CONSTRUCTING THE LEGAL SAFEGUARD FOR CHINA'S CARBON TAXATION

Haifeng Deng *
Anna Wang **

ABSTRACT:

Environmental protection practices of developed countries prove carbon taxation is an effective tool to reduce greenhouse effect, and China has already put it into official agenda. Based on Chinese environmental law system, the enforcement of carbon tax mainly faces four key challenges, contradiction with the existing taxes items; conflict with carbon trade system; adjustment of carbon tax collection and administrative structure; and coordination with international trade rules. In order to solve those problems, it is high time to build a legal protection system for carbon taxation. The essence of the legal protection system includes at least three aspects: Firstly, adjusting the existing environment tax rates. Secondly, coordinating with carbon trade system and make tax reduction policy for enterprises which have achieved reduction goals. Thirdly, constructing a dynamic balance administrative system and a comprehensive database system for carbon taxation.

Keywords: Carbon Tax; Legal protection; Function; Construction

* Haifeng Deng, Associate Professor of Law School, Tsinghua University, Haidian District, Beijing, China,100084, email: denghaifeng@126.com.
** Anna Wang, PhD Candidate of Law School, Tsinghua University, Haidian District, Beijing, China,100084.

1. INTRODUCTION

Climate change is a serious problem in the global development process. In order to combat the greenhouse effect, many countries have made efforts to reduce energy consumption, develop energy-saving technologies, and control Carbon Dioxide (CO_2) consumption. Many of these efforts are using market mechanisms, because governmental commands as alternative often fail to curb effectively greenhouse gas emissions. Some European countries have imposed carbon taxes along with green tax reforms. Carbon tax is a tax levied on the carbon content of fuels. Sweden, Finland, Norway and the Netherlands have already introduced small carbon taxes.[1] These European practices show that carbon tax has a positive impact on reducing greenhouse gas emissions. Many authors have suggested that incorporating carbon tax into fiscal policy will be a popular and effective option to reduce greenhouse emissions.[2]

Today, China is under great pressure to meet her ambitious emission reduction target by 2020.[3] Many scholars believe that imposing tax on CO_2 emissions will be a necessary green policy for China. Actually, the State Council's Legislative Work Plan for 2012 officially provided that legislation on environmental protection related taxations is as one of urgency. Recently, the Ministry of Finance, State Administration of Taxation, Ministry of Environmental Protection, and the State Council's Legislative Affairs Office jointly established a Task Force and several working teams on this matter. The Task Force has drafted a proposed version of the Environmental Protection Tax Law of the People's Republic of China, which will incorporate carbon tax into environmental taxes for the first time. Under the draft, the new taxation will cover the coal and coal products, coke oven gas, crude oil,

1 Hoeller, P. and M. Wallin, 'Energy Prices, Taxes and Carbon Dioxide Emissions' OECD Economics Department Working Papers NO.106, 1991, 9 http://dx.doi.org/10.1787/356365310851 accessed September 5, 2014.

2 See Shi-Ling Hsu, *The Case for a Carbon Tax: Getting Past Our Hang-Ups to Effective Climate Policy* (Washington, DC: Island Press/Center for Resource Economics, 2012) 25-115; Ian WH. Parry, *Reforming the Tax System to Promote Environmental Objectives: An Application to Mauritius* (Washington, D.C.: International Monetary Fund 2011) 12.

3 China has already signed the United Nations Framework Convention on Climate Change (UNFCCC) and published the "Chinese Top Ten Countermeasures on Environment and Development" which has outlined the future roadmap of China's sustainable development strategy. China has reported its specific indicators of "carbon intensity" in the Copenhagen conference in 2009. President HU Jintao has promised to reduce the carbon intensity of China's economy by a "notable margin" between 2005 and 2020 and has made an emission reduction target that China›s carbon dioxide emissions relative to Gross Domestic Product (GDP) should be reduced by 50 per cent by 2020 compared with that of 2005.

gasoline, diesel oil, fuel oil, liquefied petroleum gas, natural gas and other fossil fuels.[4] It is very likely that this carbon tax law is to be passed in the near future. To ensure the healthy operation and positive social effects of the carbon taxation system, China needs not only scientific analysis of the self-consistency and effectiveness of that system, but also needs to improve the operating environment and relevant safeguard mechanisms of the system.

The purpose of this article is to construct and discuss legal safeguard mechanisms through which legal barriers impeding carbon taxation may be sustainability addressed. Part I of this article discusses the possible overlaps between existing environmental taxes and carbon tax due to be levied, and puts forward conflict defusing systems. Part II establishes a balanced mechanism to promote the complementarities between carbon tax and carbon trade. Part III introduces the European practice of carbon tax management and proposes to construct technical and administrative organization to safeguard the positive effects of carbon taxation.

