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국제학석사학위논문

Emissions Trading Scheme and WTO
: Analysis of EU Experiences and Implication for
Future Korean Emissions Trading Scheme

배출권거래제와 WTO
: EU 사례 분석 및 향후 한국 배출권거래제에
대한 시사점

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Emissions Trading Scheme and WTO
: Analysis of EU Experiences and Implication for
Future Korean Emissions Trading Scheme

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Abstract

Emissions Trading Scheme and WTO : Analysis of EU Experiences and Implication for Future Korean Emissions Trading Scheme

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Emissions trading scheme (ETS) is a new and still developing system, and only a few developed countries such as EU and Australia have implemented it as a tool for reducing emissions. Although only ANNEX 1 parties of UNFCCC are obliged to reduce emissions, Korea voluntarily chose to implement ETS as the first country among non-ANNEX 1 parties. Korea is now in the process of designing its scheme, but it is very difficult to predict how the carbon market will be functioning in the future.

In EU, WTO issues related to ETS have been discussed in various aspects. Faced with competitiveness concerns raised by industries, it was argued that some measures such as border tax adjustment should be applied in order to protect domestic industries and avoid "carbon leakage". With a huge amount of surplus allowances in the carbon market during EU ETS phase I and II, it was debated

whether "free" allocation can be justified by the WTO agreements. In 2012, EU decided to include aviation industry into the ETS, which provoked fierce reactions from other countries and raised a number of legal questions. Issues on Clean Development Mechanism (CDM) and Joint Implement (JI) were also one of the topics which were studied.

As the Korean economy depends on exports in large part, there are strong concerns that the new obligation imposed by ETS will weaken the competitiveness of business companies. To address these concerns, the scheme should be designed not to give too much burden to industries and some trade measures such as border tax adjustment needs to be implemented. The method of allocation of emissions allowances will be also more controversial in Korea, as all the allowances are expected to be allocated free of charge and the reduction target is different for each sector, which will make the allocation more likely to be regarded as "subsidy".

To apply border tax adjustments to imports and exports may not be easy as setting the appropriate level of tax adjustment not to violate National Treatment obligation and Most Favored Nations obligation of GATT will be a very complicated process in the Korean scheme. Free allocation to firms is also likely to be regarded as "actionable" subsidy by the SCM agreement. However, it will depend on the trade effects on importing countries and how the allocation method is designed.

Though there exist no linked carbon markets so far, EU is pushing other schemes to open the markets. If different schemes are linked, various issues

regarding GATT and GATS will be raised, which may also require some parts of WTO regime to be changed.

As only a few countries and regions have just started to design and implement ETS, it cannot be concluded yet whether this new system has succeeded or failed. As Korea voluntarily chose to implement ETS, it needs to address many critical issues in order to make ETS well established in the world trading system.

Keywords : emissions trading scheme, ETS, free allocation, border tax adjustment, subsidy, carbon market

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List of Acronyms and Abbreviations

| | |
|----------------------|---|
| AB | Appellate Body |
| BAT | Best Available Technology |
| BAU | Business As Usual |
| BTA | Border Tax Adjustment |
| CDM | Clean Development Mechanism |
| ETS | Emissions Trading Scheme |
| GATS | General Agreement on Trade in Services |
| GATT | General Agreement on Tariffs and Trade |
| GHG | Greenhouse Gas |
| ICAP | International Civil Aviation Organization |
| IPCC | Intergovernmental Panel on Climate Change |
| JI | Joint Implementation |
| MFN | Most Favored Nations |
| MRV | Measurement, Reporting and Verification |
| NT | National Treatment |
| SCM Agreement | WTO Agreement on Subsidies and Countervailing Measures |
| TMS | Target Management System |
| UNFCCC | The United Nations Framework Convention on Climate Change |
| WTO | World Trade Organization |

I . Intro

1. Overview of Emissions Trading Schemes in the world

"Climate change" has been without doubt one of the most serious and urgent issues for human society. According to the 4th assessment report of Intergovernmental Panel on Climate Change (IPCC), which was published in 2007, "Warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global mean sea level".¹ IPCC predicted that temperature would rise from 1.1 to 6.4 °C (2 - 11.5 °F) by 2100, and sea level would rise from 6 to 19 feet (18 - 58 cm). Those figures show that climate change is even getting worse in spite of various efforts for reducing greenhouse gases.

The United Nations Framework Convention on Climate Change (UNFCCC), the first international environmental treaty, was concluded in 1992. This convention specified the aim of greenhouse gas reduction for the developed countries, which were classified as "Annex 1" parties, but it did not set any binding targets. In 1997, Kyoto protocol was concluded and legally binding obligations were established. According to the protocol, developed countries, which were classified as "Annex B" parties, were obliged to reduce greenhouse gas emissions during 2008~2012 by average 5.2% compared to 1990 levels. It also offered three

¹ Climate Change : 2007, An Assessment of the Intergovernmental Panel on Climate Change, Nov.2007, p.30

"Kyoto mechanisms": Emissions Trading (ET), Joint Implementation (JI), and Clean Development Mechanism (CDM). Those mechanisms were intended to lower the overall costs of achieving the emissions targets. The protocol has been further specified and developed through several Conferences of Parties (COPs). Developed countries were obliged to reduce emissions by 25~40% below 1990 levels by 2020, and developing countries were recommended to reduce emissions by 15~30% from 2020 BAU (Business As Usual) levels.

In this context, the idea of "emissions trading" has been crystallized. In the countries or regions where ETS are implemented, emissions allowances are traded between economic entities based on market mechanism. Each entity is allocated initial "allowance" within emissions cap for all entities covered by ETS. Those who can reduce more than their share of responsibility are willing to sell emissions to those who find it difficult to meet their share or the goal. Firms will either reduce emissions or buy permits from the carbon market. This mechanism is called as "Cap-and - Mandatory" scheme.

EU was the first region which implemented ETS. Even though other countries and regions such as Australia, California, Tokyo, and some areas of China also started ETS, those schemes are only limited to sub-national levels or not fully designed for functioning on the markets. EU emissions trading scheme (EU - ETS) started in 2005. Every installation covered by ETS, which amounts for approximately 11,000, is allocated allowance calculated by either grandfathering

or benchmark methodology within a total national and EU-wide emissions cap.²

Those who have surplus emissions allowances can sell them to those who emit more than allocated. During the Phase I of the scheme (2005-2007), which was a pilot period, most of allowances were allocated free of charge. During the Phase II (2008-2012), systems of different countries improved significantly to more harmonized, transparent and efficient way. EU - ETS Phase III started in 2013, which is characterized by several significant reforms. Larger part of allowances are distributed by auctioning than in the phase I or II. EU - ETS is now expected to become an almost harmonized system with an EU wide uniform reduction target for all installations covered during this period. EU succeeded in reducing emissions by 2-5% during phase I, and by 8% during phase II compared to 1990 levels.

Now EU carbon market accounts for more than 70% of the world carbon market.

While EU successfully reduced its emissions by ETS, it has also been faced with many other problems. EU first allocated generous allowances to firms. The result was that carbon price collapsed from high of 30 euro to less than 5 euro in January 2013, mainly because of the surplus of allowances on the market.³ The price is also expected to be kept low until 2020 without any binding target beyond 2020, when ETS phase III ends. At the beginning of phase III, the surplus of

² Grandfathering methodology is based on the historical data of each entity's emissions, which result that the entities with more emissions will be allocated more. Benchmark methodology is based on the top 10% installations, by which more efficient installations will benefit from it.

³ During ETS phase 1, the initial free allocations to the installations were much more than it was needed. During ETS phase 2, an unexpected global economic crisis gave impact on the general economic situation of the firms.

allowances reached 1.7 billion allowances.⁴ In order to reform the carbon market, the EC council passed "back-loading" proposal on July 3, 2013, by which EU will withhold the auctioning of 900 million excess carbon credits. Moreover, EU is now considering taking some structural reforms to the whole design of the scheme.

Besides EU, other countries and regions in various parts of the worlds have also introduced ETS or are considering it. The New Zealand Emissions Trading Scheme (NZ ETS) started in 2008, which is mainly focused on forestry and coal and gas mining rather than industry or power plant. The Australian government passed "Clean Energy Legislative Package" in 2011, and adopted Carbon Pricing Mechanism (CPM), which came into force in July 2012. The carbon price is fixed as A\$23 per ton in the CPM, which means that the mechanism is similar to carbon tax rather than ETS.⁵ Though United States refused to ratify the Kyoto protocol, Obama administration tried to introduce ETS in 2010, which failed in the face of opposition from republicans. However, California introduced cap-and-trade program in 2012, and ten northeastern states launched "RGGI (Regional Greenhouse Gas Initiative)" program in 2009.⁶ Japan decided to impose carbon tax in 2012, and sub-national carbon pricing initiatives were also implemented in Tokyo and Saitama. The Chinese government designated seven provinces such as Beijing, Shanghai, Tianjin, Chongqing, Guangdong, Hubei, and Shenzhen as pilots to test ETS.

