

Comments on a Hybrid Mechanism of Carbon Reduction for China

Yingfeng Long

Law School, Shanghai Lixin University of Accounting and Finance, Shanghai, China

Email address:

longyingfeng@lixin.edu.cn

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Abstract: As a responsible big country, China take it seriously to counter global climate change. Among two market-oriented emission reduction mechanisms (Cap-and-Trade and carbon tax), China selected Cap-and-Trade to build up the carbon emission reduction system. Since December 2013, seven provinces or cities include Beijing, Tianjin, Shanghai, Guangdong, Shenzhen, Hubei and Chongqin started the experimental work of Cap-and-Trade. On December 18, 2017, the National Development and Reform Commission initiate the national market construction of Cap-and-Trade firstly in the industry of power generation. Whereas, the present cap-and-Trade mechanism of China exists obvious defects which will influence negatively the anticipated targets of carbon reduction. In this thesis, the author has used the method of Historical Analysis, method of Comparison, method of Economical Analysis and method of Normative Analysis to do the research about China's present Cap-and-Trade and pointed out that it has obvious defects which include the defect of unfairness, the defect of ineffectiveness, the defect of inherent shortcoming, the defect of benefit privatization and the defect of lag developing. To perfect the defects, this thesis put forward a hybrid new mechanism which incorporate simultaneously price based carbon tax with amount based Cap-and-Trade. Under the new hybrid mechanism, all emitters should undertake emission reduction responsibilities and the enthusiasm of emitters to take part in the emission trading system will be greatly improved, also the emission trade volume and vitality will be improved, and the emission reduction target set in the Intended Nationally Determined Contributions Document (INDC) of China will have a reliable guarantee to be obtained. Under the new hybrid mechanism, Carbon Tax Border Adjustment being a key supporting measure, the implementation of it will not violate the multilateral trade rules and will consistent to the spirit of the principles of CBDR of Kyoto Protocol. Further, the impacts of Carbon Tax Border Adjustment on trade, production and consumption are neutral, the management and operation of Carbon Tax Border Adjustment is feasible.

Keywords: Hybrid Mechanism, Cap-and-Trade, Carbon Tax, Border Adjustment

1. Introduction

On December 12, 2012, almost 200 parties members of the United Nation Framework Convention On Climate Change passed unanimously the Paris Agreement, the Agreement points out that: all parties should strengthen the global response to the threat of climate change, to hold the increase in the global average temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels. The global peaking of greenhouse gas emission should be reached as soon as possible, and achieve a balance between anthropogenic emissions by sources and removal by sinks of

greenhouse gas in the second half of this century. According to the Agreement, every party should through a way of Intended Nationally Determined Contributions to partake the global actions to counter climate change, the developed countries should continue taking the lead and strengthening the supports to developing countries in fund, technology and capabilities building so as to help developing countries alleviating and adapting to climate change [1]. The climate change negotiation representative of China Xie Zhenhua expressed during the conference that China will positively undertake the international responsibilities which are compatible with the national conditions, development stage and actual capabilities of China, continue to fulfill the targets

of countering climate change action before 2020, positively to carry out the Intended Nationally Determined Contributions of China, try hard to reach the emission peak as soon as possible, cooperate with all other parties, according to the principles of the UNFCCC, to push forward the implementation of Paris Agreements and build up a cooperation and mutual benefit global climate governance system [2].

At present, alleviation, adaptation, fund, technology and capacities building have constituted a systematic project to counter climate change, among which, the most nuclear always be the green house gas reduction so as to stabilize the green gas concentration in atmosphere to a level which will prevent the dangerous anthropogenic interference with the climate system. Among two market-oriented emission reduction mechanisms (Cap-and-Trade and carbon tax), China selected Cap-and-Trade to build up the carbon emission reduction system. Since December 2013, seven provinces or cities include Beijing, Tianjin, Shanghai, Guangdong, Shenzhen, Hubei and Chongqin started the experimental work of Cap-and-Trade. On December 18, 2017, the National Development and Reform Commission published the National Market Construction Scheme of Cap-and-trade(power generation industry), started the national market construction of Cap-and-Trade firstly in the industry of power generation, afterwards, the trading market will cover the main industries of steel, electricity power, chemical, building material, paper making and non-ferrous metals.

