

# Study on the Influence of Environmental Protection Tax on the Green Technology Innovation Ability of Heavy Pollution Enterprises

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**Abstract:** With the rapid growth of economy and the continuous improvement of people's living standards, people's demands for good environmental quality are increasing. However, in today's objective reality, the ecological environment in China is deteriorating, and environmental protection and economic and social development are not coordinated. On the one hand, the formulation of environmental protection tax is to make the tax collection more standardized and procedural, so that enterprises can bear their due social responsibilities. On the other hand, it is hoped that enterprises will be pressured to carry out technological innovation through taxation. In this article, the problem of changing environmental protection fee into tax on enterprise's technological innovation investment is analyzed, and the present situation of changing environmental protection fee into tax and its influence on enterprises and environmental protection are discussed, so as to promote enterprises to invest in innovative technology, reduce pollution and achieve the purpose of environmental protection. Only when enterprises independently carry out technological innovation and adopt green production methods and means can the emission of pollutants be reduced from the source, which is also the best way to achieve pollution prevention and emission reduction.

## 1. Introduction

In the stage of economic growth, due to the extensive development strategy of China, a series of irreversible environmental excessive pollution has been caused, which makes the sustainable development strategy into a dilemma, and also seriously affects the quality of people's life, which is a common challenge facing the world[1]. With the gradual deterioration of the environment, the following problems are not only the sustainable development dilemma that China has encountered, but also a common challenge that the world will face[2]. In the face of the coordinated growth of economy, resources and environment, the key role of green technology innovation has attracted more and more attention of policy makers and scholars. The continuous deterioration of environmental quality has made people more aware of the necessity of ecological protection. The world has begun to pay more attention to the realization of sustainable economic growth, looking forward to taking into account economic growth and ecological protection[3]. The levy of environmental protection tax is a major change in the external policy environment for enterprises. Because enterprises are averse to risks, there is a risk that human and capital investment for many years may not be effective in technological innovation[4]. Only through independent technological innovation and adoption of green production methods and means can enterprises reduce the emission of pollutants from the source, which is also the best way to achieve pollution prevention and emission reduction.

The main reason why industrial enterprises become an important source of environmental pollution is that their external costs are not internalized, and the pollutants they discharge are not directly proportional to their social responsibilities, which can be reflected in the low tax burden. On January 1, 2018, China adopted the means of abolishing pollution charges and implementing the Environmental Protection Tax Law, the first separate tax law in China to promote the construction of ecological civilization, to promote high-polluting and energy-consuming enterprises to actively change their production capacity and upgrade green technologies, thus laying a good foundation for

their adjustment of economic structure and change of development mode[5]. The formulation of environmental protection tax is to make the tax collection more standardized and procedural, so that enterprises can bear their social responsibilities. On the other hand, it is hoped to give enterprises some pressure through tax, and force them to carry out technological innovation[6]. Whether in terms of environmental governance or technological innovation of industrial enterprises, the impact of environmental protection tax is worth in-depth study[7]. This article analyzes the impact of the change of environmental protection fee to tax on enterprises' technological innovation investment, discusses the current situation of the change of environmental protection fee to tax, and the impact of the change of environmental protection fee to tax on enterprises and environmental protection, so as to promote enterprises to invest in innovative technology, reduce pollution, and achieve the purpose of environmental protection.

## **2. The Significance of Environmental Protection Tax and the Current Situation of Pollution Control in Industrial Enterprises**

### **2.1 The Significance of Environmental Protection Tax**

There are two opposing views on environmental regulation. First, environmental regulation is not conducive to green technology innovation of highly polluting manufacturing enterprises. The environmental cost caused by environmental protection tax makes enterprises miserable in a short time, and the high cost additional effect reduces the production and operation efficiency of enterprises. Second, environmental regulation has improved the ability of green technology innovation of enterprises[8]. Tax substitution effect means that the differential taxation of the country will make taxpayers change their production or consumption choices. Different from the tax revenue effect, the tax substitution effect changes the price relationship between different commodities, changes the relative price, and producers or consumers will reduce the production or consumption of goods with heavy taxes or increase the production or consumption of goods without taxes or light taxes. On the basis of the original tax relief for sewage charges, the environmental protection tax has added a tax relief grade for enterprise emission reduction[9]. Environmental regulation will lead to the increase of many costs of enterprises, while environmental protection tax means that the more pollution there is, the more it will be collected. High-polluting enterprises will consider the follow-up sustainable development, invest funds in technological innovation, reduce emissions and reduce costs, and force enterprises to carry out technological innovation, promote enterprise green product innovation and green process innovation, so as to obtain the compensation effect of innovation[10].