⁴ Thomson Reuters Point Carbon, Carbon Market Europe, vol. 12, Issue13, 5 April 2013

⁵ Carbon tax is levied based on the fuel while fixed-price of ETS is levied based on the emissions.

⁶ RGGI covers states of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, and Vermont

2. Current Situation of Korea Emissions Trading Scheme

Though Korea does not belong to "Annex B" parties by Kyoto Protocol, it decided to implement ETS with the aim of transition towards "low-carbon society". The Korean scheme is the first national ETS among the developing countries. Korea is the world's 10th largest energy consumer and 97% of the consumed energy is imported from other countries. The Korean government set its national target in 2009 to reduce its emissions by 30% below business-as-usual (BAU) scenario by 2020. This is a very ambitious target as it is the highest level recommended by IPCC for developing countries.

Following the national target, "Low carbon Green Growth Act" came into force in 2010. According to the act, "Target Management System (TMS)" started in 2012. TMS covered 68% of total GHG emissions of Korea and about 480 entities were designated to be regulated by the system.⁷ Similar to ETS, TMS also set a total emissions cap for the entire entities and different reduction target is given to each entity. In order to prove that an entity has achieved its target, it needs to go through MRV (Measurement, Reporting and Verification) process, which is one of the most important parts of ETS as well. However, there is no "tradable" emissions permit, which makes this system different from ETS. If an entity does not meet the target, it will only pay a penalty charge.

In order to transit to more flexible and market-based system, "Greenhouse

⁷ 412 Power and Industries, 51 Buildings, 27 Waste facilities at the end of 2011. The entities included not only firms but also buildings and transportation.

Gas Emission Permit Allocation and Trade Act (ETS Act)" was passed in 2012. According to the Act, ETS phase I will officially launch in January 2015. The Korean government needs to work on the detailed legislative design process for its scheme. It will finalize "10 year Basic Plan", and every phase "National Allocation Plan". The Korean ETS will cover broadly the same controlled entities of TMS, and several important issues are now being examined by researchers and government officials such as allocation methodology, method of market monitoring and stabilization, classification of sectors and MRV. However, industries are strongly complaining about the start of ETS, as it is expected to increase production cost, which may lead to the weakening of market competitiveness.

Figure 1. Timeline of Emissions Trading Scheme of Korea

| Nov. 2009 | Apr. 2010 | 2012~ | May 2012 | Nov. 2012 | Dec 2013 | June 2014 | 2015~ |
|---------------------------|-------------------------------------|-------------|----------------|----------------------------|----------------|--------------------------|--------------|
| National Target confirmed | Low Carbon Green Growth Act enacted | TMS Started | ETS act passed | Presidential Decree passed | ETS Basic Plan | National Allocation Plan | ETS commence |

3. Purpose of the Research

Since the ETS first started in EU in 2005, the system has been reformed and changed many times. As noted, there exist not many cases to research since EU is the only region which has implemented ETS as a national level for years. EU itself

has been faced with complicated issues and challenges such as oppositions from industries, controversy over the allocation methodology and breakdown of the carbon price.

To make more elaborate and fair system, EU conducted a number of economic and legal studies and suggested several possible solutions. As the scheme affects production costs of goods and their market competitiveness, the challenge of the scheme is closely related to the trade issues. Most of studies on EU ETS and trade issues have been focused on how to "level playing field" on the global market for EU companies. The most popular topic was whether some measures such as border tax adjustment would be compatible with the WTO obligations.

On the other hand, others maintained that the allocation methodology should be changed from free of charge to auctioning in order to make firms "pay" for their emissions and make the carbon market more flexible. It was discussed whether "free" allocation of emissions allowances could be justified by the WTO Agreement on Subsidy and Countervailing Measures (the SCM agreement). When the aviation industry came to be included in 2012, there was a huge controversy over whether the aviation ETS was in compliance with international trade law, since it was expected to cover international airlines as well as domestic airlines. CDM (Clean Development Mechanism) and JI (Joint Implementation) projects were also one of the topics studied in relation to the investment and subsidy rules of WTO.

According to Trebilcock (2012), the rationales for environmental trade

measures can be divided into two claims.⁸ First one is that the measure should be used "to attain a specific non-trade goal specific non-trade value". This claim is found in most of WTO cases such as US-Tuna case and US-Shrimp case. In these cases, domestic countries imposed strict environmental measures in order to protect environment, which were not imposed in exporting countries. The other one is to "level" competitive playing field, or establishing "fair" rules for the game. This claim demands for countervailing duty-type measures aimed at protecting domestic producers against the supposed advantage that foreigner producers might possess.

While most of other trade and environment studies are based on the analysis related to the first claim, issues on ETS and WTO are more related to the second claim. The aim of applying border tax adjustment is to level playing fields to protect domestic industries, and the aim of free allocation of emissions allowances is also not to give burdens to industries, which will contribute to establish "fair rules" on the global market. On the other hand, inclusion of international aviation industry into EU ETS can be explained in the context of the first claim, by externalizing environmental costs within its borders to aviations of other countries.

There have been no actual WTO cases on this issue so far, as ETS is a new and still developing system in the world. In this thesis, EU experiences will be analyzed first. Studies on the EU case can be instructive and give meaningful implications for the future Korean ETS. The characteristics of the Korean ETS will be also analyzed compared with EU case, as the aim of this research is to examine

⁸ Trebilcock, Howse, Eliaon(2012), p.658

WTO issues of the specific Korean situation.

The economic situation and trade structure of Korea is much different from those of EU, and its market size is much smaller than EU. Therefore ETS system should be also tailored to Korea's specific circumstances. By analyzing ETS and WTO issues, some meaningful implication for designing Korean ETS will be suggested. As a future issue, this research will also briefly introduce issues on linking different markets.

II. EU Emissions Trading and WTO issues

1 .Carbon leakage concerns and measures considered

European industries strongly expressed concerns that ETS will weaken their competitiveness on the global market. In particular, many of these concerns came out from the energy-intensive, trade-exposed sectors. The carbon costs imposed by the scheme would put domestic producers at a competitive disadvantage vis-à-vis producers outside Europe. This competitiveness concern is also closely related to the issue of "carbon leakage". Carbon leakage takes place when firms in more stringent climate actions are relocated to other countries where less stringent or no constraint, therefore lose their appropriate market share. As a result, emissions reduction in the countries imposing more stringent policy may be offset by increases in other countries with less or no constraint. Therefore, the issue becomes related to keeping the environmental integrity in the world. Monjon(2010) explained that the leakage channel had two components; operational leakage and investment leakage.⁹ Investment leakage takes place in the longer run but could be more important than operational leakage as there will be a redirection of investments from Europe to other regions.¹⁰

Researchers have proposed various measures to deal with such concerns.

⁹ Operational leakage is a short and medium term concern, which comes from relocation of production from existing installations to facilities outside Europe.

¹⁰ Monjon and Quirion(2010), p.4

The aim of the measures was in principle to "level the playing field" for European companies. Joseph Stigliz's argument is popularly cited to support such measures, as he insisted in dealing with the United States' pollution that "other countries should prohibit from American goods produced using energy intensive technologies, or impose high tax on them" as "not paying the cost of damage to the environment is a subsidy, just as not paying the full costs of workers would be".¹¹

Asselt and Biermann(2007) classified those measures into three categories.¹² First, "Green measures" are measures which can be introduced without significant political or legal constraints, such as raising consumer awareness, voluntary climate labeling, and limited subsidies. "Yellow measures" are measures that may be feasible, even though their legal or political feasibility is still unclear, such as extending the clean development mechanism and joint implementation, border cost adjustments, larger subsidies for affected European energy-intensive industries. Lastly, "Red measures" are measures that are either illegal or politically unfeasible, such as lower carbon constraints, quotas or bans in trade and punitive tariffs or taxes. Those measures should be considered and assessed by the criteria of conformity with world trade law as well as environmental effectiveness.