2. The Present Cap-and-Trade Mechanism of China Existed Several Defects

However, we should see, the status quo of the performances of the Cap-and-Trade domestically and internationally are not so satisfied as what are expected. Statics showed, the vitality of the 7 domestic trade markets was low and carbon price tendency was down. At the beginning, the carbon prices of many experimental markets ever had a short term rise in 2013 and 2014, carbon price of Shenzhen once moment peaked by RMB 100 yuan per tonne, but in the end of 2014 and the beginning of 2015, the carbon prices started to drop. In May and June, 2015, the carbon prices of most experimental markets went down sharply, the carbon price of Shanghai ever been to RMB 9 yuan per tonne.

At present, the EU ETS market is the biggest carbon trading market in the world and the Europe also being deemed as the most advanced place in carbon emission systematic construction, whereas, the carbon price dropped sharply in recent year, ever dropped from 30 Euro per tonne to 5 Euro per tonne. According to the reports of the World Bank and the third appraisal agency, the EU ETS didn't play the functions it should have [3].

In this way, the carbon reduction targets set in the INDC

document may not be fulfilled through the functions played by the carbon trading mechanism, there need a more feasible, more effective and more reasonable new carbon reduction mechanism. Especially because of the intolerable haze weather which have made this demand more urgent. Although, carbon dioxide per se was neither pollutant nor the direct causation of haze, the emission of carbon dioxide must accompany with sulfur dioxide, nitrogen dioxide, metal particulate matter, therefore, the reduction of carbon dioxide emission will effectively reduce the happening of haze.

The low vitality and shortage of functions of the carbon trade market was related with unreasonable quotas distribution in carbon market, also relevant to so many anthropogenic actors such as certification, verification, pricing and trade regulations of carbon emission. However, the most essential reasons are the defects of the Cap-and-Trade mechanism of China. At present, hereinafter are the main defects of the Cap-and-Trade mechanism of China.

2.1. Defect of Unfairness

So far, only a few more than 2000 enterprises and institutes are covered by the Cap-and-Trade mechanism of China, there are large amounts of enterprises and institutes were not allocated carbon emission quotas and were neither involved in the Cap-and-Trade mechanism. This would mean that the products of experimental enterprises undertake carbon emission charges while the products of other enterprises may not internalize the carbon emission cost. In a highly competitive market, this is a obvious unfairness to the experimental enterprises.

2.2. Defect of Ineffectiveness

In consideration of effectively fulfilling the carbon emission reduction target, the Cap-and-Trade mechanism may not play a important role. One of the main reasons is the sources of carbon emission covered by the mechanism are too less, the majority of the sources of carbon emission are not covered by the experimental Cap-and-Trade mechanism of China. There was report pointed out that almost 70% to 80% of the sources of carbon emission which lead to the greenhouse effects are medium or small size emission sources, i.e. carbon dioxide emitted during manufacture process of medium or small size enterprises and emitted from agriculture, forestry, livestock, ultivation and individuals transportation or consumption.

2.3. Defect of Inherent Shortcoming

Carbon emission charges from carbon trade mechanism of enterprises covered by the experimental Cap-and-Trade could not be refunded at the border while the products being exported, otherwise the refund of the charges from carbon trade would constitute prohibited export subsidy. This would degrade the competitiveness of the exported products of the enterprises covered by the experimental Cap-and-Trade. This defect was inherent with the carbon trade mechanism.