2. LEGAL SAFEGUARD MECHANISM FOR ADOPTION OF CARBON TAX

A. The impact of adopting carbon tax

China faces pressure in dealing with greenhouse effects , slow-onset events and air pollution. The carbon tax is to be levied on CO_2 emission behaviors and it aims at reducing air pollution. By taking the opportunity of introducing carbon tax, it is believed that green tax reform can be carried out by combining carbon tax with the current tax system in China. The essence of the combination is to achieve the self-consistency of the tax system.[5] In particular, the whole tax system needs to undergo systematic adjustments and revisions to reduce the overlapping areas and supplement

4 Jia lin LIANG, 'HuanbaoShuifa Shouci Jiang "Tan shui" Naru Qizhong [Environmental Tax Adopts Carbon tax for the First Time] '*Jingji Cankao Bao* [*Economic Information Daily*](Beijing, May 5, 2013)1.

5 "Self-consistency" was firstly raised as a Social Psychology concept by Prescott Lecky, whose central assumption was that self-conceptions are critical for survival because they enable people to predict and control the nature of social reality. See William B. Swann et al, 'The Cognitive-Affective Crossfire: When Self-Consistency Confronts Self-Enhancement'(1987) 52 Journal of Personality and Social Psychology 881. Here we anthropomorphize the green tax system as a person, whose self-consistency means subjective self-consultation, self-control, self-granted and self-identity, and it shows the intrinsic consistency of a concept, idea, assumption or conclusion. In short, the crux in evaluating the self-consistency from a theoretical perspective is whether it can improve and construct itself according to the changes which ever evolves in the society. Self-consistency is the intrinsic basis of self-reflection and self-transcendence which motivates internal tensions and works as the main growing mechanism from a systematic perspective.

the ambiguous areas between carbon taxation and the current taxes.[6] At the same time, the creation of a new tax may bring negative effects to the economy; such as reducing the competitiveness of enterprises especially those in energy-intensive industries. The effect may include reduction of economic output and unemployment. Mr. Zhang Peisen, a researcher of the State Administration of Taxation once commented, "The creation of a new environmental tax will be rather complicated, as it will have to take into account the interrelationships that already exist between the country's existing taxes."[7] As a new environmental tax, carbon tax will certainly face the same challenge which is anticipated by Mr. Zhang. Therefore, in order to limit the negative social and economic effect of carbon tax, it is necessary to achieve revenue-neutrality so that the revenues from carbon tax can be used to mitigate some of the more damaging impacts of the existing tax system.[8] Above all, the integration of carbon tax into current tax system should achieve self-consistency and should help to achieve double dividend affects.[9]

In other words, the seamless integration of carbon tax into the current tax system is as important as devising a good macro taxation system. Therefore, it is necessary to build up coordination mechanisms for the carbon taxation and the existing taxes. In order to minimize the social cost caused by tax adjustment, it is necessary to integrate carbon tax with existing taxes

6 Janet E. Milne, 'Environmental Taxation in the United States: The Long View' (2011) 15 Lewis & Clark Law Review 417, 423.

7 'China Plans to Impose "Green Tax"'(*The Economic Times*, 27 October 2011). http://articles.economictimes.indiatimes.com/2011-10-27/news/30328456_1_green-tax-environmental-tax-china-plans accessed February 25, 2014.

8 Wallace E. Oates, 'Green Taxes: Can We Protect the Environment and Improve the Tax System at the Same Time?' (1995) 61 Southern Economic Journal 915, 921.

9 The double-dividend hypothesis asserts that in the second-best setting, environmental taxes can enhance the welfare of a society by two means, firstly, lowering of environmental damages and secondly, reducing existing distortionary taxes. Ruud A. De Mooij suggests that the feasibility of the second means depends on the net, and often conflicting, effects of two factors. There is the "revenue recycling" effect: gains due to cutting the existing distortionary taxes relative to an alternative policy of lump-sum rebates of the generated revenues. There is also the "tax-base" effect: the property that a marginal increase in any tax rate, in the presence of prior distortionary taxes, has a first-order effect on welfare by changing the existing tax base. See Gahvari Firouz,'Review of Environmental Taxation and the Double Dividend' (2002) 40 Journal of Economic Literature 221, 221-23; The central question of most studies is indeed whether or not a double dividend can be obtained. Ian W. H. Parry says, ignoring any environmental benefits, the net impact of an environmental tax swap will significantly reduce the overall economic costs of the tax system for pollution reductions of up to at least 50 per cent. See Ian W.H. Parry& Antonio M. Bento, 'Tax Deductions, Environmental Policy, and the "Double Dividend" Hypothesis'(2000) 39 Journal of Environmental Economics and Management 67; See also Jeong Hwan Bae,'The Welfare Consequences of Carbon Tax Reform in Open Economies: The Application of Computable General Equilibrium Model for Pennsylvania' (D.Phil thesis, The Pennsylvania State University 2005) 18.

and fees by the way of "one to one ", and then achieve optimization and upgrading of the current tax system on the guidance of "greening".[10]

B. The current structure of environmental taxes and fees

It has been 20 years since China's comprehensive tax reform in 1994, during which a number of single taxes were imposed step by step, which include the resources tax, consumption tax and value added tax (VAT). Excise tax rates for vehicles have been made proportional to the size of car engines since 1994. The rate for cars with engines 1.0L or less was set at three per cent, for engines over 4.0L it was eight per cent, and for engines in between the rate was five per cent. On September 1, 2008, the excise tax rate for engines 1.0L or less further decreased to one per cent, while for engines from 3.0 to 4.0L it increased to 25 per cent. The rate for cars with engines over 4.0L increased to 40 per cent.[11] In 2001, VAT for wind power was cut by half to 8.5 per cent from the previous 17 per cent. In the same year, a State Administration of Taxation circular provided that VAT collected for using municipal solid waste for power generation would be refunded to the tax payer.