Table 1. Possible measures to level playing field for ETS

| Category | Measures |
|-----------------|---|
| green measures | raising consumer awareness, voluntary labeling, limited subsidies |
| yellow measures | extending CDM, border cost adjustments, larger subsidies |
| red measures | quotas or bans in trade and punitive tariff or taxes |

¹¹ Joseph E. Stigliz, 'A new Agenda for Global Warming', Economist's Voice 3(2006), p.2

¹² Harro van Asselt and Frank Biermann(2007)

EU included a provision which could be a legal ground for such measures when it amended its directive on emissions trading in 2009.¹³ Article 10(a)-12 states that "installations in sectors or subsectors which are exposed to a significant risk of carbon leakage shall be allocated allowances free of charge at 100% of the quantity". In addition, the preamble of the directive also states two alternative ways to address the leakage problem as follows ;

Energy intensive industries which are determined to be exposed to a significant risk of carbon leakage could receive a higher amount of free allocation or an effective carbon equalization system could be introduced with a view to putting installations from the Community which are at significant risk of carbon leakage and those from third countries on a comparable footing. Such a system could apply requirements to importers that should be no less favorable than those applicable to installations within the Community...It would also need to be in conformity with the international obligations of the Community, including the obligations under the WTO agreement

The directive introduced a concept of a "carbon equalization system (CES)". Among the measures considered, border tax adjustment (BTA) has been most often debated, by which countries may impose domestic taxes or charges on imports, or exempt or reimburse them on exports. However, except this short sentence in the directive, there have been no specific guidelines or cases regarding this measure, with no WTO disputes on this issue. WTO compatibility of BTA should be

¹³ Directive 2009/29/EC of 23 April 2009 amending Directive 2003/87/EC

examined in relation to the obligations of GATT. As for the BTA on imports, Article II:2 of GATT provides a rule for imposing a charge on imports equivalent to an internal tax. Imposing such a charge should not violate National Treatment obligation which is provided in the Article III:2. As for the BTA on exports, provisions of the SCM agreement are relevant. More detailed analysis and discussions on this issue will be further developed in chapter 3.

2. Methods of allocation and Subsidy

Most of the emissions allowances were allocated free of charge during EU - ETS phase I and II. Each country made its own 'National Allocation Plan', by which the amount of allowances to each installation was determined. It was expected that if allowances were distributed free of charge, industries could be protected from the sudden change, so the scheme would be accepted more easily without strong opposition. Firms were also given enough time to adjust themselves to the new system. Concerns on carbon leakage were also one of the reasons for free allocation. If firms move to other countries with no ETS in order to avoid additional costs, the emissions reduction in the EU will be offset by the increased emissions in other regions.

However, free allocation has been also criticized by several reasons. First, it is questionable whether free allocation is effective in reducing carbon leakage. It was argued that a low carbon cost would reduce the incentive to abate emissions,

leaving the competitive position related unaltered.¹⁴ From the economic perspective, free allocation can be also treated as a potential subsidy which transfers financial resources to heavily polluting industries.¹⁵ As a result, the industries would become more wealthy and competitive on the market.

Definition of subsidy in WTO agreements is different from the one of economic perspective, which is much broader than the legal one. To be recognized as a subsidy, several requirements are to be satisfied by the SCM agreement. The SCM agreement divides subsidy into three categories: prohibited subsidy, actionable subsidy and non-actionable subsidy. If free allocation constitutes either prohibited or actionable subsidy, other member states can take unilateral or multilateral action to counteract any negative effects on their domestic and export markets.

EU changed the methods of allocation before the start of ETS phase III. ¹⁶ One of the most important changes was that it decided to increase the proportion of auctioning of allowances, with the aim of being fully based on auctioning by 2025.¹⁷ By auction system, firms should "pay" for the allowances, so it will not be recognized as a subsidy. EU also harmonized different allocation methodologies of each country. All the allowances are now allocated based on one "benchmark" methodology, by which allowances are distributed based on the top 10% efficient

¹⁴ Rubini and Regou(2012), p.329

¹⁵ Ibid., p.332

¹⁶ Directive 2009/29/EC of 23 April 2009 amending Directive 2003/87/EC

¹⁷ The total allowances are auctioned to the power sector, and 20% of the allowances are auctioned to the industry sector, which will also increase every year

installations of each product. The revised directive of 2009 also states that "the energy intensive industries which are determined to be exposed *to a significant risk of carbon leakage* could *receive a higher amount of free allocation*". If a subsidy is "specific" to an enterprise or industry or group of enterprises or industries, it is "actionable" by the SCM agreement. Therefore, the higher amount of free allocation to energy intensive industries is likely to be regarded as actionable. This subsidy issues will be further analyzed in chapter 3.

3. Including international aviation in 2012

Aviation sector accounts for about three percent of global carbon emissions, and the aviation industry is growing faster every year. In 2008, EU decided to include aviation sector into ETS, which was scheduled to start in 2012. Airlines would receive tradable allowances and be obliged to surrender them the next year as did industry sectors. If an airline fails to surrender allowances, it will be fined 100 euro per allowance.

The scheme was adopted as the response to failure of International Civil Aviation Organization (ICAO) to reach international agreement on emissions by aviation. The ICAO Assembly adopted Resolution A 37-19, which stated that "some States may take more ambitious actions prior to 2020, which may offset an increase in emissions from the growth of air transport in developing States".¹⁸ It

¹⁸ ICAO Assembly resolution A37-19: Consolidated statement of continuing ICAO policies and

could be interpreted as implicitly endorsing unilateral measures but still not clear whether unilateral measures may be applied to "non-national" airlines as well. Controversy arose as the EU aviation ETS was supposed to apply both to EU and to non-EU airlines alike and to flights between EU airports and between EU and non-EU airports. After all, the ICAO council endorsed a working paper in November 2011, stating "...urge the EU to refrain from including flights by non-EU carriers to or from an airport in the territory of an EU Member state in its emissions trading system".¹⁹

It also provoked strong reactions from other countries. China blocked \$4 billion worth of orders from Airbus, and prohibited their national carriers from complying with the EU scheme.²⁰ A consortium of US airlines initiated a legal action in 2010, arguing that the EU violated its obligations under customary international law and various international agreements. However, in December 2012, the European Court of Justice concluded that the scheme was consistent with principles of customary international law.²¹ After that, countries also adopted a "Moscow" Declaration" in February 2012, which prohibited domestic airlines and operators from participating in the EU's aviation scheme.

The scheme raised a number of legal questions ; whether EU has the power

practices related to environmental protection – Climate change, 6(c)

¹⁹ ICAO Working Paper, Inclusion of International Civil Aviation in the European Union Emissions Trading Scheme and Its Impact, C-WP/13790, 17/10/11

²⁰ Russian Federation warned that it does not rule out the introduction of adequate retaliatory measure by other Contracting States in respect of the operators of Contracting States which introduce market-based measures unilaterally.

²¹ Judgement of European Court of Justice in case C-366/10

to regulate airlines in respect of emissions produced outside EU ; whether the scheme is consistent with its obligations under applicable bilateral and multilateral agreements governing air transport service agreement, and ; whether the aviation scheme is compatible with the WTO obligations.²² Regarding the WTO obligations, GATT Article X:1 prohibits a quantitative restriction on trade in goods, and the Article III:4 is about "national treatment" obligation regarding a discriminatory internal measure. Most favored nations obligation (Article I) and freedom of transit of goods (Article V) are also relevant legal issues. Several GATS obligations should be also considered as well.

Recently, EU decided to temporarily suspend the enforcement of ETS requirements for flights from or to non-European countries, while continuing to apply it to flights within and between countries in Europe. By this "Stop the Clock" measure, EU allowed time for the ICAO Assembly to reach a global agreement to tackle aviation emissions. In October 2013, the ICAO Assembly agreed to develop by 2016 a global market-based mechanism and apply it by 2020. The EU Commission proposed limiting the scheme to European regional airlines, which will apply from the beginning of 2014 until the planned global market-based mechanism enters into force.²³

²² Bartels(2012) p.430

²³ The revised system would be : emissions from flights between airports in the EEA would continue to be covered ; emissions from flights to and from countries outside the EEA would be fully exempted for 2013 ; From 2 January 2014, flights to and from countries outside the EEA would benefit from a general exemption for the proportion of emission that take place outside EEA airspace. Only the emissions from the proportion of a flight taking place within EEA airspace would be covered ; To accommodate the special circumstances of developing countries, flights to and from third countries

4. CDM and JI Projects

Clean Development Mechanism (CDM) and Joint Implementation (JI) are offered by the Kyoto Protocol. CDM allows developed countries to invest in developing countries to reduce emissions, which can be exchanged for certified emissions reductions (CERs). CERs are used to meet the countries' reduction targets. Through JI, developed countries can jointly fulfill their commitments by engaging in joint projects aimed at reducing emissions, which can be also certified as Emission Reduction Units (ERUs).