2.4. Defect of Benefit Privatized

The carbon emission quotas have real market value, for the enterprises or institutes which hold the quotas, the quotas equals to hold cashes. Whereas in the present experimental carbon trade mechanism the quotas are allocated gratuitously, at the meantime, the revenue or benefits from trading of surplus quotas belong to traders themselves. We know that the construction of carbon trade market need the governments investing large amounts of financial, material resources and manpower, but the governments were almost rewarded nothing from the carbon trade markets. So to speak, the incomes should have been achieved by the governments from taxes of environmental governing are privatized through carbon trade [4].

2.5. Defect of Lag Developing

The construction of carbon trade market of China being lagged behind that of the developed countries, should take references of the developed countries much more. The certification, verification, pricing and trade regulations of carbon emission are all subjected to the developed countries, China is short of speaking rights in the international carbon trade market, and also lack the pricing abilities in the international carbon trade market. Entering the era of low carbon world, the biggest carbon dioxide emission country and relatively lag-behind low carbon technology will push China as the biggest buyer of the quotas of carbon dioxide in the world, and correspondingly a large amount of wealth will be siphoned by developed countries.

3. A Hybrid Mechanism Which Incorporated Cap-and-Trade with Carbon Tax and Border Adjustment Will Perfect the Defects

The above said obvious defects of the Cap-and-Trade of China, fewer attentions have been paid on by domestic academia, neither systemic researches on the defects to probe the causes and consequences and providing some perfection suggestions have been found. There are relatively more research fruits theoretically comparing the advantages and disadvantages between carbon tax and Cap-and-Trade, or analyzing the economical and commercial impacts to China from carbon tax or Cap-and-Trade, also there are some researches introducing carbon tax or Cap-and-Trade experiences of foreign countries and relative references to China. Whereas the majority of scholars put the carbon tax opposite to Cap-and-Trade, either select the former or select the behind. So far, fewer domestic scholars have done the researches on the simultaneously carrying out carbon tax with Cap-and-Trade in one country and how to harmonize the relationships between them. This author take the points of view that more feasible, more effective and more reasonable carbon reduction mechanism of China should be a new hybrid mechanism which incorporate price based carbon tax

and amount based Cap-and-Trade, and the foundation for the new hybrid mechanism would be the mutual remedy of the respective advantages and disadvantages of carbon tax and Cap-and-Trade. Under this hybrid mechanism, the large scale emission units will be covered by emission quotas management and take parting in the emission trade, the small scale emission units, he agriculture and forestry, husbandry, cultivation, household and personal transportation will be levied by carbon taxes according to actual or a fixed amount of carbon emission. At the mean time, buildup a conversion model between Cap-and-Trade and carbon tax so as to the carbon tax can be converted to charges of Cap-and-Trade in a certain proportion, and vice verse. The large scale and the small scale emitters are allowed to select emission trading or carbon taxes according to the actual situations of themselves. Under this hybrid mechanism, put forward the measures of carbon tax border adjustment which means the imported products should be taxed by carbon taxes while importing, whereas the exported products can be refunded the carbon taxes while exporting. Carbon tax border adjustment is the best measure to solve the issues of competitiveness consideration and carbon leakage arose from carbon reduction measures. In addition, it also has a leverage function which will push other countries taking corresponding carbon reduction measures.

The advantages of the hybrid mechanism which incorporated the Cap-and-Trade with carbon tax are obvious.

3.1. The Hybrid Mechanism will Perfect the Defects of Unfairness and Inefficiency

The hybrid mechanism covering all emitters include individuals, medium and small size enterprises, big size enterprises, remedied the defect of unfairness where the present Cap-and-Trade only been applied to enterprises subjected to emission quota management. In the background that all carbon emitters undertaken carbon reduction responsibilities, the enthusiasm of the enterprises and individuals to take parting in the carbon trade will be improved much, the trade volume and vitality of the carbon trade market will also be increased. Furthermore, the hybrid mechanism covering the medium and small size of emission sources including the agriculture and forestry, husbandry, cultivation, household and personal transportation, remedied successfully the defect of inefficiency of the present carbon trade to fulfill the reduction targets.

