that the polluter must pay for the damage which arises as a result of his/her activities. Agenda 21 states, moreover, that it is essential to design economic and political reforms which promote effective planning and use of resources for sustainable development on the basis of sound economic and social policies, integration of social and environmental costs, and pricing of resources (Pallangyo, 2007: 37).

The implementations of environmental taxes are required to prevent the pollution caused by production and consumption activities, to leave a healthy environment for future generations and to protect the environment regarded as globally public property.

When environmental taxes stated, firstly the taxes to prevent air and water pollution and carbon tax to impose on the fossil fuels for diminishing global warming has come to mind as the environmental taxes (Akkaya, 2004: 3).

Carbon tax has appeared with the purpose planning the companies to use less harmful energy types for the nature and renew the energy resources.
they used. For instance, as coal is cheaper than natural gas, even though it is more harmful to the nature, it is prefered by the companies. However, due to the carbon tax, it has been aimed to balance the price difference among them and thus to enable less greenhouse gas emission (Alici and Yildiz, 2012: 56).

The aim of environmental taxes is based on decreasing the number of economical activities polluting the environment directly or indirectly, principles of preventing harms on the environment and incentivize the use of environmentally friendly production/consumption methods (Bekmez and Nakipoğlu, 2012: 654).

As the concept “Ecological taxes” started with the implementation of foreign countries, they are stated as “eco taxes” or “green taxes” in English. The types of taxes are defined “environmental taxes” or “ecological taxes” imposed in both national and international level for the purpose of protection environment and preventing environmental pollution (Jamali, 2007: 80).

Teoretical basis of the taxes used for struggling with environmental pollution is based on the “polluter pays principle”. Pigou is the pioneer offering taxation of pollution by stating that pollution has charged on the third persons some extra cost.

Basically, the environmental taxes, an instrument which can be used to reach the goal of living in a cleaner environment can enable tax revenue depending upon amount of tax assessment. This income obtained from environmental taxes, by using to lower the taxes causing to divert distribution of resources, can be an additional benefit increasing welfare of the society (Akkaya and Bakkal, 2005: 20).

Now and then, some of the polluting firms are able to put pressure on the taxes the governments levy for preventing environmental pollution. The researches done on this subject reveal some results as below:

First, the eco-industry lobbies in favor of more stringent environmental policies. Second, polluting firms always lobby for lower pollution taxes. Third, imperfect competition within the eco-industry can lead an environmental pressure group to push for a decrease in the environmental taxation at home in order to decrease pollution abroad (Canton, 2008: 298).

In the dynamic setting environmental taxes are generally more effective when, given the level of income, technological externalities from pioneer consumers suffice in inducing less wealthier households to buy the green
good, and thus when inequality is lower. The tax can benefit also the middle and low classes only if this negative income effect in the short-term is more than offset by an effective increase in the consumption of the green good in the long-term (Francesko, 2012: 409).

4. The Applications on Environmental Taxes in Various Countries

Taxes are the direct way of determining price while using environment. By this way, the states can decrease difference of activity causing pollution in the costs between individual and society or abolish completely (Acar, 2006: 226). In other words and more clearly expressions, taxation is mainly a government instrument for raising revenue; however taxation may also be used to achieve other objectives such as encouraging or discouraging certain activities or behaviour. The government can use taxation to support environmental protection by waiving or imposing lower taxes on environmentally friendly technologies or products. Governments can also induce compliance with environmental standards by providing government subsidies for those who adopt methods of abating pollutants which arise from production or consumption (Pallangyo, 2007: 38).

The most common taxes in the world are the taxes applied for emission and waste minimization. Carbon tax is a tax, started to be used after Kyoto Protocol prepared by United Nations Framework Convention (UNFC), suitable for global aim about environmental pollution aiming to apply strategy against climate changes due to the global warming. So it is proposed to minimize gases causing the global warming. Taxation of gases causing the global warming and especially CO2 can be regarded in this context. The problem of greenhouse effect is a global environmental issue. It has been accepted that this problem causes climate changes beyond countries’ borders, especially depending on CO2 emission (Mutlu, 2006: 65).