Those projects can be regarded as services by GATS, since in exchange for funding them, investing countries receive CERs or ERUs which are transformed into energy production and consumption. Therefore, issues regarding the MFN Principle, NT obligation and Market Access provisions are relevant legal issues. In addition, as the projects are carried out mainly through investments, they are also subject to the Agreement on Trade – Related Investment Measures (TRIMS) if trade in goods is involved. If a CDM project is targeted to specific sectors, there is also a possibility that it can be regarded as subsidy by the SCM Agreement.

which emit less than 2% of global aviation emissions and which are not developed countries would benefit from a full exemption, EU Climate Action

Table2. EU ETS and relevant WTO issues

| Characteristics of EU ETS | WTO issues |
|---|---|
| Measures to address carbon leakage | Possibility of applying border tax adjustment to imports or exports, which should be justified by the GATT obligations |
| Free allocation | Whether free allocation constitute a 'subsidy', and whether it is prohibited or actionable by the SCM agreement |
| Including international aviation | Whether including non-EU aviation into EU ETS is compatible with WTO obligations regarding quantitative restriction, MFN and goods in transit |
| CDM and JI projects | Whether CDM and JI projects are compatible with GATS obligations of MFN and NT and TRIMS agreement. |

III. Korean Emissions Trading Scheme and WTO issues

1. Characteristics of Korean ETS compared with EU

Korea's reduction target of 30% below BAU level by 2020 is considered very ambitious compared to that of other non-Annex 1 countries. For this reason, some studies predict that the carbon price in Korea will be set higher than other schemes.²⁴ On the other hand, others say that the carbon market in Korea may not function well since the carbon market size is too small and firms are not expected to sell the excess permits without being sure of the market conditions.

The Korean ETS is different from the EU ETS in several aspects. First, the reduction target of EU was set based on 1990 level by the Kyoto protocol. As the amount of emissions in 1990s is already fixed, it is easy to calculate the amount of emissions which EU is obliged to reduce. As explained, Korea voluntarily set the national target as 30% below BAU level, which is the highest level among developing countries. As the BAU is calculated by the expected growth of the industry, it is more difficult to predict the amount of reduction, therefore future market conditions.

EU divides entities covered by ETS into two groups: Power and Industry. Korea divided them into more than 20 sectors. To meet the total reduction target, Korea also set "sectoral" reduction targets. Every year the sectoral cap is set by economic analysis. That was because it is assumed that each industry sector has a

²⁴ South Korea's Emissions Trading Scheme, white Paper, 10 May 2013, Bloomberg new Energy Finance, Ernst & Young

different potential for reduction. In 2014, for example, the total reduction target in TMS system is 2.8%, which amount to 17 million tCo2-eq. Each 24 sector has different obligation from 0.5% (refinery) to 9.2% (waste) from BAU level.²⁵ As the BAU calculation reflects expected growth of each industry, there is a possibility that some industries may take more responsibility and others may be given some benefits.

This "sectoral approach" also has effects on the methods of allocation as well. In the EU, though changed several times during phase I and II, the method for calculating allocation is applied to all the entities alike. On the contrary, in the Korean scheme, the calculation methodology of allocation will be different in each sector, as different adjustment factors should be applied to meet each sectoral cap.

Though "National Allocation Plan" has not been finalized yet in the Korean ETS, it is clear that the allocation will be based on grandfathering, distributed free of charge, which means that entities who emitted more during the base periods will be allocated more than those who emitted less. As a result, firms with more efficient installations will be disadvantaged. For this reason, EU changed its allocation base from grandfathering to benchmark, by which efficient installations will be allocated more than historical emissions. In Korea, industries object to applying benchmark methodology, arguing that they do not have as much reduction potentials as EU firms.

From these characteristics, WTO issues which were debated in EU may

²⁵ Press release of Ministry of Environment, 23 October 2013

also emerge but differently in Korea. As the reduction target is quite ambitious in Korea, Korea needs to consider implementing some measures to make the scheme accepted well by stakeholders. The possibility of applying border tax adjustment to "level playing field" should be carefully examined to address this concern. Currently, in the ETS act of Korea, there is no provision regarding this issue. Subsidy issue of free allocation is also relevant in the Korean ETS. It may become more controversial since the entire allowances will be allocated free of charge during phase 1, and its sectoral approach may discriminate different groups of industry.

In 2012, EU also included aviation industry into the scheme as explained in chapter 2. In Korea, only domestic airlines are covered by ETS in the aviation sector. Therefore, discussion on the extra-territory application or quantitative restriction related to aviation ETS is not relevant to the Korean ETS. As Korea is not an ANNEX 1 country, there is no case of CDM or JI. The ETS act in Korea also prohibits credits from an external project in any foreign nation from being used until 2020. Therefore, the discussions on CDM and JI projects will also not be applicable to the Korean case.

Table 3. Comparison of Korean and EU ETS

| | Korean ETS | EU ETS | WTO issues |
|---|--|---|---|
| Reduction target | <ul style="list-style-type: none"> - 30% below BAU - Highest level among non-ANNEX 1 parties | <ul style="list-style-type: none"> - 20% from 1990 level - Obligation by Kyoto Protocol as ANNEX 1 party | Border tax adjustment |
| Sector classification and ETS Cap | <ul style="list-style-type: none"> - 24 sectors - Cap for each sector | <ul style="list-style-type: none"> - 2 sectors : Industry/Power - ETS cap for EU as a whole | Subsidy Issues |
| Allocation Methods | <ul style="list-style-type: none"> - 100% free allocation for phase I | <ul style="list-style-type: none"> - About 80% free allocation, and 20% auctioning (phase III) - More than 90% Free allocation (phase I and II) | Border tax adjustment Subsidy Issues |
| Calculation of the amount of free allocation | <ul style="list-style-type: none"> - Grandfathering | <ul style="list-style-type: none"> - Benchmark(phase III) - Grandfathering/Benchmark (phase I and II) | Border Tax Adjustment Subsidy Issues |
| Aviation Industry | <ul style="list-style-type: none"> - Only Domestic Aviation | <ul style="list-style-type: none"> - Domestic & International Aviation | No issue for Korean ETS |
| CDM / JI | <ul style="list-style-type: none"> - No project | <ul style="list-style-type: none"> - Projects to obtain CER or ERU | No issue for Korean ETS |

2. Possibility of Applying Border Tax Adjustment (BTA)

1) BTA on Imports

a. ETS obligation as an adjustable internal tax

Definition of BTA is not found in the WTO agreements, but GATT adopted in 1970 the definition of BTA applied in the OECD. According to the GATT report of the Working Party on border tax adjustments, the border tax adjustments were regarded as "any fiscal measures which put into effect, in whole or in part, the destination principle (i.e. which enable exported products to be relieved from some or all of the tax charged in the exporting country in respect of similar domestic products sold to consumers on the home market and which enable imported products sold to consumers to be charged with some or all of the tax charged in the importing country in respect of similar domestic products).²⁶

As to the BTA on imports, Article II:2 (a) of the GATT reads as follows.

Nothing in this Article shall prevent any contracting party from imposing at any time on the importation of any product (a) a charge equivalent to an internal tax imposed consistently with the provisions of paragraph 2 of Article III in respect of the like domestic product or in respect of an article from which the imported product has been manufactured or produced in whole or in part.

As "a charge equivalent to an internal tax" should be consistent with the

²⁶ Border Tax Adjustment, Report of the Working Party adopted on 2 December 1970, L/3464, GATT

"provisions of paragraph 2 of Article III", BTA on imports is subject to "National Treatment" obligations of Article III. Article III:2 prohibits imposing any taxes or charges on imported products in excess of those applied to like domestic products.

Therefore, the first issue is whether the ETS obligation is an "internal tax" in the context of Article II:2(a). According to the OECD, tax is defined as "compulsory, unrequited payments to general government".²⁷ To determine whether the ETS obligation is a tax by the OECD definition, each part of the definition should be examined: compulsory, unrequited and payment.²⁸ As all the entities covered by the ETS are obliged to hold emissions allowances, it is "compulsory". The OECD also defines "unrequited" as "where the government is not providing a specific service in return for the levy which it receives even though a license may be issued to the payer". If the allowances are allocated by auctioning, not free of charge, firms are clearly required to pay for the allowances, for which the government does not provide anything in return. In this case, the ETS obligation certainly qualifies as an "internal tax".