3.2. The Hybrid Mechanism will Perfect the Defect of Benefits Privatized

Under the hybrid mechanism, the governments could acquire finance revenue through carbon taxes so as to enhance the finance abilities to counter climate change, this would remedy the present defect of privatization of the carbon trade benefits. At meantime, while increasing the carbon tax revenue, exempting or reducing the income taxes of enterprises and individuals, alleviate the distortions on capital and labour brought from the present tax system, create

more social employment, promote Gross National Product(GNP) sustainable growth and fulfill the double bonus of improving environment quality and pushing economic development.

3.3. The Hybrid Mechanism will Perfect the Defect of Lag Developing

Under the hybrid mechanism, relying on the features of tax sovereignty, the shortages of pricing and speaking rights over market rules making of international carbon trading market will be overcome, and also the awkward situation where the verification, certification, pricing and trading regulations were all subjected to the developed countries can be got rid of, this will remedy the defect of lag developing of the construction of the carbon market of China.

3.4. The Hybrid Mechanism will Perfect the Defect of Inherent Shortcoming

Under the hybrid mechanism, relying on the measure of carbon tax border adjustment, the carbon taxes and carbon charges from the Cap-and-Trade on products Of the carbon emission enterprises can be refunded at the border while exporting, the competitiveness in the international market of the exported products will not be degraded, the inherent defect of the trading mechanism is remedied. Furthermore, the functions of preventing carbon leakage and leverage of the carbon tax border adjustment will push other countries adopting corresponding carbon reduction measures, strongly promote globally acts in concert to counter climate change.

Particularly worth to speak of, the above said hybrid mechanism has a precedented example in the world. The EU put out the EU ETS in 2005 which now became the most successful carbon trading system in the world. But we should see, before the putting out of the EU ETS, many countries in EU such as Finland, Sweden, Denmark, Britain, Holland, Italy, Norway, Switzerland, Austria, Estonia and Slovenia had already levied carbon taxes since 1992, in another word, after successfully levied carbon taxes then the EU put out the EU ETS. At present, carbon tax and EU ETS is simultaneously carried out in some European countries, and there is a coordination mechanism between the two policies, carbon emitters can consider selecting which policy or both policies based on the consideration of minimizing cost. For example, the Britain put out the counter climate change scheme in 2011, the comprehensive application of carbon tax and Cap-and-Trade become the core policy of the strategic frame to counter climate change, more than 6000 enterprises which had signed the Climate Change Agreement could acquire 80% discount of the Climate Change Levy after reaching the carbon emission targets, on this account, to stipulate more enterprises to join carbon reduction trading system and to support enterprises especially the energy intensive enterprises to increase lower carbon investment so as to minimize cost.

4. Carbon Tax Border Adjustment will Be a Key Supporting Measure for the Hybrid Mechanism

Under the hybrid mechanism, China have to put out the Border Tax Adjustment (BTA) measure, this is the best way to address the issues of competitiveness degrade of products and carbon leakage [5], in addition, it also has a leverage function which can push other countries adopting corresponding carbon reduction measures so as to promote the globally actions in concert to counter climate change [6]. we should say BTA will play a key function in the hybrid mechanism, whereas the carrying out BTA in China will counter great barriers. The mainstream points of view in China think BTA will violate the WTO rules and also against the spirits of the Kyoto Protocol. Also there is points regard that BTA carried out by other countries would substantively attack the export industries of China, even some points regard BTA is an ecological imperialism against developing countries.