Taxes on energy have for many years played an important role in Sweden, both as a fiscal tax source and as a policy instrument. In 1991 the energy taxation system was reformed and a carbon tax was introduced. The carbon tax and the energy tax are very closely connected and have to be regarded together. Other economic incentives that affect the energy sector are the sulphur tax and the nitrogen oxides charge. Regulations have historically been important for the possibility to reduce
the emissions from both stationary and mobile sources. Regulations have so far had relatively small effect on CO2 emissions (Johansson, 2006: 2).

Some specific policies aiming to use economical instruments on environment have started to be formed with the fourth Environment Action Program within the EU and tangible instruments (tax, charge, subsidy, polluting/waste tradable permits etc..) to be used in application have been indicated. The fifth Environment Action Program specified to terminate the domination of regulatory instruments in environmental policy and diversify instruments to be used as main purpose (Batal, 2010: 2).

The most common economical instruments used by member states of EU to finance environmental policy are environmental taxes and charges. Due to their fiscal pressure on producer or consumer, taxes and charges encourage to change production and consumption behaviours in reducing pollution.

Environmental taxes can be classified as follows (Tavşancı, 2005: 43-45):

- Emission/waste taxes; they are the taxes regarded and based on the amount and contend of emissions from all kinds of waste materials thrown into air, water and soil and aimed to reduce the polluters’ emission rate by using these materials.

- Taxes designated on product base; They are the taxes levied duty on the products harming to environment when used or thrown into environment. Nylon bags and non-recyclable packages are good examples of this.

- Taxes designated on usage base; They are the taxes paid into the executive bodies on this area for their environmental cleaning services. For instance; the taxes paid into the municipalities for their services about collecting waste and disposal of waste matter, sewage and wastewater treatment are regarded as these kinds of taxes. Taxation differences; to impose higher taxes on the products polluting environment, on the contrary, lower taxes on the ones not polluting environment.

The taxes imposed on the oil sales in OECD countries are the highest revenues in environmental taxes. When the taxes from the oil sales are exempted, contribution of the other environmental taxes into countries’ incomes is quite low. Even though, the data show that there have been some important environmental benefits of these taxes. For instance, Denmark states that a discount on tax revenues imposed on rechargeable nickel cadmium batteries has corroded basis of a tax, accomplished environmentally (Heady, 2013).
In 1995, environmentally-related taxes accounted for between %3.8 and %11. Of total tax revenue in 17 OECD countries, with an average of %7, while direct taxes accounted for %35 of the total, consumption taxes for %32 and social contributions for %25. As a percentage of GDP, environmentally-related taxes vary between %1 and %4.5 (Zhong and Majocchi, 1999: 7).

Tax incentives have been certain policies with diversified aims to encourage firms and agencies to obey standards and apply pollution reduction methods. For instance, %10 tax reductions for domestic products and %3 for imported products has been given for systems reducing pollution and hazardous waste, conservation of energy and increasing efficiency in Korea. %50 accelerated depreciation for the goods produced in Korea, %30 for imported goods has been applied (Güzel, 2013).

In the UK, some taxes under different titles are collected to prevent the environment and so some of them can be mentioned as follows (Adam and Browne, 2006: 7): Landfill tax; it was introduced on 1 October 1996 and is currently levied at two rates: a lower rate of £2 per ton for disposal to landfill of inactive waste (waste that does not decay or contaminate land) and a standard rate of £21 per ton for all other waste. The government has announced that the standard rate will increase by at least £3 per ton every year until it reaches a medium- to long-term rate of £35 per ton. The tax is forecast to raise £0.8 billion in 2006–07.

Climate change levy, came into effect on 1 April 2001. It is charged on industrial and commercial use of electricity, coal, natural gas and liquefied petroleum gas, with the tax rate varying according to the type of fuel used. The levy is designed to help the UK move towards the government’s domestic goal of a 20% reduction in carbon dioxide emissions between 1990 and 2010. In 2006–07, the rates are 0.43 pence per kilowatt-hour for electricity, 0.15 pence per kilowatt-hour for coal and natural gas, and 0.07 pence per kilowatt-hour for liquefied petroleum gas. Energy-intensive sectors that have concluded climate change agreements that meet the government’s criteria are charged a reduced rate equal to 20% of the standard climate change levy. The levy is forecast to raise around £0.7 billion in 2006–07.