In 2003, the VAT for biogas production was also reduced to 13 per cent.[12] In 2003, foreign investment in both biogas and wind energy production also benefit from a reduced income tax rate of 15 per cent, as opposed to 33 per cent. As of September 2007, the Chinese government has been introducing a series of preferential tax policies to encourage the development of energy conservation and renewable energy. The new incentives include income tax cuts for the producers and consumers of renewable energy, as well as a reduction of the import tax for "green" equipment.[13] The trend of greening the tax system has become increasingly apparent in view of the transformation of road toll into fuel oil tax and the creation of farmland tax and pollution charge.

Unfortunately, although all these tax policies may bring about slightly positive effects on environmental protection, few of them are technically

10 Milne (n 6).

11 'Vehicle Excise Tax Rates'<http://www.iea.org/policiesandmeasures/climatechange/> accessed August 1, 2013.

12 *Reduced VAT for Renewable Energy*, *available at* <http://www.iea.org/policiesandmeasures/climatechange/> (last visited Aug.12, 2014).

13 *Preferential Tax Policies for Renewable Energy*, *available at* <http://www.iea.org/policiesandmeasures/ climatechange/> (last visited Aug.12, 2014).

introduced to the tax system on environmental background.[14]As a result, the current tax system cannot effectively correct and prevent the negative externality of economic activities and the overall tax system has not reached the optimum position considering the environmental benefits.

It is undoubtedly true that if the current tax system cannot be reformed, the environment will be faced with destructive pollution and damage and will not be able to support a sustainable economic development. The implementation of carbon tax offers impetus for emission reduction and environmental protection because the government will be able to rationalize complicated relationships between carbon tax and other environment-related taxes.

C. Optimization of the Current Tax Structure

In most European countries, green tax has been introduced without increasing the total tax burden of enterprises. The goal of fiscal neutrality is explicitly associated with green tax reforms in many countries. This leads us to conclude that the current taxes will need to be adjusted in parallel to the introduction of new environmental taxes.[15]

1. Replacing the fuel oil tax

In order to compare the features of carbon tax and fuel oil tax, it will be necessary to identify their tax purposes and scopes in order to ascertain whether they have similar effectiveness on environmental protection. In 1998, the Highway Law transformed the road toll for maintenance into Fuel Oil Surcharge.[16] In the revised version of Highways Law in 2004, the fuel oil surcharge is replaced by tax.[17] In November, 2008, the State Council decided to launch a reform on taxes and fees for refined petroleum products by eliminating several tolling items. Firstly, toll for highway maintenance and waterway maintenance. Secondly, administration fee of highway and

14 Wen LI and Li-ming FAN ,'Zhongguo Gongyehua Guocheng Zhong de Shuizhi Lǜhua [Greening the Tax System in Chinese Industrialization Process]'(2006)3 Shuiwu Yanjiu [Taxation Research] 6.

15 Johan Albrech, 'The Use of Consumption Taxes to Re-launch Green Tax Reforms'(2006) 26 International Review of Law & Economics 88, 90.

16 Highway Law of the People's Republic of China 1998 ,article 36 (1): Expenses for highway maintenance should be acquired through collection of fuel oil surcharge paid by units and individuals in purchase of fuel oil according to the relevant provisions by the State.

17 Highway Law of the People's Republic of China 2004, article 36 (1): Expenses for highway maintenance should be acquired through tax.

waterway. Thirdly, passenger and cargo surcharge for highway and waterway and imposing fuel oil tax which includes consumption tax on gasoline, diesel oil and the other refined oil within their price levels.[18]

Initially, fuel oil tax was introduced to replace the road toll with the aim to save fossil fuel energy and reduce environmental pollution. On the other hand, the main purpose of carbon taxation is to reduce the greenhouse gases including CO_2 and protect the environment. Therefore, the purpose and effects of carbon tax and fuel oil tax are similar.[19] Observably, there are still three slight differences between them. First, carbon tax is levied at both the energy exploitation stage and terminal stage of consumption, while fuel oil tax only is levied on the final stage of fuel oil consumption. Second, carbon tax is imposed on all carbon extraction behaviors as well as consumption, while fuel oil tax only levies tax on fuel oil consumption in transportation. Third, carbon tax can be used as the general government administrative management expenditure, while the fuel oil tax can only be used for construction, maintenance and management of highways, waterways and air transports.[20]

It has been suggested that some European countries impose carbon tax on consumption of natural gas or gasoline in road transportation. For instance, Denmark and Sweden governments levy carbon tax on railway transportation. Denmark, Finland and Norway governments also impose tax on the fuel of personal transportation equipment and lubricating oil. Most Nordic countries also levy carbon tax on burning diesel, for example, the Netherlands imposes carbon tax on the air transport industry.[21] The carbon taxes imposed on transportation in European countries are similar with fuel oil tax in China and this will provide practical evidence for the necessity of replacing fuel oil tax on the field of transportation with carbon tax as a means to reduce the tax burden on the transport industry.