### **2.2 Current Situation of Pollution Control in Industrial Enterprises**

The economic effect of taxation means that national taxation will affect taxpayers' economic choices, including producers' production decisions and consumers' consumption choices, which can be divided into tax revenue effect and tax substitution effect. The effect of tax revenue refers to the fact that part of the taxpayer's income is transferred to the government because of national taxation, and the taxpayer's own income level drops, and ultimately reduces its total production or consumption[11]. In this process, the tax revenue effect has not changed the price relationship between different commodities, and the relative prices of commodities have not changed. China as a whole, although the country has invested a lot of money to control it every year, the problem of environmental pollution is still very serious. Due to the nonstandard pollution control, enterprises with less investment and nonstandard pollution control usually have large pollutant emissions and high emission concentration. If we don't strengthen investment in pollution control, reduce emissions and reduce emission concentration, it is difficult for such enterprises to enjoy preferential emission reduction, and the legal rigidity of taxation makes it difficult for them to avoid paying taxes in full. In the long run, the cost of enterprises will increase year by year and the income will decrease. Environmental protection tax takes enterprises as taxpayers, and the environmental bonded system completely replaces the sewage charge system, but in the stage of collection, it

follows the principle that the overall tax burden does not increase. Because the shifting standard of tax burden is higher than that of sewage charges, levying environmental protection tax will bring some pressure to the production and operation of enterprises to a certain extent, and accelerate the transformation and upgrading of enterprises in a fair competitive market.

### 3. Influence Mechanism and Development Suggestions of Environmental Protection Tax on Enterprise Technological Innovation

#### 3.1 Strengthen and Implement Differentiated Environmental Policies

In order to promote the green technology innovation of enterprises to play a positive role, the government still needs to strengthen the implementation of environmental protection tax, formulate reasonable collection standards, give consideration to fairness and efficiency, but also carry out differentiated management in different regions and industries. In order to avoid the complexity of the tax system, sewage charges can be levied according to the discharge of volatile organic compounds, and surcharges can be imposed on the highest level of volatile organic compounds. Through scientific setting and the implementation of differentiated policies, the green technology innovation of enterprises can be promoted, so as to exchange the maximum environmental protection with the minimum economic cost and truly realize energy conservation, emission reduction and environmental governance. The formulation and implementation of China's environmental protection tax policy aims at deterring and pressuring enterprises to discharge pollutants at will by charging special fees for pollutants discharged by enterprises, and then forcing enterprises to spontaneously upgrade production technology, improve technical means and improve innovation efficiency, so as to reduce environmental pollution and improve environmental quality. The framework of enterprise green manufacturing system is shown in Figure 1.

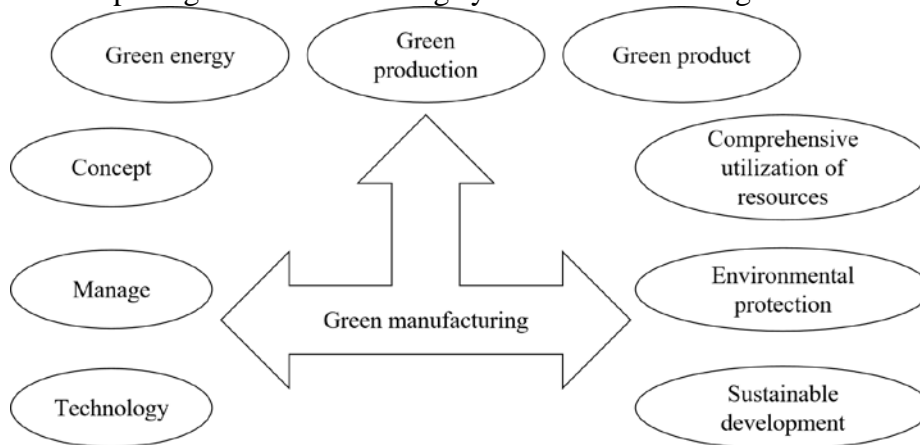


Fig.1 Enterprise Green Manufacturing System Framework

At the initial stage of the levy, the local economy and the technological innovation level of enterprises may be negatively impacted. Therefore, in the stage of implementing environmental protection tax, the government needs to cooperate with other policies to help enterprises effectively stimulate the innovation level of green technology under the premise of ensuring their own good financial situation. It is suggested that a differentiated and dynamic tax rate should be constructed based on the pollution control cost, so as to prevent enterprises from crowding out the original investment in green technology and selective capital because of the unreasonable tax burden, which makes the production cost of enterprises sharply increase and the income greatly decrease. Through scientific setting, the minimum economic cost is realized in exchange for the maximum environmental protection. In the subsequent stage of policy realization, it is also necessary to fully calm down the timeliness of the policy in time, and constantly revise and improve it according to the development and changes of the economy and environment, so as to ensure its economic benefits and environmental effects and fit the strategic goal of China's sustainable economic growth.

