Research on Fiscal and Tax Policy to Promote the Development of Low-carbon Economy in Shandong Province

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Abstract. With the development of economy, energy consumption is increasing, resulting in global temperature warming, which poses a threat to human survival. The energy consumption and economic growth of Shandong Province are in the forefront of our country. How to save energy while promoting economic development and realize the rapid, healthy and sustainable development of economy is a problem worth thinking about. Under the new normal of economy, fiscal and taxation policy plays an important role in promoting the development of low-carbon economy, and it is urgent to explore the fiscal and taxation policy suitable for the development of low-carbon economy in Shandong Province. On the basis of introducing the current situation of fiscal and taxation policies to promote the development of low-carbon economy in Shandong Province, this paper analyses the existing problems of fiscal and taxation policies to promote the development of low-carbon economy in Shandong Province, and puts forward corresponding suggestions. The aim is to promote the development of low-carbon economy in Shandong Province.

1. Introduction
In the face of many problems caused by the rise of global temperature, countries in the world pay more and more attention to ecological environment and low carbon development, and join the ranks of developing low carbon economy one after another. At present, China mainly consumes coal resources, and the carbon emission is large, which brings a threat to the ecological environment. In order to achieve a low-carbon economy, China has made positive efforts and achieved certain results. On the whole, in the past ten years, the proportion of coal consumption in total energy consumption in China has shown a downward trend. In 2018, the proportion fell to 59. Shandong Province, as a large economic province in China, mostly depends on the traditional industry with high consumption and high pollution. The energy consumption is relatively large and the carbon emission is at a higher level in the whole country. Therefore, Shandong Province urgently needs to take the road of low-carbon economic development. It is necessary to study the fiscal and taxation policies to promote the development of low-carbon economy in Shandong Province in order to realize low-carbon development.

2. Meaning of low-carbon economy and fiscal policy

2.1. Meaning of low-carbon economy
Global warming has attracted wide attention all over the world and put forward a low-carbon economy to deal with the climate change crisis. Low carbon economy has been given different meanings by
countries since it was put forward. Although the definition of low carbon economy is different, it includes energy, environment and climate. Low-carbon economy not only pays attention to the full use of resources, but also emphasizes environmental protection, especially climate protection. Specifically, low-carbon economy is based on the green concept of development, through the introduction of new energy saving technology, new energy development and other ways to reduce the consumption of high-carbon energy such as coal, in order to achieve the purpose of protecting the ecological environment[1]. Developing a low-carbon economy can not only save energy, but also delay climate warming and help protect the environment.

2.2. Meaning of fiscal and tax policies
Fiscal and tax policies include fiscal policies and tax policies. Fiscal policy promotes the development of green economy by means of financial subsidy, financial investment, government procurement and so on, among which the better fiscal policies include financial subsidy and government procurement. The government can subsidize low-consumption, low-emission, low-pollution products or technologies by means of financial subsidies. On the one hand, the price of "three low" products will be reduced, thus stimulating consumers' desire to buy. On the other hand, the application of financial subsidies to energy-saving technology research and development will reduce R & D costs and encourage the development of energy-saving technology. When purchasing, the government can give priority to the purchase of products with low carbon and environmental protection functions. Government procurement of these products can not only increase the production of such products by producers, but also guide consumers to carry out low carbon consumption, and set an example of low carbon consumption for the society. Tax policy is mainly reflected in the relevant tax and tax concessions. The state aims to reduce carbon emissions by taxing high-pollution, high-energy-consuming enterprises or industries[2]. At the same time, enterprises or industries engaged in energy conservation and emission reduction are given tax incentives to reduce their production costs.