18 National Development and Reform Commission, 'The Finished Product Oil Tax Reform Plan (draft for comments)'(2011) <http://www.ndrc.gov.cn/rysgkfa/>accessed 16 December 2013.

19 ibid.

20 Michael Waggoner, 'Why and How to Tax Carbon'(2008) 20 Colorado Journal of International Environmental Law and Policy 1,10.

21 Jint-ian YANG and Cha-zhong GE, 'Huanjing Shui de Xin Fazhan [New Developments On Environmental Taxes] ' (China Environmental Science Press 2000)192.

2. Coherence among related taxes

Since the first tax reform occurred in 1994, a tax system focusing on both turnover tax and income tax was established, and 23 items of new taxes including VAT, consumption tax, resources tax and vehicle and vessel tax were imposed, and all those taxes had direct or indirect connects with energy production and consumption.[22]

In order to avoid undermining the long-term investment and planning economic activities, which are important to the macro-economic development, the introduction of carbon tax into the tax system needs fine tuning. In other words, it is necessary to change the tax rate of all related taxes, such as turnover taxes including VAT, Resource Tax vehicle and vessel tax so as to limit the negative effects of a new tax on the whole economy and achieve the tax neutrality as well as reduction of CO_2 emissions.[23]

2.1 Turnover Tax

Turnover tax includes VAT and consumption tax.[24] The former one aims to promote the use of clean energy and control environmental pollution by implementing low tax rate for clean energy. Therefore, the carbon tax can serve as an additional tax to the VAT imposed on CO_2 related emissions like coal gas, liquefied petroleum gas, natural gas, coal products for domestic use and crude oil. Then again, it is necessary to reduce the refined oil tax and take carbon tax as an additional tax imposed on consumption of gasoline, diesel oil, lubricating oil, solvent oil, naphtha, kerosene and fuel oil. At the same time, it is necessary to impose coal consumption tax and incorporate carbon tax as an additional tax.

Some may ask whether it would be possible to increase the tax rate of both kinds of turnover taxes since the carbon tax added on both turnover taxes is going to increase pre-existing tax rates. To answer this question, we need to distinguish between the functions of different taxes. A slight increase in the tax rate of consumption tax or value added tax will magnify the negative influence on the overall consumption and investments because

22 Mun-Heng TOH and Lin QIAN, 'A Evaluation of The 1994 Tax Reform in China Using A General Equilibrium Model'(2005)16 China Economic Review 246,247.
23 Waggoner (*n* 24.).
24 Xue-bing LIN, 'Tax System and Tax Incentive'(*IMF Tax Policy Seminar for Asian and Pacific Countries on Tax Incentives,* June 9, 2009) <http://www.doc88.com/p-057205979922.html> accessed December 13, 2013.

both the consumption tax and VAT will impact mainly on the economic activities rather than emission behaviors.[25] Comparatively, carbon tax is imposed on enterprises to discourage the pollution emissions. Therefore, the collection of carbon tax will have fewer negative impacts on the economy than direct increase in turnover taxes rate.

2.2 Resource Tax, and Vehicle and Vessel Tax

Resource tax is imposed on items such as crude oil, natural gas, coal, mining, salt.[26] Taxes on minerals and energy products are closely related with environmental polluting behaviors. In terms of reducing pollution, it is more effective to levy tax on consumption than exploitation of the resources. The main purpose of resource tax is to promote reasonable development and utilization of natural resources, while carbon tax focuses on carbon emissions reduction at the consumption stage. Therefore, carbon tax will not affect the resources tax.

Vehicle and vessel tax is imposed on enterprises to adjust the distribution of social wealth, and it serves a different function from carbon tax.[27] Therefore, the introduction of carbon tax will have no effects on the vehicle and vessel tax. However, in order to control the environmental effects of the use of vehicle and vessel consumption, a new tax named motor vehicles tax should be imposed.

3. LEGAL SAFEGUARD MECHANISM FOR IMPLEMENTING A CARBON TAX SYSTEM

A. Complementary analysis of carbon tax and emission trading system.

Observably, there are mainly three ways to manage environmental problems, which are command and control, market regulation, and self-discipline of enterprises. The combination of those measures is named the Ternary Model.[28] Both theory and practice have shown that optimal Ternary Model leads to comprehensive achievements of economic, social and environmental benefits.

25 Richard J. Pierce, 'The Past, Present, and Future of Energy Regulation (2011) 31 Utah Environmental Law Review 291, 300.
26 Xue-bing LIN (*n* 28).
27 ibid.
28 Ming-yuan WANG, 'QingjieShengchanFa de LiyiJizhiTanxi [Analysis on Interests Mechanism of Clean Production Law]' (2007) 5 Zhengzhou Daxue Xuebao (Zhexue Shehui Kexue Ban)[Journal of Zhengzhou University(Philosophy and Social Sciences Edition)] 43-46.

Carbon tax is a command and control measure featured with administrative compulsory actions.[29] While carbon trading more embodies the regulation of market economy, and all transactions must be run according to the market rule of equivalent exchange.[30] Furthermore, both carbon tax and emission trading program are enforced mainly on large energy companies, which means both their implementation needs voluntary cooperation and participation of enterprises. In other words, the nature of carbon tax and emission trading system determines their rationality and possibility of the complementary between them.