In many cases, however, allowances are allocated free of charge. During the phase I of the Korean ETS(2015-2017), the total allowances will be allocated free of charge, and the proportion of auctioning is expected to increase during phase II (2018-2020) and phase III(2021-2025). In this case, firms do not pay for allowances directly. It seems that free allocation may not constitute a payment to

²⁷ OECD revenue statistics (2012)

²⁸ Biswajit Dhar and Kasturi Das(2009), p,10

the government, then difficult to be recognized as a tax. Ismer and Neuhoff (2007) argued that BTA would allow countries to "abolish" free allocation without risking leakage²⁹. Monjon and Quiron(2010) "assumes that allowances are auctioned" in analyzing this issue as a "BTA is much more difficult to justify under free allocation".³⁰

Firms are required to buy extra allowances on the market if the allocated allowances are not sufficient for their actual emissions. In this reason, Dhar and Das(2009) argued that the ETS obligation would impose certain "indirect costs" such as increased resource costs and regulatory cost even in case of free allocation. Even though free allocation does not involve any direct payment, it does impose a financial burden or an "opportunity cost" on the covered installations³¹. It is also clear that a stringent allocation will increase the production costs of industry.³² Therefore, ETS obligation can be regarded as a tax, assuming that allowances are stringently allocated in the Korean ETS.

ETS obligation should be also "adjustable" if BTA is to be applied. The GATT Working Party concluded that indirect taxes were adjusted, while direct taxes were normally not adjusted.³³ Indirect taxes are taxes such as excise duties, sales taxes and cascade taxes and the tax on value added (a retail or sales tax)

²⁹ Ismer and Neuhoff(2007), p.139

³⁰ Monjon and Quiron(2010), p.3

³¹ Biswajit Dhar and Kasturi Das(2009), p.12. Dhar explains the Black's law dictionary defines tax as "a monetary charge imposed by the government". Although a tax is often thought of as being pecuniary in nature, *it is not necessarily payable in money*

³² Cendra(2006).p.138

³³ "there was convergence of views to the effect that taxes directly levied on products were eligible for tax adjustment". The report of the GATT working party (1970), paragraph 5

which are directly imposed to the 'product'. Direct taxes are directly levied on "producers", not on products, which include social security charges and payroll taxes³⁴.

Debates on whether a tax on carbon emissions is an adjustable product tax one have been long-standing issues and no definite answer have been given.³⁵ The GATT article III:2 states, "the products of the territory of any contracting party... shall not be subject, directly or indirectly, to internal tax or other internal charges...in excess of those applied, directly or indirectly to like domestic products." From this sentence, it can be inferred that both direct and indirect taxes are adjustable. There is also a definition of direct and indirect taxes in the SCM agreement of WTO, by which a tax on emissions is likely to be categorized as an indirect tax, although it is not clear whether this definition, which is "for the purpose of this (SCM) Agreement", can be applied for interpreting GATT provisions for the BTA as well.³⁶ In addition, a tax on emissions can be shifted to consumers, changing the price of product, then the terms of competition. This is a characteristic of indirect taxes rather than direct taxes. Therefore, a tax on carbon emissions can be categorized as an 'indirect tax' which is eligible for adjustment.

A tax on emissions is not levied on the final product, but levied on the materials as most of the emissions take place during the combustion of certain

³⁴ Ibid., para 14.

³⁵ Pauwelyn(2007), p.19

³⁶ Footnote 58 of the SCM agreement states "the indirect taxes shall mean sales, excise, turnover, value added, franchise, stamp, transfer, inventory and equipment taxes, border taxes and all taxes other than direct taxes and import charges

materials. A tax on inputs to a final product seems to be allowed for the adjustment as the GATT Article II:2(a) allows BTA "in respective of an article" from which the imported product has been manufactured or produced in whole or in part". The GATT panel in the US-Superfund case also concluded that it is permitted to impose a tax on certain chemicals on imports that had used the chemicals "as materials in the manufacture or production" of these imports.³⁷ However, it is still unclear whether the tax adjustment is also allowed on inputs that are exhausted in the production process, as well as on inputs physically incorporated in the final product. In the case of taxes on emissions, consumed energy and emissions during product process are not physically incorporated in the final product. The GATT working party on border tax adjustment noted that there was a "divergence of views" regarding certain categories of tax, which are divided into ; "Tax *occultes*" which is defined as consumption taxes on capital equipment, auxiliary materials and services used in the transportation and production of other taxable goods such as taxes on advertising, energy, machinery and transport and ; "Certain other taxes" such as property taxes, stamp duties and registration duties which are not generally considered eligible for tax adjustment.³⁸ The Working Party did not clearly mention whether this tax *occultes* is allowed for adjustment.³⁹ Studies on BTA also

³⁷ "the tax is imposed on the imported substances because they are produced from chemicals subject to an excise tax in the US and the tax rate is determined in principle in relation to the amount of chemicals used and not in relation to the value of the imported substance", Panel Report in US-taxes on Petroleum and Certain Imported Substances, 1987, L/6175-34S/136

³⁸ GATT(1970), para 15(a)(b)

³⁹ "while this area of taxation was unclear, its importance – as indicated by the scarcity of complaints reported in connection with adjustment of taxes occultes - was not such as to justify further

did not make any precise conclusions on this issue. Therefore in this thesis, other requirements related to BTA will be analyzed without concluding this issue as well.

b. National Treatment (NT) obligation

As the GATT Article II :2(a) is subject to paragraph 2 of Article III, BTA on imports should be in compliance with National Treatment obligation. Article II :2(a) is composed of two sentences ;

The product of the territory of any contracting party imported into the territory of any other contracting party shall not be subject, directly or indirectly, to internal taxes or other internal charges of any kind in excess of those applied, directly or indirectly, to like domestic products.

No contracting party shall otherwise apply internal taxes or other internal charges to imported or domestic products in a manner contrary to the principles set forth in Article 3:1

For the interpretation of the second sentence, there is an interpretative note which reads;

A tax conforming to the requirements of the first sentence of paragraph 2 would be considered to be inconsistent with the provisions of the second sentence only in cases where competition was involved between, on the one hand, the taxed product and, on the other

examination”, Ibid., para 15

hand, a directly competitive or substitutable product which was not similarly taxed.

The first sentence is applied to like product, and the second is applied to directly and competitive or substitutable products. The first question is whether products with different carbon contents are regarded as like products, as heavier taxes are imposed on products with higher carbon contents than products with lower carbon contents regardless of the similarity of their properties.

The definition of likeness is not provided in GATT, but in a number of cases, WTO penal and appellate body (AB) established several categories which should be considered in determining it. The first approach, which is called as "BTA approach", is that "likeness" should be determined "on a case-by-case basis", considering the product's end-uses in a given market, consumers' tastes and habits, and the product's properties, nature and quality.⁴⁰ In addition to these three criteria, the international classification of the products for tariff purposes is also taken into account as well in many cases.⁴¹ Another approach, which is called as "aims and effects" approach, was also applied in a few GATT cases, by which the aim of the measure is a crucial element for determining likeness.⁴² However, the WTO AB has consistently rejected this "aims and effects" approach.

If we accept the "BTA approach", only one criteria, consumers' tastes and habits, is useful if the products with different carbon contents are to be regarded as

⁴⁰ Ibid., para. 18

⁴¹ EEC-Animal Feed, Spain-Unroasted Coffee, Japan-Alcoholic Beverages, US-Gasoline

⁴² US-Malt Beverages, US-Taxes on Automobiles

non-like products. However, the AB in EC-Asbestos stated that any determination of like products would need to take into account all the criteria.⁴³ Therefore, products with different carbon emissions cannot be differentiated, so they should be regarded as "like product".