Aggregates levy, is a tax on the commercial exploitation of rock, sand and gravel (e.g. their removal from the originating site or their use in construction). The levy was introduced in April 2002 to reduce the environmental costs associated with quarrying. It has been charged at a
rate of £1.60 per ton since its introduction and is forecast to raise £0.3 billion in 2006–07.

Beyond these, it can be useful to give some short examples on the environmental reforms in some countries such as Sweden, Germany, Turkey, and Vietnam and a table showing environmental taxes in EU countries.

Together with other Nordic countries, Sweden took the lead in environmental tax reform during the early 1990s, followed by further reforms in the early 2000s. These reforms represented a key component in a broader tax-shifting operation that strengthened indirect taxes, particularly the VAT, and environmental taxes, and that reduced taxes on labor. A comprehensive environmental tax reform was introduced in Germany in 1999, involving (a) a gradual increase in taxes on transport fuels, and (b) new taxes on natural gas, heating fuels, heavy fuel oil, and (primarily) residential electricity consumption. Turkey is an ‘outlier’ in environmental tax terms in that, although its per capita GDP is almost at the bottom of that among OECD countries, it has the highest gasoline tax among OECD countries ($0.98 per liter)—a rate that, furthermore, has been steadily increased in recent years. The main reason for Turkey’s high fuel tax was purely fiscal: Revenues were needed for fiscal consolidation in the early 2000s, and fuel taxes are relatively difficult to evade compared with Turkey’s personal income tax system. The latest reform was done in Vietnam. So the government of Vietnam decided in 2004 that a comprehensive environmental tax reform was required. This decision was in part prompted by increasing public awareness of pollution levels. Although the 2008–10 financial crises may have delayed the initiative somewhat, the government is now committed to environmental tax reform. Currently, coal and gasoline are taxed in Vietnam, but at very low levels relative to those in other countries ($0.52 per ton and about 20 cents per gallon, respectively), whereas natural gas is not taxed at all (Heine et al., 2012: 19).
### Table 1: Environment-Related Taxes in EU Countries

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<th>Finland</th>
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<td></td>
<td>1994 - Amendment of taxation according to the inclusion volume of carbon and energy consumption volume 1997 - Re-amendment of taxation according to the inclusion volume of carbon</td>
<td>1992</td>
<td>- Enlargement of taxable items to coal and etc.</td>
<td>1992</td>
<td>○Introduction of carbon tax - Introduction of taxation according to the inclusion volume of carbon together with a decrease in the tax rate of fuel tax</td>
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<td>1999</td>
<td>○Increase in tax rate of mineral oil, introduction of electricity tax - Step by step increase in tax rate for both taxes during 4 years from 2000</td>
<td>1999</td>
<td>○Introduction of contamination activities general tax 2000 - Void by unconstitutional judgment of policy to enlarge taxable activities in contamination activities general tax to medium consumption of energy</td>
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<td>1993-99</td>
<td>1999</td>
<td>○Introduction of climate fluctuation tax - Enlargement of taxable items to cover the commercial use of electricity, coal and gas</td>
<td>1999</td>
<td>Amendment of goods exercise - Amendment of tax rate of mineral oil in goods exercise to cover the inclusion volume of carbon, step by step increase in its tax rate up to 2005 - Enlargement of taxable items to coal and etc.</td>
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**Source:** (Takuji Yano and Nguyen Van Phung), Chapter VI. Environment-Related Taxes in Vietnam p.203
5. Environmental Taxes in Turkey, Problems and Solution Suggestions

In the article 56/2 of constitution, there is the statement “It is a duty of the state and citizens to improve environment, to protect environment health and prevent environmental pollution”. Per this statement, it is needed to consider environment in the authorization to use environment tax. Benefiting from taxes in protection of environment is a duty of the state according the constitution (Üstün, 2012:175).

The environmental taxes applied in Turkey differ from the ones applied in OECD and EU countries. The environmental taxes applied in these countries direct producers or consumers to non-harmful actions by increasing the costs of products and services levied on, and they also contribute to technological developments as well. For this reason, the primary purpose of the taxes in question are “directing and controlling” while the secondary purpose is “making revenue”. In contrast in Turkey it is impossible to come across to an environmental tax with the purpose of directing and controlling except Environment Cleaning Tax. Other than this tax the taxes which can be considered as environmental taxes are Motor Vehicle Tax, Special Consumption Tax, Vehicle Buying Tax (Ferhatoğlu, 2003: 5).

