Discussion Paper on China's Carbon Tax

JIN DONGSHENG

High levels of industrial activity resulting in greenhouse gas emissions are causing climate change. These changes are likely to result in severe environmental consequences including rising sea levels, and ecological changes. There have been suggestions that China's 'carbon-based growth model' will be detrimental to its future development and transition into a civilised ecological environment. As a result carbon taxes are being introduced around the world, and one such tax is currently under consideration in China. Carbon tax policy and collection methods generally as well as China's specific example are examined and conclusions are drawn regarding temporal considerations for policy implementation in China.

INTRODUCTION

High levels of industrial and domestic resource consumption is shaping global climate change and greenhouse gas emissions. Climate change refers to the greenhouse effect, the scientific term for increasing global temperatures. There will be severe consequences as a result of the greenhouse effect, as sea levels are predicted to rise, icebergs will melt around both the South and North Pole. As a direct course, islands and coastal cities are faced with the threat of submergence and extinction. The global warming phenomenon is attracting substantial social and political attention in the international community, with numerous countries signing international agreements to address the issue. One such agreement is the 'Kyoto Protocol' which came into effect on 16 February 2005, with the aim of regulating climate change. Currently, 141 jurisdictions have signed this agreement, including 30 industrialised countries. Between 7 to 18 December 2009, the World Climate Conference was held in Copenhagen, Denmark. The conference included the 15th Conference of the Parties (COP15) to the 'United Nations Framework Convention on Climate Change' and the 5th meeting of the Parties (MOP5) to the Kyoto Protocol. With representatives from 192 countries, the summit addressed the follow-up programme after expiration of the first phase of the Kyoto Protocol. Specifically, this summit aimed to develop a global emissions agreement for the post-Kyoto period from 2012 to 2020.

It is argued that China's 'carbon-based growth model' severely curbs its future development and transition to a low-carbon economy, which is the essential imperative should China progress to establish a "civilised ecological environment". As a responsible developing nation, China has strongly supported global effective international cooperation to regulate and minimise climate change. China has further agreed to adhere to the fundamental framework of the 'United Nations Framework Convention on Climate Change' and the Kyoto Protocol. China acknowledges the notion of 'Common Aim but Differentiated Responsibility', and has aims to lower its carbon dioxide emissions per unit of gross domestic product (GDP) by 40-45 per cent, which is further below the targeted levels than where announced in 2005 for 2020. At the annual 'Green Company Conference' held in China, experts from the National Development and Reform Commission stated that the basic research on carbon tax had been finalised and the state agency hoped to impose carbon tax in China through the 12th Five-Year Plan in cooperation with the government. The research institutions/department under NDRC and Ministry of Finance has accordingly published a report outlining the framework for China's Carbon Tax. As a direct cause, the carbon tax is expected to attract increased levels of attention in society, as members of the community will demand information on how they will be affected.

WHAT IS THE CARBON TAX?

The carbon tax is a tax levied on carbon dioxide emissions. Its main purpose is to increase environmental protection, the carbon tax aims to steadily reduce carbon dioxide emissions in order to slow the process of global warming. Through applying tax correlated to proportions of carbon in chemical fuel such as coal, fossil oil as well as petrol and diesel gas, the carbon tax is reducing the consumption and dependency on chemical fuels and thus carbon dioxide emissions. In comparison to a quantitatively controlled approach and carbon trading schemes based on market competition, the carbon tax has the benefit of comparable lowered administration costs. It is an important component of environmental tax, which is also known as ecological tax, green tax or environmental protection tax. Introduced in the 20th century, environmental tax has no consistent accepted definition. An environmental tax is a social cost representing both environmental damage and pollution from industrialised corporate activity. This cost is further incorporated by businesses into their production costs and market price. The market mechanism then allows for the efficient allocation of environmental resources. Some developed countries have environmental levies and employ instruments such as the carbon tax, sulphur dioxide tax, nitrogen oxide tax, water pollution tax, noise tax, solid waste tax and garbage tax.