In practice, external cost and benefit of emission abatement is uncertain because the factors affecting the cost and benefit are various and easily changeable. The uncertainty results in different effects on emission abatement of carbon taxation and emission trading program.[31]

On one hand, carbon tax is blamed for the uncertain effect of emission abatement. To be specific, the abatement effect is closely related with the tax rate. If the tax rate is high, the emission reduction is obvious. With the increase of tax rate, the abatement benefit will face marginal diminishing which is called "regressive effect" of carbon tax.[32] Meanwhile, the adoption of carbon tax breaks and exemptions is probably going to aggravate the abatement uncertainty. Under this condition, carbon emission trading system can make up for this drawback.[33] Also, the emission trading system can relieve emission pressure caused by tax policy and stabilize the overall economic activities. On the other hand, carbon emission trading in China is not promising for the lack of well-designed preconditions. For instance, China has not established an effective management mechanism and legal system; China also lacks reliable information disclosure system, scientific measurement and monitoring network. In this respect, carbon tax is comparatively more reliable for emission

29 Arthur Cecil Pigou· The Economics of Welfare (4th edn,) Macmillan and Co.1932) Ch9, <http://www.econlib.org/library/NPDBooks/Pigou/pgEW20.html#Part II> accessed December 16, 2013.

30 Emission trading is established according to the Coase Theorem. See R.H.Coase,'The Problem of Social Cost'(1960) 3(1) The Journal of Law & Economics <http://www.econ.ucsb.edu/~tedb/Courses/UCSBpf/readings/coase.pdf> accessed December 15, 2013.

31 Ming-ming LIU, 'TanpaifangyuTanshui de BijiaoFenxi[Comparative Analysis on Carbon Emissions Trading and Carbon Tax and China's Climate Change Legislation System Mode]' (2013)1 Jiangxi Caijing Daxue Xuebao [Finance and Economics Journal of Jiangxi University]105.

32 International Emissions Trading Association (IETA),'Why Emissions Trading is More Effective Than a Carbon Tax' <http://www.ieta.org/index.php?option=com_content&view=article&id=207:why-emissions-trad> accessed December 13, 2013.

33 ibid.

abatement.[34] What is more, the emission trading system in the United States has proved that emission trading is more likely to cause corruption and rent-seeking, which makes the trading system full of political complexities.[35]

Above all, neither the independent implementation of carbon tax nor the emission trading system is a perfect solution for CO_2 emission. The feasible way is to combine carbon tax with emission trading system to achieve the best results of emission abatement.

B. Carbon emission trading practice in China

China has started to establish its carbon emission trading market and its policy framework since 2011. At the end of October 2011, National Development and Reform Commission (NDRC) issued Notice on the Pilot Implementation of Carbon Emissions Trading, approving seven provinces and certain big cities to start pilot carbon emissions trading projects, including the cities of Beijing, Tianjin, Shanghai, Chongqing, and Shenzhen, as well as the provinces of Hubei and Guangdong.[36]

In June 2013, Shenzhen took the lead in running carbon emissions trading all over the country. The other six pilot areas are also carrying out their own exploratory projects. According to official agenda, all those seven areas were planned to establish emission trading market and start emission transactions by the end of 2013.[37] It is obvious that development of China's carbon emissions trading market is still in its infancy, which leads to a more complex policy environment for carbon taxation. The implementation of carbon tax depends not only on its own collection plan but also on the carbon emission trading market and its emission abatement effects.

C. Legal Safeguard for Implementation of Carbon Tax

Being the two typical practices to control greenhouse gas emissions, both carbon tax and emission trading system have their unique features. Either carbon tax or carbon emissions trading system alone cannot achieve the best

34 Shengl ZHOU *et al*., 'Impacts of Carbon Tax Policy on CO_2 Mitigation and Economic Growth in China' (2011)2 Advance in Climate Change Research 124,1127.

35 Alex Rice Kerr, 'Why We Need A Carbon Tax'(2010) 34 ENVIRONS ENVTL. L. & POL'Y J.69, 90.

36 National Development and Reform Commission, 'Notice on the Pilot Implementation of Carbon Emissions Trading' <http://www.sdpc.gov.cn/zcfb/zcfbtz/2011tz/t20120113_456506.htm> accessed December 13, 2013.

37 Jing ZOU, 'Buru Xianshi de Zhongguo Tan PaifangJiaoyijiangMianling de Tiaozhan [The Challenge Confronting with China when Adopting Carbon Tax]'*Jingji Cankao Bao* [*Economic Information Daily*](Beijing, 1 December 2013) <http://www.cbeex.com.cn/article/ywzx/tjyzx/zxpd/zjgd/201308/20130800046221.shtml> accessed April 12, 2014.

effect of energy conservation and emissions reduction, which has inspired studies of different combination mode of the two systems.