3. Current situation of fiscal and tax policy in Shandong Province to promote the development of low-carbon economy
In recent years, Shandong Province has formulated and issued a series of fiscal and taxation policies to promote the development of low-carbon economy. For example, in 2019, in order to speed up the construction of ecological civilization in the province and reduce pollutant emissions, the "interim measures for the collection of funds for emission regulation funds in Shandong Province" was formulated. In order to speed up the transformation of new and old kinetic energy in the province and promote energy conservation and emission reduction, the "interim measures for rewards and punishments for energy conservation and emission reduction in Shandong Province " were formulated. Rewards and punishments were given according to the completion of energy conservation targets, and different proportions were returned according to the completion of annual emission reduction tasks. Supported by a series of fiscal policies, Shandong Province low-carbon economic development has achieved certain results. By the end of 2019, the proportion of PM2.5 concentration decrease, the proportion of fine water body, the total amount of sulfur dioxide emission, and the proportion of carbon dioxide emission per unit GDP in Shandong Province, the state issued the "13-5" binding target requirements were completed ahead of schedule. From the financial expenditure on energy saving and environmental protection in Shandong Province in the past ten years, we can see that Shandong Province attaches great importance to the development of environmental protection industry, and the overall expenditure on energy saving and environmental protection shows an upward trend. In 2018, energy conservation and environmental protection expenditure in Shandong Province increased significantly, reaching 2.87 billion yuan, accounting for 2.84 percent of fiscal expenditure. The expenditure on energy conservation and environmental protection in Shandong Province from 2009 to 2018 is shown in Figure 1:
In order to promote the development of low-carbon economy, Shandong Province not only formulates fiscal policy, but also gives certain support in tax policy. Value added tax, sewage treatment fee is exempt from VAT. Wind power has a 50% VAT policy. Consumption tax, Energy saving and environmental protection batteries and energy saving and environmental protection coatings are exempt from consumption tax. Income tax, income from environmental protection, energy-saving and water-saving projects shall be subject to regular reduction and exemption of enterprise income tax. Small taxes, mineral products extracted from waste gas are exempt from resource tax. New energy vehicles are exempt from vehicle purchase tax. Energy-saving cars are half of the car and ship tax. New energy vehicles are exempt from vehicle shipping Tax. If the concentration of air and water pollutants discharged is below the prescribed standard, the environmental protection tax shall be reduced.

4. Problems of fiscal and tax policy for promoting low-carbon economy in Shandong Province

4.1. Lack of dedicated funding to support low-carbon economic development

Raising funds through the budget is an indispensable policy tool for developing a low-carbon economy. At present, the general public budget expenditure of Shandong Province is insufficient, and the financial expenditure used to promote the development of low-carbon economy is mostly reflected in the expenditure of energy saving and environmental protection, and no special fund has been established to support the development of low-carbon economy. Energy saving and emission reduction is a means to develop low-carbon economy, but the lack of special low-carbon budget can’t fundamentally promote the development of low-carbon economy. In the past ten years, although the overall trend of energy conservation and environmental protection expenditure is on the rise, its proportion fiscal expenditure is relatively small. In 2013, energy conservation and environmental spending accounted for the largest share of fiscal spending, which is only 3.18 percent. In 2014, the share declined significantly, and the share rose in the five years after 2013(Figure2). The Energy Conservation and Environmental Protection Expenditure and Fiscal Expenditure in Shandong Province from 2009 to 2018 is shown in Table 1:
Table 1. The Energy Conservation and Environmental Protection Expenditure and Fiscal Expenditure in Shandong Province 2009-2018  
Unit: 10,000 yuan

| Year | Energy conservation and environmental protection expenditure | Fiscal expenditure | Proportion of expenditure on energy conservation and environmental protection (%) |
|------|-------------------------------------------------------------|--------------------|---------------------------------------------------------------------------------|
| 2009 | 761698                                                      | 32676716           | 2.33                                                                            |
| 2010 | 1129334                                                    | 41450320           | 2.72                                                                            |
| 2011 | 1139493                                                    | 50020701           | 2.28                                                                            |
| 2012 | 1544192                                                    | 59045188           | 2.62                                                                            |
| 2013 | 2128095                                                    | 66888000           | 3.18                                                                            |
| 2014 | 1666733                                                    | 71773136           | 2.32                                                                            |
| 2015 | 2170775                                                    | 82500113           | 2.63                                                                            |
| 2016 | 2392799                                                    | 87552136           | 2.73                                                                            |
| 2017 | 2368370                                                    | 92583984           | 2.56                                                                            |
| 2018 | 2871972                                                    | 101009606          | 2.84                                                                            |

Note: Data from Shandong Statistical Yearbook.