4.1. Carbon Tax Border Adjustment Is Coincide with the Principle of CBDR and the Impacts on Trade Is Neutral

The previous research of the author pointed out, carbon tax being a tax on energy which is not physical input to production, is not only suitable for export border adjustment but also suitable for import border adjustment. The spirit of the principle of Common But Differentiated Responsibilities (CBDR) should be understood under the background of the Kyoto Protocol, the purposes of the Kyoto Protocol were to fulfill the ultimate targets illuminated by the article 2 of the United Nation Framework Convention on Climate Change, i.e. to restrain the concentration of carbon dioxide in the air to a certain level, which will prevent the dangerous anthropogenic intervention to climate environment, whereas carbon tax border adjustments is exactly a measure to control the carbon dioxide emission, so is coincide with the purposes of Kyoto Protocol [7]. As to the impacts of carbon tax border adjustment on economy, there were not a few scholars had done the researches on that in the 1960s. Border adjustment being the production of the EU integration process in 1960s, at that time, many scholars researched the possible impacts on trade and economy, almost a unanimous conclusion had been made: Border tax adjustment was exactly the shifting from the principle of origination to the principle of destination [8] in the process of unitary value added tax harmonization of European, and the impacts on trade, manufacture and consumption was neutral [9]. Probing to the reasons, It was because the impacts of border tax adjustment were offset by the changes of exchange rate, pricing level and salary level. Researches showed, In a very simple model related with trade, if the exchange rate being determined internally in the country, the impacts from the border tax adjustment could be easily offset by the changing of the exchange rate so as to have no real impacts on trade, manufacture and consumption.

Similarly, in a model with flexible pricing mechanism among different countries or in a model with flexible salary levels among different countries, because the labour force can't move freely among countries, the impacts from border tax adjustment will also be easily offset by the change of salary or by the change of pricing level so as to have no real impacts on trade, manufacture and consumption [9].

4.2. The Positive Rather Than Negative Functions of Carbon Tax Border Adjustment Should Be Stressed

Now, the carbon tax border adjustment which was under the inducement of the carbon reduction under climate change, scholars still think that just like the border tax adjustment in the background of value added tax, has no real impacts on trade, no protection to domestic producer and even address nothing about carbon leakage. Because the exterior remedy on the disadvantages to the domestic producer, usually be the effects of domestic laws or regulations such as the minimum wage requirement or governmental sanitary secure program or education program. In fact, any other issues should be discussed to offset the impacts through certain form of border adjustment, in other words, carbon reduction is nothing special with the other issues [9]. The carbon tax border adjustment which was under the inducement of the carbon reduction under climate change was exactly similar with the border adjustment of value added tax which has no real impacts on trade, manufacture and consumption [9].

It seems to the author that even though there are some negative impacts on economy from the carbon tax border adjustment, now with the deterioration of climate change, we human beings should stress more on the protection of the environment of the earth and the security of the environment of the earth. Under this background, we should enhance the positive functions of the carbon tax border adjustment to promote the climate legislation and environmental protection, and weaken the negative trade effects. While the environmental targets conflicted with the trade effects, trade effects should subject to the environmental targets. Trade will fulfill private interests whereas climate and environment targets pursue common well being of human.

4.3. The Best Available Technology Isn't a Ideal Choice for the Design of Carbon Tax Border Adjustment

For sure, the design of the carbon tax border adjustment under the hybrid mechanism is very important. We should say, many factors will influence the design, for example, the legitimacy of carbon tax border adjustment under WTO system, the categorization of products, technology used in production, energy used in production, and so on. Considering the complications, there were some points of views thinking that the implement of carbon tax border adjustment is impossible in management and in operation [10]. It seems to the author that this points overstated the complications, maybe it was a excuse for intended denying of carbon tax border adjustment. Firstly, as to the legitimacy under WTO, the previous researches showed that carbon tax was suitable for