In the scope of taxes existing in Turkish tax legislation, there are no laws enacted just for limiting or controlling the emission of gases which cause greenhouse effect, or increasing the greenhouse gas absorption of the atmosphere (Bağdigen and Demir, 2010: 157).

However, according to “Strategic Plan 2013-2017” published by Turkish Ministry of Environment and Urban Planning, in the scope of Climate Change Action Plan (İDEP) which was prepared principally for limiting the emission of greenhouse gases and adapting to climate changes and put into effect in the year of 2011, for the purpose of realization of the actions which are responsibility of the ministry; creating awareness in public on the subject of fighting against climate change and preparing educational programs for various audiences, making preparations for creating the infrastructure of the national emission trade system by monitoring, verifying and reporting of greenhouse gases caused by industrial sector, preparation of sectorial effect and affectability reports in the scope of adaption to climate changes are planned. In the process of transition to the low-carbon economy, the integration of national and/or sectorial development strategies with climate change policies, institutional
settlements and legislation has great importance (T.C. Çevre ve Şehircilik Bakanlığı, 2013: 80).

The taxes which can be considered as environmental are Oil Consumption Tax, Motor Vehicles Tax, Environment Cleaning Tax and Vehicle Sales Tax. But emerging of these taxes with financial aims in the first place and the fact that only a small amount of them is used with the purpose of protecting the environment prevents them having “directing-controlling” properties contrary to European Union countries (Ferhatoğlu, 2003:7). Oil Consumption Tax and Vehicle Sales Tax are still not in effect. But Special Consumption Tax which was put in place of Oil Consumption Tax can be considered in that frame. It is possible to say that special consumption taxes are used more for the purpose of financial revenue rather than protecting the environment.

The Environment Cleaning Tax which was put into effect with the law numbered 3914, is taken from homes, business and other buildings which benefit from services of solid waste collection and sewer systems of municipalities in municipal area. By balancing the revenues and expenses of municipalities in their services and activities, it is aimed to live in healthier cities and cleaner environments.

One of the many pollution factors is motor vehicles. Among motor vehicles personal autos have the highest percentage. Personal autos pollute the air by the carbon dioxide they emit and become one of the factors causing global warming. In this sense, it becomes possible to discourage usage of polluting cars and encourage buying of environmentally friendly cars via the motor vehicles taxes rates.

Comparing the application types of motor vehicle taxes in our country with the developed countries, we see that in our country motor vehicles are not evaluated in terms of their emission rates and it is not taken into account in taxation.

In taxation related to environment, applications such as considering the spending with the aim of having production less polluting as expenses, encouragements and tax reduce in depreciation, increasing tax rates for polluting products and activities can be considered (Bilgin and Orkunoglu, 2010:105).

6. Results

In addition to refraining from using the methods known to be harmful to the environment that the countries follow in their future productions to
meet the citizens’ various needs like accommodation and food, they also need create consistent policies enabling this. In cooperation with universities, governments should define the relationship between the environment and consumption-production, prevent harmful wastes in the environment, ensure abandoning production technologies which cause pollution and encourage usage of new technologies by tax policies.

The carbon tax has together with other taxes been important in the limitation of the CO2 emissions during the 1990s. The main effect has been the expansion of biomass in the district heating systems. This expansion has in turn led to a development of the technology for biomass extraction in forestry and in the implementation of more efficient heat plants in the district heating system (Johansson, 2006: 11).

In taxation of motor vehicles, considering the general trend in the world that tax application has been done in proportion to the harm caused by vehicles in the environment, also in our country, taxation regulations in terms of both motor vehicles taxes and special consumption taxes sensitive to carbon dioxide emission should be made.

Currently motor vehicles tax is higher for older vehicles. Parallel to that, by giving salvage discount, discount possibility should be given for special consumption and value added taxes for the people who allowed their previous car to be considered as salvage.

In solutions of local problems, the local governments should be authorized to levy local environmental taxes and implement them and precautions for the revenues from taxes to be used in protection of the environment should be taken.

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