Figure 2. Proportion of expenditure on energy conservation and environmental protection 2009-2018

4.2. The government green procurement mechanism is not perfect
There are many problems in Shandong government procurement, and a sound green procurement mechanism has not been formed. Firstly, the relatively small variety of products that can be purchased with financial allocations, coupled with the lack of timely release of green product information and technology, leads to fewer green products available for government procurement. Secondly, in the actual procurement process, the personnel engaged in procurement mainly consider the products within the scope of financial allocation, and consider less low carbon factors. Finally, the government green procurement started late, the relevant laws and regulations are not perfect enough, which is lack
of detailed guidance on procurement[3]. Without the corresponding legal norms to restrain the government green procurement, there is no corresponding punishment mechanism for the violation of green procurement, which is easy to breed corruption, and it is difficult to achieve the implementation effect of government green procurement.

4.3. Inadequate tax policies to promote low-carbon economic development
At present, although Shandong Province has formulated a series of tax policies to promote the development of low-carbon economy, the relevant tax policies are not perfect. First of all, the relevant tax preferential policies formulated by Shandong Province are not systematic, and the policies on energy conservation and emission reduction, comprehensive utilization of resources and other policies are scattered in the notices and regulations of various taxes, and there are no special documents for the low-carbon economy. Secondly, the tax preferential policy of developing low-carbon economy in Shandong Province is relatively single, mainly reflected in the tax reduction. The use of tax preferential policies on plus deduction and accelerated depreciation is less. Finally, the preferential tax policy focuses on positive incentives, and the reverse restriction policy which restricts high energy consumption and high emission is lacking.

5. Fiscal and tax policy recommendations to promote the development of low-carbon economy in Shandong Province

5.1. Establishment of special funds to support low-carbon economic development
Western developed countries have earlier opened a low-carbon economic development model. They have used fiscal expenditure and special subsidies for projects such as environmental protection facilities construction and environmental technology research and development through budget allocations. It provides strong financial support for the promotion of low-carbon economic development. Shandong Province should draw lessons from the experience of developed countries in developing low-carbon economy, continue to increase financial investment, especially in energy conservation and environmental protection, and establish special funds. On the one hand, special funds such as energy conservation and emission reduction should be managed as a whole. The scope of use of special funds should be expanded, or funds should be set up for the development of low-carbon economy. On the other hand, we should increase investment and research and development of environmental protection technologies, set up a budget fund for energy conservation and environmental protection. We can extract the next year's energy conservation and environmental protection budget fund according to the current year's fiscal revenue, and provide a reliable source of funds for environmental protection projects. In this way, the development of a low-carbon economy can be comprehensively promoted.

5.2. Improving the government’s green procurement mechanism
Shandong Province should improve the government green procurement mechanism, formulate more scientific government procurement policy, and increase government procurement. Firstly, increasing the variety of government procurement products will put products and equipment, which are contributed to save energy and reduce emissions and promote the development of low-carbon economy, into government procurement, such as, new energy vehicles and new energy buses. Secondly, strengthen the propaganda of low-carbon economy, improve the environmental protection consciousness and low-carbon consciousness of the personnel engaged in government green procurement. When purchasing, the purchasing personnel should give priority to the products with energy saving and environmental protection and green logo. At the same time, evaluate the performance of purchasing personnel. Finally, improve the laws and regulations related to government green procurement, formulate detailed rules to guide and restrict specific procurement, and standardize government green procurement. The violation of green procurement should be punished accordingly to prevent corruption.
5.3. Improving tax policies to promote low-carbon economy
Shandong Province should combine its own economic development, perfect the existing tax policy and realize low-carbon economy. First, systematize the decentralized tax preferential policies and formulate systematic tax documents for the development of low-carbon economy. Secondly, Shandong Province can make use of the existing tax preferential policies of local taxes to increase tax concessions, such as accelerated depreciation of energy saving and environmental protection equipment, so as to give full play to the positive incentive role of tax concessions. Finally, to improve the policy of reverse restriction, we can consider taxing enterprises with high emission and high energy consumption at higher tax rates, and we can also consider expanding the scope of tax collection of consumption tax and resource tax on high energy consumption and high carbon products, so as to guide consumers to low carbon consumption[4].

6. Conclusion
Global warming has made the world pay more attention to low-carbon economy. Shandong Province, as a big province of energy consumption and economic growth in China, has a long way to go to develop low-carbon economy. Under the new normal economy, Shandong Province can’t promote the development of low-carbon economy without the support of fiscal and tax policies. Only by constantly improving the existing fiscal and taxation policies, can we better promote the development of low-carbon economy in Shandong Province.

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