Firstly, in the Swiss model carbon tax system and carbon emissions trading system have been successfully introduced and adopted supporting statutes, which entitle polluting companies to elect to pay tax or join in emission trading system as long as they can achieve the emission reduction goals.[38] This mode implies that carbon tax works at the same time with emission trading system but with different options for energy companies; so that if a firm voluntarily signs an agreement to reduce emissions with the government, it becomes exempted from carbon tax.[39]The Netherlands adopts the Swiss Model, for example, there is no energy tax on coal and natural gas users for the reason that all coal and natural gas users have already taken part into carbon emission trading system which means that they have already paid for their pollution behaviors in a reasonable way.[40]

The second is the British model, which puts carbon tax and emission trading system in the same field. The UK government has issued a package of measures responding to climate change, including mainly levying carbon tax and establishing emission trading market. In 2008, UK implemented the Climate Change Act and became the pioneer among developed countries.[41] The UK government also signed climate change agreements with energy enterprises and promised the energy companies to get 80 per cent discount on tax in the event that they can achieve energy saving and emission reduction target.[42] Besides UK, Sweden also adopts this mode to deal with climate change.

38 Jian-ying ZHAO, 'RuishiCaiquCuoshiJinyibuJiangdi CO2 Paifang[The Swiss Takes Measures to Further Reduce Carbon Dioxide Emissions]'*Jingji Ribao* [*Economic Daily*] (Beijing, July 13, 2007)7.

39 Federal Department of the Environment, Transport, Energy and Communications, 'The Swiss Government Presents Its CO_2 Law - Target: 10% Reduction In CO_2 Emissions By The Year 2010' <http://www.uvek.admin.ch/dokumentation/00474/00492/index.html?lang=en&msg-id=3156> accessed May 14, 2013.

40 Ministry of Economic Affairs, Agriculture and Innovation of the Netherlands, 'Energy Report (2011)' <http://www.government.nl/files/documents-and-publications /reports/2011/11/01/energy-report-2011/energierapport2011-170x240-engels.pdf> accessed March 1, 2013.

41 World Wildlife Fund, 'The UK Climate Change Act'. <http://www.wwf.org.uk/what_we_do/tackling_climate_change/our_climate_work_in_the_uk/climate_change_bill_successes/> accessed December 12, 2013.

42 Environment Agency of UK, 'Climate Change Agreements Operations Manual' (Version 2, August 21, 2013) <https://www.gov.uk/government/publications/climate-change-agreements-operations-manual> –2 accessed November 5, 2013 "Climate Change Agreements are voluntary agreements containing targets to increase energy efficiency and reduce carbon dioxide emissions. Industrial operators that enter into and abide by the terms and conditions of their CCA are entitled to a discount on the Climate Change Levy (CCL), a tax added to electricity and fuel bills to encourage operators to reduce the amount of carbon they emit. This discount will also apply to sites where energy is consumed within a European Union Emissions Trading System (EU ETS) installation.".

The two models focus on energy conservation goals, although using different approaches. The former has an advantage, in that the economic pressure imposed by carbon tax is controllable. That is, the tax paying company has the right to select between carbon tax and emission trading to reach the emission standard. This makes it more likely that firms cooperate on emission reduction. However, this model has a drawback, in that the complementary of carbon tax and emission trading system cannot be applied. In other words, if carbon tax was adopted alone, the whole economy will face great pressure caused by the regressive effect of carbon tax. If the carbon emission trading system is established without tax preference, the whole energy industry would lose competitiveness and the market itself may also have rent-seeking space for corruptions.

Due to the practical circumstances, it is difficult to build real carbon emissions trading market based on atmospheric environmental capacity within a short period in China. In order to achieve synergistic effects of carbon tax and carbon emission trading system, it is wise to adopt the UK model to construct a balancing combination mode of carbon tax and emission trading system. To be specific, for those companies who have already join in emission trading system, the government should offer carbon tax incentives such as tax discount or other types of tax breaks on the same level. Furthermore, since the basis of most carbon price mechanism is narrow, to gain a wide range of tax base is as crucial as lower operating costs.

4. LEGAL SAFEGUARD FOR CARBON TAX'S POSITIVE EFFECTS

A. Functions of a legal safeguard mechanism for carbon tax effects

Legal safeguard mechanism for carbon tax effects is a collection of technical measures for carbon tax collection, administrative institutions for carbon tax management and incentives of rewards and punishments relating to tax implementation. It embodies a wider aspect of safeguard mechanism based on that of tax introduction and implementation.

As the organizational guarantee for positive benefits of carbon taxation, there needs to be a specialized department for tax management and distribution of responsibilities to different tax-related units. A neoclassical economist, Allyn Abbott Young, once argued that division of labor and specialization are economic mechanisms to increase benefits accompanying the whole process of economic growth. Afterwards, his main idea was called "Young

Theorem".[43] Specialized division of labor helps increase operational efficiency of the economy, achieving better benefits. Legal cost is the charge on the whole dynamic operational process of law. Specialization also helps to reduce this cost and achieve a scientific and efficient operational mechanism for carbon tax management.[44] According to this principle, the administrative departments in charge of carbon taxation are in a position to specialize, allowing a stable institution for carbon taxation. All related governments should perform duties and fulfill obligations on the basis of tax laws and regulations. Moreover, to build a professional structure of tax agencies is the inner requirement of constructing an effective carbon tax system. This limits negative impacts on the economy, saves gross cost of carbon tax and reduces CO_2 emissions.