export border adjustment and import border adjustment, furthermore, even without justification from basic rules of WTO, maybe still be justified from exceptional clauses of WTO [11]. Secondly, as to the issues of categorization, technology and energy, we should say these are not issues arose from border adjustment, but issues should be solved by the design of carbon tax. The border adjustment just a application of carbon tax on exported and imported products after the carbon tax having been designed. Undoubtedly, the amount of carbon tax is determined by the amount of carbon dioxide contained in the production of products, more carbon dioxide more carbon tax, and vice verse. It is not difficult for the legislative bodies to design the tax objects and tax rates for carbon tax. Tax objects are corresponding to the categorization of products, indeed, there are different amount of carbon dioxide emitted in the manufacturing of different categories of products, but categorizing products is not difficult, who may reference the custom categorization on products. Again, the technology used for manufacturing of products will also lead to the differences in the amounts of carbon dioxide emitted. Usually there are three ways to determine the amounts of carbon dioxide emitted, respectively are actual carbon content, carbon content under predominant method of production and carbon content under best available technology [12]. In abroad, the most popular suggestion which was adopted by Ismer and Neuhoﬀ was the carbon content under best available technology to determine the amount of carbon dioxide while border adjusting [13]. The reasons for them were that this method selecting the products with minimum carbon dioxide as the standard for border tax adjustment, so there was nobody had enough reason to doubt the purposes of border adjustment was to discriminate foreign products [13]. But this suggestion was opposed by many scholars who may think this doing couldn't copy with the most heavy situation of carbon dioxide emission and have nothing to encourage carbon emission reduction [12].

4.4. The Actual Carbon Dioxide Emitted Is a Good Choice for the Design of Carbon Tax Border Adjustment

In the views of the author, this doing was not consistent with the original purposes of border adjustment, even was a muddled doing which complicated a simple question. The simplest doing should be according to the actual carbon dioxide emitted by the producer to determine the amount of carbon tax, while the producer couldn't or reluctant to provide the information about actual technology been used and the actual carbon dioxide emitted, the tax authorities would make a appraisal according to the carbon content under predominant method of production. This would be the tax appraisal used by tax authorities in process of tax levying management on the situations where taxpayers couldn't provide accounting books. In here we need pay attention to a phenomenon where producers use lag behind technology and emit more carbon dioxide, and intended refuse providing real data so as to a more advantage appraisal standard would be used. In this occasions, the tax authorities would take the responsibilities to control and know in time the real situations of the taxpayer,

then levy tax according to the real situations, and punish the taxpayers on the concealment and fraud. One more situation need to be discussed, when the producers or importers can't or reluctant to provide actual data so as to tax authorities making a appraisal on the tax amount, whether the border tax adjusted on the basis of the appraisal will violate relevant trade rules? The answer will be negative, because this is a neutral tax levying method without any discrimination to foreign products. Thirdly, under the same technology being used, difference of the energy used for production would also lead difference in the amount of carbon dioxide emitted. Regular energies used for production include coal, petroleum, gas, nuclear energy, wind energy, solar energy, hydro energy, geothermal energy and electricity. Every kind of energy has different carbon content, coal and petroleum has the highest carbon content, and clean energies include nuclear, hydro, wind and solar with almost zero carbon content.

The electricity is more complicated, it can be switched from coal, petroleum, gas and other clean energy, and also can be switched from compound of energies. Scholars said while tax border adjusting, there should be a special treatment on electricity energy [12]. In the views of the author, the seemed complication of energies using could be handled simply and easily while tax border adjusting. Firstly, the producers or importers provide the actual energies using situations, and calculate the amounts of carbon dioxide according to the situations. Secondly, While the producers or importers can't provide the situations of energies using, the tax authorities will make a appraisal on the amounts of carbon tax according to general situation of energy using. Similarly, need to pay attention to one situation, while producers or importers using high carbon content energies and intended refusing providing the actual energies using situation so as to a more advantage tax authorities appraisal will be made, for this situation, the tax authorities should take the responsibilities to know and grasp the actual situation of energies using and tax according to the actual situation of energies using. What is more, a punishment will be made to the taxpayers on the intentional concealment and fraudulence. Thirdly, at the occasions that the manufacture energies being electricity, the taxpayers should verify the energies structure of the electricity transformation, for the situations failing to verify, the tax authorities should make appraisal of the carbon content according to situations grasped by the tax authorities or according to component ratio of specific power grid and levy carbon tax thereon.¹