In order to impose border taxes, the actual emissions of the imported product should be calculated and the data should be provided to Korea. However, as ETS is only implemented in a few countries, most of exporting countries do not have the greenhouse gas inventory system. Even if the data is provided, the different level of the taxes will violate the NT obligation. If Product A is produced with more emissions in exporting country than in Korea, imported products are levied higher border taxes compared to domestic like products. However, imported product should not be taxed "in excess of" domestically produced product by NT obligation as they are like products.⁴⁴

The issue here is, therefore, how to calculate the amount of border tax in the current trade system to avoid the violation of NT obligation. To begin with, the amount of BTA should be based on the fixed level in order not to discriminate "like products". Several options have been suggested. First, a "Predominant Method of Production (PMP)" is that the level of tax can be calculated based on the amount of carbon "that would have been emitted had the imported product been produced" in

⁴³ Report of AB, European Communities- Measures affecting asbestos and asbestos-containing products, WT/DS135/AB/R, 2001

⁴⁴ If the products can be differentiated with different carbon intensity, second paragraph of Article 3:2, which is about 'directly competitive or substitutable product' should be analyzed.

the importing country.⁴⁵ The GATT panel in the US Superfund case adopted this position, but in the US-Gasoline case, the AB upheld the Panel's findings that it was only applied "when the source of imported product could not be determined or a baseline could not be established because of an absence of data".⁴⁶ However, as noted, if some imported products are produced with lower carbon contents than PMP, it still cannot be justified by the National Treatment obligation.

Another approach is to use "Best Available Technology (BAT)", which is argued by a number of researchers such as Ismer (2007), Dhar (2009), Pauwlyn (2007) and Cendra (2006). Ismer (2007) argued that as the only way to introduce BTA would be to take the lowest charges incurred by any domestic producer, best available technology would "constitute the only admissible way".⁴⁷ The lowest charge can be estimated by assessing the quantity of emissions that would have been emitted when all components were manufactured using the BAT.

On the other hand, Monjon (2010) argued that the BAT approach could be ideal but was not possible as in many cases the BAT entails almost zero emissions by its definition. As an alternative, "product-specific benchmarks", which EU has adopted as a method to allocate allowances, could be a good candidate.⁴⁸

As Korea is the first country who adopted ETS among the non-ANNEX 1

⁴⁵ Pauwelyn(2007), p.31

⁴⁶ Report of AB, United States – Standards for Reformulated and Conventional Gasoline, WT/DS21/AB/R, 29 April 1996

⁴⁷ Ismer(2007), p.147

⁴⁸ Monjon and Quiron (2010), p. 12. The benchmarks are computed on the basis of the average of the upper 10% European plants with the lowest emissions.

group and in Asia, it needs to carefully address competitive concerns and take some effective measures. The problem is that even if BTA is accepted under the WTO agreements, it is a more difficult issue to calculate the level of border taxes on imports because the level of a border tax should not violate National Treatment obligation and should be calculated in the current trade system. In fact, "the design details of a BTA will be a key in determining whether it should be accepted by a WTO dispute panel".⁴⁹

In the EU, several options such as Predominant Method of Production (PMP), Best Available Technology (BAT) and Benchmark Approaches were suggested as noted. Among them, BAT is most popularly supported since EU has studied BAT for six sectors including 33 installations for the purpose of preventing and controlling pollution.⁵⁰ Integrated Pollution Prevention and Control Directive (IPPC) updates BAT reference document (BREF) every four year. EU also developed "benchmark" methodology as the allocation method, and now applying it to the ETS phase III.

However, the situation of Korea is much different from EU's. We have not studied BAT methodology, and the allowances will be allocated based on "historical level" of emissions of each entity, not based on benchmark. In addition, the proportion of auctioning will continue to be relatively low. As a result, to calculate the appropriate level of BTA and to apply it to the imports are expected to

⁴⁹ Monjon and Quiron (2010) p.3

⁵⁰ Those sectors are energy industry, production and processing of metal, mineral industry, chemical industry, waste management, and other industry

be more difficult. Therefore, to design a BTA for Korean ETS may be a more complicated and difficult task than for EU ETS.

c. Most Favored Nations Principle

Whether the BTA on imports is in compliance with the Most Favored Nation principle is another issue. GATT Article I states ;

...an advantage, favor, privilege or immunity granted by any WTO Member to any product originating in or destined for any other country shall be accorded immediately and unconditionally to the like product originating in or destined for the territories of all other WTO Members.

If a country imposes a higher tax on product X imported from country A in which more emissions released during the production process than on the like product imported from country B, it will violate the MFN principle. We can apply the same approach of "likeness" as did in the analysis of NT obligation. Products with different carbon contents are "like products", so they should not be discriminated. To avoid the violation of MFN, the Best Available Technology can also be used again, but the problem of applying BAT to Korean ETS is already mentioned in the above analysis of the NT obligation.⁵¹

⁵¹ Moreover, in case that there are some other countries that have introduced ETS as well, to apply the same adjustment may cause "double taxation" as under their domestic ETS, the exporters already pay the price of carbon.

d. General Exceptions (Article XX)

To impose border tax is a difficult issue to address as it may violate NT and MFN principle. Any violation of the GATT, however, can still be justified under the "General Exceptions" of the GATT Article XX. Paragraph (b) and (g) and the chapeau of Article XX, which are called "environmental exceptions", read ;

Subject to the requirement that such measures are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on international trade, nothing in this agreement shall be construed to prevent the adoption or enforcement by any Member of measures:

(b) necessary to protect human, animal or plant life or health

(g) relating to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption

The AB in the US -Shrimp case adopted “two-tiered” test in applying these provisions ; First, provisional justification of the measure under one of the paragraph of listed ; Second, if that is the case, justification under the requirements in the chapeau. This sequence of steps is now established as a part of both panel and AB practice.

Whether the regulation on the emissions produced "outside its territory" is permitted by this provision is another issue. In the US-Shrimp case, the AB observed that the US was permitted to protect turtle in India as the turtle are

"highly migratory" animals occurring in U.S. waters.⁵² Similarly, carbons emitted in any other countries can certainly cross the borders and be dangerous to the atmosphere in Korea itself. Therefore, it can be concluded that it is permitted to apply general exceptions in this case as well.

If BTA is to be justified under paragraph (b), the measure should be "necessary to protect" human, animal or plant life or health. To determine what "necessary" means, the aim of the BTA should be considered first. If the aim of BTA is to support competitiveness of domestic industries, it is difficult to be justified. If BTA is applied in order to address the problem of "carbon leakage", it will be more convincing. It can be argued that BTA is applied in order to protect human, animal or plant life or health as the carbon leakage may cause the overall increase in greenhouse gas emissions in the world.

It should also satisfy the so-called "necessity test". In the Thailand-Cigarettes case, the panel concluded that the "necessity means a requirement of so-called least-trade restrictiveness".⁵³ According to the Panel, a measure can be considered as "necessary" only if there is no alternative measure. The AB in the Korea – Various Measures on Beef case suggested more detailed requirements, and adopted so-called "weighing and balancing process".⁵⁴ It observed, "determination...involves a process of weighing and balancing a series of factors

⁵² Report of AB, United States – Import Prohibition of certain shrimp and shrimp products, WT/DS58/AB/R, 12 October, 1998

⁵³ Report of the Panel, Thailand – Restrictions on Importation of and internal taxes on cigarettes, DS10/R-37S/200, 7 November 1990

⁵⁴ Report of AB, Korea-Measures affecting imports of fresh chilled and frozen beef, WT/DS161/AB/R, 11 December 2000

which include the contribution made by *the compliance measures to the enforcement of the law* or regulation, *the importance of the common interests or values*, and the *accompanying impact of the law or regulation* on imports or exports", and "a measure with a relatively *slight impact upon imported products* might more easily be considered as necessary". The necessity test seems to have been evolved from the least trade restrictive approach to a "less" trade restrictive one, supplemented with a proportionality test.⁵⁵

It may not be easy to prove that the BTA on imports in the Korea ETS is the only available or "the least trade restrictive" measure for protecting human life or health, but if we accept the "weighing and balancing process" of the AB's ruling, there is a high possibility to satisfy the necessity test. Applying BTA can contribute to combat climate change, which is now regarded as one of the most urgent issues in the world, and one of "the common interest and values".

BTA issue of ETS seems more directly related to the Article XX (g), which mentions "natural resources". The measure should be "relating" to the conservation of "exhaustible natural resources", and made effective "in conjunction with restrictions on domestic production or consumption". Regarding the exhaustible natural resources, the AB in the US - Shrimp case observed that the term should be interpreted as "dynamic" rather than "static" in the light of "contemporary concerns or the community of nations about the protection and conservation of the

⁵⁵ Dhar(2009), p.42

environment".⁵⁶ In this context, the planet's atmosphere can easily satisfy the requirement. Pauwlyn (2007) emphasized that "considering the international importance given today to the problem of climate change, it would be surprising if the WTO would not accept that the planet's atmosphere is an exhaustible natural resource".⁵⁷

To determine whether the measure is "relating to" the conservation of the exhaustible natural resource, the AB in US-Gasoline case observed that the measure should exhibit a "substantial relationship". In the US-shrimp case, the AB explained that the relationship must be "a close and genuine relationship of ends and means". As the objective of the BTA is to prevent carbon leakage and conserve the planet's atmosphere, it can be justified unless there are blatant inconsistencies or protectionist features.