The carbon tax mainly applies to sectors that exploit natural resources, such as the chemical fuel and coal industry. Those liable to carbon tax are both individuals and organisations that use fossil fuels, coal and other non-renewable resources that generate and discharge carbon dioxide into the atmosphere. There are typically three methods of implementation of the carbon tax: (i) As an independently existing tax on carbon emissions; (ii) As a component of environmental tax; (iii) Based on the original tax type, levying the tax according to the proportion of the carbon in the chemical fuel. The carbon tax is a levy on carbon emissions. By increasing the cost of emissions, the carbon tax plays an important role in energy saving and emission reduction. According to the 2010 carbon emission list published by the Chinese Academy of Sciences, three industries account for approximately 66.3 per cent of total carbon consumption. These are accordingly iron smelting, petroleum processing and coal and nuclear energy.

The introduction of carbon tax will result in energy savings and emission reduction, encouraging sustainable economic growth and development, benefiting the economic growth transformation in China. The carbon tax will change the cost structure of corporations, in particular throughout the processes of production. Here, carbon emissions, the cost of which were previously unaccounted for, will now be transferred directly to the market price. This will give a competitive advantage to renewable energy sources, such as wind and nuclear resources. However, there are some problems associated with the implementation of the carbon tax. Overlaps with existing taxes have been identified as a

threat, where prices on resources are expected to increase, and will hence have a negative impact on the economic growth and industry competitiveness most likely to occur.

FOREIGN COUNTRIES CARBON TAX COLLECTION METHODS

The method of collection is an important matter raised by Chinese officials in response to the proposed carbon tax. In recent years, the method of carbon tax collection has received much attention in developed countries. Whilst some countries have already begun carbon tax collection, others are still deliberating as to whether or not the carbon tax should be implemented. In comparison with other forms of taxation, the carbon tax is an unprecedented type of taxation and thus has little history of development.

In 1990, Finland was the first European nation to introduce the carbon tax. Subsequently, Denmark, Iceland, Netherlands, Norway, Sweden, UK, Germany, Canada and Italy all introduced the carbon tax to their economies. France later followed and prepared to introduce carbon tax. In 1991, Norway implemented the carbon tax, whereby tax was levied on 65 per cent of emissions including the manufacturing industry's electricity consumption and industry-wide greenhouse gas emissions. In Norway, however, coal used to produce cement or lightweight aggregate products is exempted from the carbon tax. Sweden also introduced carbon tax in 1991, however, it only levied tax on 50 per cent of emissions in order to minimise the potential deterioration of industry competitiveness. Denmark imposed a carbon tax on both household and industrial carbon emissions in 1993. An exemption or tax reduction was, however, granted for high energy consumption based enterprises who signed an agreement to voluntarily reduce their carbon emissions. In 1996, the Netherlands implemented an energy adjustment tax which levied taxes on five resources: fuel oil, gasoline, liquefied petroleum gas, natural gas and electricity. Carbon-free generated electricity was subject to a reduced rate of tax. As part of its ecological tax reform, Germany introduced an energy tax in 1999. Initially, the German energy tax was levied on petrol, light weight oil l, natural gas and electricity, however, in 2000 this expanded to include heavyweight oil. In order to combat climate change, the United Kingdom began collecting taxes on electricity, coal, natural gas and liquefied petroleum gas sold both commercially and to public departments. The standard collection resulted in a 15 per cent increase in the price of goods. Recyclable material is tax exempt. In order to reduce carbon emission levels, the Swiss government introduced a tax on fossil fuel based carbon dioxide emissions in 2008 of 12 Swiss franc per tonne. Carbon neutral resources are tax exempt in Switzerland, examples include wood and biological products.