Incentive mechanisms aims to reduce the regressive effect of carbon tax and maintain the competitiveness of the enterprises. Carbon tax may aggravate the economic burden of whole society and increase the operational cost. The implementation of carbon tax needs to be accompanied by stabilization of the whole tax burden on the society. Learning from foreign practices, most countries which have adopted carbon tax simultaneously take appropriate incentives for carbon taxation, such as the preferential tax, tax rebates and exemptions.[45] By putting the carbon tax revenues back into the economy, at different stages, the government effectively overcomes negative effects of carbon tax and achieves its positive benefits for the economy and the environment.

The legal punishment system for carbon tax represents the value placed on justice, pursued by carbon tax legal protection system. This justice value is different from the concept of "Tax Justice" in economics and ethics. It does not focus on judging the tax itself as "good" or "evil" but on maintaining the interests of the lawful and punishing the disordered behaviors. Carbon tax is imposed on all actors emitting carbon pollution. It is the legal obligation of everyone to pay a carbon tax for pollution. If anyone refuses to pay for tax, the tax evasion could damage the whole tax system. This makes it necessary to establish punishment system for tax arrears, tax evasion and

43 Allyn Abbott Young 'Increasing Returns and Economic Progress'(1928) 38. The Economic Journal 527, 533.

44 QIAN DAOHONG, JINGJI FENXI FAXUE [JURISPRUDENCE OF ECONOMIC ANALYSIS] 28 (Law Press, 2005).

45 See Paul Ekins and Stefan Speck, 'Competitiveness and Exemptions from Environmental Taxes in Europe' (1999) 13 ENV. & RES. ECON. 369, 370. See also Green Fiscal Commission, 'Competitiveness and Environmental Tax Reform'(Briefing Paper March 7, 2010), 3. <http://www.greenfiscalcommission.org.uk/images/uploads/gfcBriefing7_PDF_isbn_v8.pdf> accessed 24 November 2013.

defrauds. In other words, punishment measures can internalize social cost on violators themselves and protect the equity value for carbon tax system.[46]

B. Current environmental tax management system

Environmental taxes bear both environmental protection and tax adjustment purposes, following the decision that the environmental protection system and tax management system should be combined to become a systematic administrative system on environmental taxes issues. Environmental tax itself is a system, requiring the coherent and unified formulation and implementation of environmental taxes. Accordingly, all related governmental offices need to cooperate closely to make sure the carbon tax policy works successfully.

Observably, China has not established a mature environmental tax system. The current tax management system is inadequate. To be specific, the Ministry of Environmental Protection is responsible for environment protection issues,[47] and the State Administration of Taxation is in charge of tax collection and management.[48] The two departments work independently in practice and seldom have coordination and communication, which leads to institutional defect to achieve the green effects of carbon tax policy as well as its fiscal benefits. Carbon tax mainly involves four aspects of tasks, which are designing the tax plan, monitoring and calculating carbon emission, carbon tax collection, management and the use of tax revenues, as well as the punishment relating to illegal behaviors. As carbon tax is different from an ordinary fiscal tax item because it has strong environmental protection

46 Henrik Hammar and Sverker C. Jagers, 'What is a fair CO_2 tax increase? On fair emission reductions in the transport sector'(2007) 61. Ecological Economics 377, 378-79.

47 See Environmental Protection Law of the People's Republic of China (1989), art. 7 The competent department of environmental protection administration under the State Council shall conduct unified supervision and management of the environmental protection work throughout the country. The competent departments of environmental protection administration of the local people's governments at or above the county level shall conduct unified supervision and management of the environmental protection work within areas under their jurisdiction.".

48 See Law of the People's Republic of China Concerning the Administration of Tax Collection (2013 Amendment), art.5: The competent tax departments under the State Council shall be in charge of the administration of tax collection for the whole country. All the national tax bureaus and local tax bureaus shall respectively administer the tax collection in accordance with the scopes of administration of tax collection stipulated by the State Council. The local people's government at each level shall strengthen its leadership or coordination in the administration of tax collection within its jurisdiction, support the tax authorities in performance of its duties in accordance with the law, and in the computation of the tax amount by national tariff, and the collection of taxes in accordance with the law. The various departments and entities concerned shall support and assist the tax authorities in the performance of the duties in accordance with the law. No entities or individuals shall impede the tax authorities from performing duties in accordance with the law.

purpose, and the current tax management system cannot ensure that the positive effects of carbon tax are realized. Therefore, to achieve the positive social effects of carbon tax, organizational safeguard mechanism for carbon tax effects are necessary.

C. Institutional Construction

Learning from the experience of foreign countries will help China make a more informed choice when distributing power among tax-related administrative departments. Most European countries have a long tradition with respect to environmental taxes.[49] Some developed countries like Norway, Denmark, Sweden, the Netherlands and Belgium have established Green Tax Reform Commissions since the 1990s, in order to manage overall issues of green tax.[50] To set the Netherlands as an example, it established the Green Tax Commission in the second congress parliamentary of national environmental policy plan in March 1995.[51] It consists of experts with environmental and accounting knowledge backgrounds, governmental officials, chief executive officers from big enterprises and several former congress members. The goal of the commission is to evaluate and develop all tax polices related with environmental quality and sustainable development of economy, to adjust the existing tax policy to be more environmental-friendly, and at the same time develop new types of taxes aiming to protect the environment, such as carbon tax for reducing CO_2 emissions.