4.5. The So Called Mixed System Is Not a Inherent Part of Carbon Tax Border Adjustment

There is another important problem for carbon tax adjustment which is so called mixed system. Many scholars ever mentioned that carbon tax border adjustment may not apply to trade of all countries, but apply to trade of countries without comparable carbon reduction measures which mainly

are countries exempted from carbon reduction liability by the Kyoto Protocol. This so called Mixed System undoubtedly violated the Most Favorite Nation Treatment stipulated in article 1 of GATT [12]. Border adjustment under mixed system will be selectively applied to products according to the different source countries of products, will benefit products from countries with severe climate policies and punish products from countries with weak or even no climate policies, this obviously violate the principle of MFN treatment. However this was exactly the doing of Climate Security Act of America.² This Act distinguished countries with comparable measures and countries without comparable measures [14]. The author have thought that carbon tax border adjustment was at earliest put forward by the EU to pursue a higher level of environmental protection [15], the original intention might not the same with the mixed system which pointed to countries exempted from carbon reduction liabilities by the Kyoto Protocol, but pointed to irresponsible rich countries [15].

Secondly, the application of carbon tax border adjustment under so called Mixed System will undoubtedly violate WTO rules and will also be hard to get legitimacy support from the exceptional clauses of WTO. Thirdly, the doing of Mixed System was not inherent in carbon tax border adjustment but a artificially additional measure incorporated with border adjustment. The doing of Mixed System violated WTO rules, whereas the carbon tax border adjustment not, because the carbon tax border adjustment applied to products from any countries include countries with stringent climate policies and countries even no climate policies. For the import country, the treatments on products from countries with stringent policies and countries even no climate policies will be the same while adjusting on the border, the carbon taxes on products from countries with stringent climate policies may be refunded at the border, so the products just the same as the products from countries even no climate policies will be naked of carbon taxes while importing. Even though the carbon taxes being not refunded or partly refunded, this merely lead to the carbon tax amount correspondingly decreased while being adjusted at the border, and finally the products will be the same with products from countries with no climate policies only undertake carbon taxes of the import country. Of course, products from least developed countries accepted by WTO plenary session can be exempted from carbon tax border adjustment, this exemption will not violate the rules of WTO.

5. Conclusions

The Hybrid Mechanism Can Effectively Perfect the Defects and Insufficiency of the Present Cap-and-Trade Mechanism of China

¹For example, the component ratio of a regional power grid were:30% coal, 20% petroleum and 50% clean energy, the carbon content of power unit can be calculated according to the ratio.

² The America's Climate Security Act of 2007 was a global warming bill that was Considered by The United States to reduce the amount of greenhouse gases emitted in the United States. Also Known as the Lieberman—Warner bill, bill number S. 2191, the legislation was introduced by Sens. Joseph Lieberman and John Warner on October 18, 2007. On June 6th, 2008, the bill was killed by Senate Republicans over worries that it would damage the economy. Available at http://www.thefullwiki.org/America_27s_Climate_Security_Act_of_2007.

Under the hybrid mechanism, all carbon emitters will undertake carbon reduction liabilities, the enthusiasm of enterprises and individuals to partake the Cap-and-Trade will be increased greatly, the trade volume and vitality of carbon market will also be improved, the functions of carbon trade market will be fulfilled sufficiently, the reduction targets determined in the Intended Nationally Determined Contributions of China will have a reliable guarantee. Under the hybrid mechanism, carbon tax border adjustment is a key organic supporting measure, it's carrying out will not violate multilateral trade rules and will conform to the spirits of the principles of CBDR of the Kyoto Protocol, it is feasible in management and operation. The impacts on trade, production and consumption are neutral.

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