Then, the measure should be made effective in conjunction with restrictions on domestic production or consumption. The AB in US-Gasoline case held that it required the "even-handedness" in the imposition of restrictions.⁵⁸ Since the BTA is to bring both domestic and foreign firms together within the ETS, it can also satisfy the requirement though the treatment may not be exactly the same as to imported and domestic products.

Even in the case that all the requirements of Article XX (b) or (g) are

⁵⁶ Report of AB, United States – Import Prohibition of certain shrimp and shrimp products, WT/DS58/AB/R, 12 October, 1998

⁵⁷ Pauwelyn(2007), p.35

⁵⁸ The AB in the US-Gasoline case clarified that 'even handedness' is different from 'identity of treatment' which is already examined in the first place with Article 3

satisfied, there is still a final requirement in chapeau as follows ;

"Subject to the requirement that such measures are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on international trade,..."

The wording of the chapeau is interpreted not about the purpose of the legislation or policy, but about how it is applied in actual cases. The meaning of "discrimination" in the chapeau is different from one in NT or MFN obligations. It focuses on the countries where the "same conditions prevail", not on the "like product". The discrimination covers both discrimination between exporting countries and between exporting country and Korea.

Regarding the "arbitrary discrimination", the AB in US - Shrimp case held that the measure should be designed in such a manner that there is sufficient flexibility to take into account the specific conditions prevailing in any exporting Members. To determine whether an unjustifiable discrimination exist, the AB in Gasoline case ruled that it would be one that could have been "foreseen" and that was not "merely inadvertent or unavoidable".

The Panel and AB reports in the US - Shrimp cases indentified two criteria regarding the "unjustifiable' discrimination" ; First, a serious effort to negotiate with the objective of concluding bilateral and multilateral agreements for the

achievement of a certain policy goal and ; second, the flexibility of the measure.⁵⁹

In addition, the AB also mentioned "basic fairness and due process" in determining the existence of discrimination. The procedures should be "transparent" and "predictable" and provide formal opportunities for the exporting countries concerned "to be heard or to respond to any arguments".

In the case of BTA for ETS, it seems quite complicated to satisfy the requirement of "flexibility". If the Korean government requires other countries such as China and Japan, which have not adopt ETS or carbon tax systems, to adopt the same policy, it cannot be justified. In fact, many other countries also have established other various policies to mitigate emissions. Korea should consider the specific conditions and efforts made by other countries of nationally appropriate actions. Moreover, Korea should make efforts to negotiate those countries before imposing BTA to avoid the arbitrary and unjustifiable discrimination.

To examine whether there exist "disguised restriction on international trade", the panel and AB in the US-shrimp case suggested three criteria : the publicity test, the consideration of whether the application of a measure also amounts to arbitrary or unjustifiable discrimination and the examination of the design, architecture and revealing structure of the measure at issue. If the BTA is publicly announced, and the design, architecture and revealing structure of it do not indicate protectionist intents, this third requirement can be easily satisfied.

⁵⁹ The AB in the US- Shrimp case concluded that the US only negotiated with some Members, not with other Members, the effect is plainly discriminatory and unjustifiable and the lack or flexibility in taking into account the different situations in different countries amounted to unjustifiable discrimination.

Therefore, the most critical issue here is whether the measure can avoid "arbitrary or unjustifiable discrimination". As analyzed, Korea will have difficulty in justifying the measure as there are many different policies that other countries have adopted, and negotiating process is expected to be complicated and take times.

2) BTA on exports

Most of BTA studies have been focused on BTA on imports, but BTA on exported products is also suggested in the report of the GATT Working Party on border tax adjustment as noted. While GATT Article X VI: 4 prohibits parties to imposing subsidies on most forms of exports, it also states ;

No product of the territory of any contracting party imported into the territory of any other contracting party shall be subject to anti-dumping or countervailing duty by reason of the exemption of such product from duties or taxes borne by the like product when destined for consumption in the country of origin or exportation or by reason of the refund of such duties or taxes.

ANNEX 1 (g) and (h) of the SCM agreement, which lists prohibited export subsidies, provides ;

g) *The exemption or remission, in respect of the production and distribution of exported products, of indirect taxes in excess of those levied in respect of the production and*

distribution of like products when sold for domestic consumption

(h) *Prior stage cumulative indirect taxes may be exempted, remitted or deferred on exported products even when not exempted, remitted or deferred on like products when sold for domestic consumption, if the prior stage cumulative indirect taxes are levied on inputs that are consumed in the production of the exported product*

Then, the question is whether ETS obligations is a tax imposed to 'inputs' in the course of the use to obtain the exported product.

Regarding this issue, Footnote 64 to Annex 2 of the SCM agreement, which is on guidelines on consumption of inputs in the production process, explains ;

Inputs consumed in the production process are inputs physically incorporated, energy, fuels and oil used in the production process and catalysis which are consumed in the course of their use to obtain the exported product.

It is clearly stated that the "energy and fuels" are inputs physically incorporated. Holding allowances are not "cumulative tax", however, as it is not "multi-stage taxes". There is no mechanism for subsequent crediting of the tax if goods or services subject to the tax at one stage of production are used in a succeeding stage of production.⁶⁰ There is no explicit guidance on such a non-cumulative indirect tax. Cendra(2006) argued that it is of a political rather than of a

⁶⁰ Cendra(2006), p.140

legal nature.⁶¹ Monjon(2010, 2012) mentioned that BTA can also be applied on the exports as well as imports, though it needs to avoid over - rebates to the emissions plants.⁶²

Since the analysis on "likeness" is similar to the case of BTA on imports, the issue in BTA on exports is also how to calculate the level of rebates on exports. According to the GATT and the SCM agreement, the actual payment for holding allowances can be remitted if it is not "in excess of those levied in respect of the production of like products".⁶³ If we follow the observations that the determination of like products is not based on its carbon contents but more on the physical properties and end-uses, the different amounts of the remissions on like products will violate the SCM agreement. It can also be suggested to use "Best Available Technology" or "Product Benchmark" approach to avoid the violation.⁶⁴ However, as explained above, it may be a more difficult issue for Korea to calculate the appropriate level of BTA as there have been no relevant studies before.

In addition, there is another point to be noted from the perspective of policy effectiveness. If firms with high emissions are given more remissions when exporting, there will be no incentive to reduce emissions for them, which make the ETS system weak as a whole. It will be more difficult to apply BTA on exports

⁶¹ Cendra proposed either to harmonize climate taxes internationally rather than embarking on the introduction of BTA or to introduce global emission trading scheme or regional schemes that gradually create links among them

⁶² By using economic model and analyzing scenarios, Monjon(2012) concludes that auctioning with a border-adjustment both on imports and exports is most efficient for preventing carbon leakage

⁶³ SCM agreement ANNEX I (g)

⁶⁴ Monjon(2010), Centra(2006)

for the Korean government if the policy effectiveness is considered.

3) Summary and Implication for the Korean ETS

The possibility of applying BTA has long been discussed in EU since the ETS first started in 2005, and a relevant provision was also inserted in the revised Directive in 2009 which can be a legal ground for introducing BTA system. There have been a lot of economic and legal analysis of BTA so far, but no actual cases of applying it to ETS system.

Most of researches concluded that BTA in ETS is allowed on both imported and exported products as the obligation of holding and surrendering allowance in the ETS can be regarded as an "internal tax" by the GATT. Dahr and Das (2009) argued that BTA can be justified even in the case of free allocation, while other studies by Monjon(2007) and Ismer(2007) argued that it was necessary to auction allowances instead of allocating for free to apply BTA. Cendra(2006), Asselt(2007) did not clearly make conclusion, but it was suggested that auctioning will strengthen the legal base of BTA.

In order to be justified, BTA on import should be in compliance with NT and MFN obligations. BTA on export should satisfy requirements of the SCM agreement. Since there is no actual case, it is not appropriate to conclude whether BTA violates the obligations or not as a whole. As Monjon(2007) suggested, it is more important how to "design" BTA not to violate WTO obligations. To avoid discrimination between like products, the level of BTA should be appropriately

calculated. To use "Best available technology" was most popularly suggested by researchers such as Dahr(2009), Ismer(2007) and Pawelyn(2007). Monjon(2007) also suggested that "product-specific" benchmark approach can be another candidate.