Many countries decided and prepared the introduction of a carbon tax to their economies in 2009, with ambitions to start collection in 2010. For example, in 2010 , the Netherlands government submitted a bill to parliament on 15 September 2009, approving the proposal and detailed changes to their fiscal budget whereby the vehicle tax on petroleum was changed to the carbon tax based on the volume of carbon dioxide emission levels. This bill became effective in March 2010. Zambia has also introduced the carbon emission tax in its 2010/11 fiscal budget. In addition, Switzerland announced that from January 2010, the rate of tax levied on carbon emissions would triple, reaching 36 Swiss Francs per tonne. The New Zealand government is currently working towards replacing the carbon trading scheme with the carbon tax. The European Union has developed a uniform carbon tax rate guideline for their member countries. Each member country must increase the carbon tax rate continuously according to the guidelines issued, as such the carbon tax rate in the EU is on a defined upward path. According to the European Union Committee's recommendation, the carbon tax is collected in the final stage of energy production. In addition, the carbon tax is imposed on coal, black coal, peat and its by-products such as coking coal, coal gas etc, also, it includes uprising fluid, formaldehyde used as fuel for power facilities, electricity, heating, natural gas and mineral oil used for water and nuclear power plant stations. There is not a uniform tax rate for carbon, for example, the tax rate for liquefied petroleum gas, heavy oil and kerosene energy production is relatively higher than the tax rate for coal.

CHINA'S INTRODUCTION OF THE CARBON TAX

The method of implementation of the carbon tax has been addressed as an important social issue in China. According to Su Ming, the deputy director of the Financial Academy of the Ministry of Finance who spoke at the '2009 China Sustainable Energy Development Summit', the initial method to levy tax on the emission of carbon dioxide, sulfur dioxide, nitrogen oxide and industrial waste water, provided the fundamental framework for tax in this area. Therefore, the implementation of the carbon tax in these essential areas is very important and should be carefully considered.

The main focus of the carbon tax is on the chemical oil and coal energy industries. Today, the main energy sources in China are still coal and oil, with no sign of change in the next decade as China's dependency rate on these resources is expected to reach 70 per cent by 2020. The concentration and strong market power of the coal and oil industry enables them to easily control product prices and pass on the cost of the carbon tax to consumers. Thus, it is likely that the burden of the carbon tax will be borne by consumers rather than corporations. In addition, the appropriate rate of tax on carbon emissions need to be reached by a consensus. Assuming the tax rate is based on the emission volume of carbon dioxide, two proposed methods for taxation are as follows: (i) A tax rate of RMB10/tonne in the first year which will be increased and fixed at a final rate of RMB40/tonne ; and (ii) A tax rate of RMB20/tonne, which is to be increased to RMB50/tonne after a period of 10 years and

further increased to be fixed at a final rate of RMB100/tonne. Regardless of which method is adopted, the carbon tax will encourage corporations and individuals to reduce carbon emissions through technological innovation, however, the chosen method may procure different results. If the cost of technological innovation is higher than the cost of the carbon tax, enterprises will have no motivation to pursue R&D development to reduce their exposure to the carbon tax. This causes a pricing dilemma, whereby a low carbon tax rate may fail to encourage enterprises to embark in technological research and development, however, if the carbon tax rate is too high, this may significantly impair normal business development and operations.

Given China's current state of development, the impact of this tax policy on the Chinese economy should be carefully considered and it is imperative that its implementation is a gradual process. Firstly, the carbon tax may be incorporated into an existing tax type, and only subsequently transformed into an independent form of tax. Secondly, from an administrative perspective, the tax may initially be levied on industrial fossil fuel consumption and gradually expanded to include society and individuals in the scope of the tax. Thirdly, the tax burden should initially be minimal and should gradually increase as the administration processes become more advanced. Finally, the carbon tax may lead to an increase in the cost of production, and it will place downward pressure on economic growth. Whether or not China is able to collect the carbon tax within a short time period is still contingent on a variety of factors. Consequently, it remains difficult to ascertain whether this is the most appropriate time to implement the carbon tax.

NOTES

[1]中国国际税收研究会 [Conference of Chinese Internationl Tax],《2008世界税收发展研究报告》[2008 Report on Global Tax Developments], 中国税务出版社 [China Tax Press] 2009, November.

[2] 中国国际税收研究会 [Conference of Chinese Internationl Tax],《2008世界税收发展研究报告》[2008 Report on Global Tax Developments], 中国税务出版社 [China Tax Press] 2009, November.

AUTHOR BIO

Jin Dongsheng is the Deputy Chair and a researcher for the Fiscal Science Research Centre of the State Administration of Taxation, China.