### 3.2 Promote the Rationalization of Policy Implementation

According to the economic growth stage of China and the realization of sewage charges before, it is difficult for environmental protection tax to achieve the purpose of reducing pollution and improving economic efficiency in a short period of time. Only by strict implementation and effective supervision can we ensure the protection of the economy and promote the green technological innovation and economic growth level of enterprises. The two levels of tax relief for the concentration of taxable air and water pollutants in China are distinguished according to the reasons for the decrease of concentration, and enterprises are encouraged to achieve emission reduction through green technological innovation, so as to avoid reducing production capacity and achieve low emissions as much as possible and enhance the pertinence of green technological innovation. The stage of enterprise green supply chain management is shown in Figure 2.

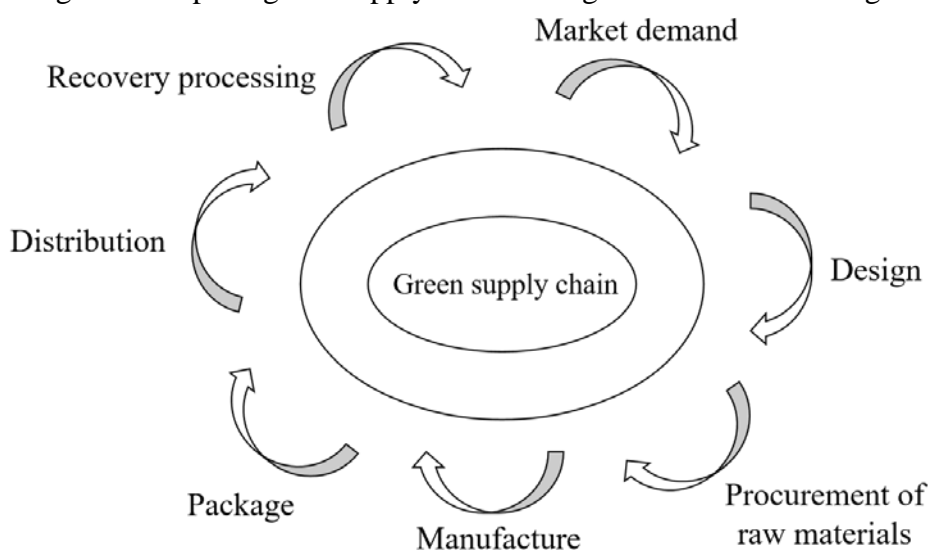


Fig.2 Green Supply Chain Management Process

The higher level government should strengthen the effective supervision and management of the measures related to the ecological environment protection of the lower level government. Although the local government can set the tax rate standard of pollutants within the prescribed scope, there should not be too much room for the discharge scale. At the same time, in order to facilitate the accountability, the implementation of each link should be clearly implemented to the relevant responsible persons. The government should strengthen its monitoring ability. After the fee is changed to tax, it will be changed from the previous environmental protection department to the tax department, and the environmental protection department will cooperate with it. The tax department must obtain true and accurate monitoring data to ensure the strictness of collection and give full play to the role of environmental protection tax.

### 4. Conclusions

The research in this article enriches the research on the influence of environmental protection tax on green technology innovation of high-pollution manufacturing enterprises to a certain extent, and has certain practical enlightenment and reference value for the implementation of environmental protection tax and the improvement of green technology innovation ability of high-pollution manufacturing enterprises. Because of the different innovation ability and motivation of enterprises, the quality of green technology innovation is different. In order to promote enterprises to transform from low-quality green technology innovation to high-quality, we should implement differentiated tax reduction and exemption policies and make rational use of tax revenue. In areas with high economic growth level, we should actively play the positive role of environmental protection tax in promoting green technology innovation of enterprises, and at the same time lay emphasis on the summary and induction of successful cases, and apply their successful experiences to the

adjustment of environmental protection tax policies in other areas with high economic growth level.

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