By learning the successful practical experience of European countries, it is high time for China to establish an effective administrative system of carbon tax management. To be specific, there should be three aspects: the macroscopic, microscopic and mesoscopic views. In a macroscopic view, it is reasonable to build a management committee, which is responsible for coordinating different departments and dealing with complicated issues from comprehensive aspect, similar to the Green Tax Reform Commission in European Countries. This committee should consist of general officers from the four departments, managers from large enterprises, NGOs, representatives of the public, experts and scholars.

In a microcosmic view, carbon taxation in China also depends on coordination and integration of four departments including what is NRDC,

49 Johan Albrech, 'The Use of Consumption Taxes to Re-launch Green Tax Reforms' (2006) 26 International Review of Law & Economics 88, 89.
50 Jean-Philippe Barde, 'Green Tax Reforms in OECD Countries: An Overview' <http://www.eclac.org/dmaah/ noticeas/discursos/8/11708/jp_barde.pdf > accessed November 21, 2014.
51 Ibid.

MEP, Ministry of Finance (MOF) and State Administration of Taxation (SAT). Observably, the MEP is responsible for calculating the carbon emission. The MOF is responsible for designing and collecting tax. The NRDC is responsible for ensuring the consistency of the carbon tax policy into the general economic development.

At the meso-level, to build up a supporting database is important. It works as the technical supporting platform on which the tax policy, climate change management and carbon emission calculation are accomplished systematically. First, it helps to decrease administrative costs of carbon taxation. Second, it is helpful to ensure the accountability of different ministries and agencies. For example, if the illegal behaviours are caused by poor calculation, then the MEP should take the responsibility to address those problems. If the carbon tax design and collection are mistaken, then it is the MOF who should be accountable.[52] Third, the database is an open and clear system, which protects the information rights of public groups. Transparency in information processing is the critical point to achieve democratic supervision and system efficiency. It can deter corruption and other illegal behaviors under the supervision of the general public. Moreover, when conditions permit, it is valid to draw lessons from "carbon emissions information disclosure" established by developed countries,[53] which requires companies to disclose all information on carbon tax and carbon emission trading in a clear way, and successfully broaden the supervision for carbon taxation. As a result, carbon tax policy can be carried out effectively.

5. CONCLUSION

Carbon tax is an effective tool to reduce carbon emission. China has already put carbon tax on the official agenda. The emission effects of carbon tax rely not only on a perfect tax collection plan but also on a series of safeguard mechanisms. To establish legal safeguard mechanisms concerning the introduction, implementation and output stages of carbon taxation is a complex and important work.

52 Ming-ming LIU (n 39) 423.

53 The system of carbon emissions information disclosure is a critical component for construction of carbon market. Many developed countries have adopted this system, for example, Canada has established Facility GHG Reporting System requiring all companies producing more than 50000 tons of carbon emissions every year should disclosure its carbon emission information <http://www.ec.gc.ca/ges-ghg/default.asp?lang=En&n =8044859A-1>; Australia has issued National Greenhouse and Energy Reporting Act(NGER) (2007) <http://www.comlaw.gov.au/Series/C2007A00175>; See also 'U.S.A. establish Greenhouse Gas Reporting Program' <http://www.epa.gov/ghgreporting/index.html> accessed December 12, 2013.

Firstly, to integrate carbon tax into current tax system protects the stability of whole tax system and economy. The successful introduction of carbon tax into current tax system is an appropriate opportunity for China to start environmental tax reform by laying the foundation of clear tax environment.

Secondly, carbon tax and carbon emission trading systems have their advantages and disadvantages. The best way to combine the two instruments is to establish a balanced selection mechanism, offering the industrial entities the right to choose better solutions tailored to their practical needs. The opportunity to choose from tax or trade nudges enterprises to reduce carbon emission and invest in clean technology. The combination of carbon tax and emission trading system also brings much stronger effects to reduce carbon emission and achieves optimal integration of economic benefits, technical progress and environmental protection.

Thirdly, it is necessary to establish a specialized organization to implement carbon tax policy and safeguard its effective operation. There are three steps to construct the management system. From the top view, a comprehensive committee should be established and remain responsible for policy making and macro management. At the middle level, there should be specific departments, which are entitled to tax collection, rewards and punishment, monitoring and calculating. It is reasonable for MEP to make calculating and monitoring standards, for the SAT to collect tax and deal with the rewards and punishment, for the NRDC and MOF to make comprehensive policy and coordinate different departments. At the basic level, the improvement of a systematic database is a technical guarantee for all related issues. Also, the database is a platform on which all information of carbon tax can be checked clearly and the public have the access to supervision on authority.

Finally, to construct legal safeguard mechanisms of carbon taxation is a huge and challenging project, which requires great courage to reform and profound wisdom to design the system. As the carbon tax is going to come into practice in the near future, the construction of safeguarding mechanisms must be launched as soon as possible.