Those studies were focused on the situation of the EU ETS. To apply such a measure is expected to be more difficult in the case of Korean ETS for several reasons. First, the proportion of auctioning in allocation is expected to be a small part, and at least during the phase I, all the allowances will be allocated for free. Second, Even if free allocation can be recognized as an internal tax which is allowed to be adjusted, to calculate the level of BTA will not be easy, as it needs to impose appropriate of border tax not to discriminate like products in order to be justified by the WTO obligations. Third, it is a more complicate in the Korean ETS, as we did not have conducted any studies on best available technology or developed benchmark methodology, which are now considered as methodologies for calculating appropriate level of BTA in the EU ETS. If a measure violates NT or MFN obligations, "general exceptions" of the GATT could be invoked, but it seems quite difficult to justify the violation by those exceptions.

It is necessary for Korea to start studies on the possibility of applying BTA in order to address competitive and carbon leakage issues. To calculate the appropriate level of border tax, it also needs to start researches on best available technology or benchmark methodologies as well. Faced with strong oppositions from industries, other measures may also be considered together to protect

domestic industries. Such measures may include R&D subsidy for CO₂ mitigation technology, allocating enough free allowances to companies which depend on exports, or providing relevant facilities to certain companies. However, those measures can also cause other WTO issues, especially subsidy issues as well.

3. Free allocation and Subsidy

1) Definition of subsidy and allocation methods

The aim of the SCM agreement is to "strike a balance" between the legitimate use of public funds for public purpose and subsidies that unfairly promote national industries.⁶⁵ It allows other members to take remedies to address any loss resulted from the unfair subsidies. When it comes to ETS, the approach is slightly different as the ETS obligation is imposed to the country which provides subsidies.⁶⁶

Article 1.1(a)(1) of the SCM agreement states that subsidy shall be deemed to exist if there is :

- i) a government practice involves a direct transfer of funds, potential direct transfer of funds or liabilities*
- ii) government revenue that is otherwise due is forgone or not collected*
- iii) a government provides goods or services other than general infrastructure, or purchase goods;*
- iv) a government makes payments to a funding mechanism, or entrusts or directs a private body to carry out one or more of the type of functions illustrated in i to iii above...*

In regard to "a direct or potential direct transfer of funds", the AB in the Japan-DRAMs case observed that funds refers not only to money but also to financial

⁶⁵ Henschke(2012)p.30

⁶⁶ ibid, p.30

resources and other financial claims.⁶⁷ If the allowances are to be regarded as a transfer of funds, the holder should be entitled to pre-determined amount of money like bond, but emissions permit does not fit within this first category.

To determine whether free allocation is categorized as government revenue that is forgone or not collected requires a precise point of reference. The AB in the US-Foreign Sales Corporation stated that "there must be some defined, normative benchmark against which a comparison can be made between the revenue actually raised and the revenue that would have been raised otherwise".⁶⁸ The issue here is how to establish the normative benchmark. As to the method of allocation, there is no international norm. There is no international agreement indicating whether allowances should be auctioned or distributed free of charge. EU now tries to change its allocation methods from free allocation to auctioning, and we can say that a larger share of allowances will be auctioned in other ETS as well in the future. However, it is not clear whether this gradual transition to auction system can be regarded as a normative benchmark.

The other category of subsidy is "goods or services" provided by a government. Then the question is whether "intangible" goods like emissions allowances are recognized as goods as well. Though there is no WTO cases which defined the meaning of goods, the AB's ruling in the US-Soft Lumber case

⁶⁷ Report of AB, Japan – Countervailing duties on dynamic random access memories from Korea, WT/DS336/AB/R, 28 November 2007

⁶⁸ Report of AB, United States - Tax treatment for Foreign Sales Corporations, WT/DS108/AB/R, 24 February 2000

provides some implication. It ruled that the grant of a right to harvest standing timber through governmental stumpage programs amounts to the provision of a good.⁶⁹ Therefore, even though emissions allowances are intangible, it can be regarded as goods by the SCM agreement. Moreover, as allowances can be "traded" on the market as are securities, some argues that emissions allowances can also be regarded as financial services.

As for the "government revenue that is foregone or not collected", Rubini(2012) did not clearly make conclusion, explaining that the phasing out of free allocation as a normative benchmark is "not an easy route, as the natural reading of government revenue otherwise due is forgone seems to refer to what is "presently due"".⁷⁰ On the contrary, many other studies showed that there is a possibility that free allocation can be regarded as a subsidy by this definition. Henschke(2012) argued that this was unlikely to apply where all permits were provided free of charge, but likely to apply where the government offers permits at a reduced rate to emissions-intensive, trade exposed industries(EITEs) particularly, where EITEs had been identified as being subject to exceptional treatment.⁷¹ Redmond(2010) explained that the auction system appeared an appropriate benchmark as the scheme provided for the gradual transition from a

⁶⁹ Report of AB, United States – Final Countervailing duty determination with respect to certain softwood lumber for Canada, WT/DS257/AB/R, 19 January 2004

⁷⁰ Rubini(2012).p.336

⁷¹ ibid.p.35-36

'grandfathering' system to a purely market based approach.⁷² Howse(2009) also agreed that free carbon allowances can be regarded as a subsidy of this category.⁷³

Regarding the "goods or services" provided by a government, Henschke(2012) argued that the goods in the SCM agreement only indicate something tangible, since emissions permits are very similar in nature to patents, and the intellectual property rights should be thought of as separate for the purposes of the WTO Agreements.⁷⁴ However, Rubini(2012) argued that we should accept the AB's ruling, and concluded that the grant of an entitlement to pollute a natural resource, which is similar to the grant of a right to harvest lumber, qualified as a provision of goods.⁷⁵

On the other hand, Carlarne(2005) maintained that the assertions that allocation systems create subsidies were unlikely to prevail, as it did not render financial contributions, explaining that alleging that Kyoto allocation constitute subsidies is equivalent to arguing that allocation responsibility for domestic environmental regulation comprises an actionable subsidy.⁷⁶ However, this argument cannot explain the situation in which benefit is clearly conferred to firms, which will be discussed next. It may be more logical to analyze the requirements of the subsidy in sequence.

As all the allowances will be allocated free of charge at least during the

⁷² Redmond(2010) p.20

⁷³ Howse(2009).p.12

⁷⁴ Henschke(2012).p.33

⁷⁵ Rubini(2012).p.337

⁷⁶ Carlarne(), p.69

Korean ETS phase 1, the allocation may not be categorized as government revenue that is otherwise due. It is more likely that free allowances allocated by the government will be regarded as the provision of goods or services, if we accept the AB's ruling and consider the characteristic of free allowances.

Another point to be examined is whether the financial contribution confers a "benefit" by the meaning of Article 1.1(b) of the SCM agreement. In the Canada-Civilian Aircraft case, the AB upheld the panels finding that in order to confer a benefit, a financial contribution must "be provided on terms that are more advantageous than those that would have been available to the recipient on the market".⁷⁷ The AB also mentioned that Article 14 which sets guidelines for the calculation of the amount of a subsidy was relevant to determine the existence of benefit.

If free allocation is categorized as government revenue that has been foregone, it is clear that firms are conferred benefit as they do not have to pay unlike in the "otherwise" circumstances. Calculation of benefit is also relatively simple as the amount of benefit would be what otherwise has been due. If free allocation is categorized as a good provided by the government, however, the issue becomes more complex. Article 14 (d) of the SCM agreement indicates that the provision or purchase of goods or services by a government only confers a benefit where the provision is made for less than adequate remuneration, or the purchase

⁷⁷ Report of AB, Canada – measures affecting the export of civilian aircraft, WT/DS70/AB/R, 2 August 1999

is made for more than adequate remuneration. Adequate remuneration is to be based on *prevailing market conditions* in the country of provision or purchase. The AB in the Canada-civilian Aircraft case stated that a benefit existed where "the recipient has received a financial contribution on terms more favorable than those available to the recipient on the market". It also stated that "an investigating authority may use a benchmark other than private prices when it has been established that private prices of the goods in question in that country are distorted".

As allowances can be purchased on the markets, "benefit" of free allocation seems to be easily proved. Another question is whether the additional cost arising from ETS itself should be considered together. Howse(2008) argued that when industries receiving free allowances were able to trade them on the carbon market for a profit, it earned them money in exchange for no emission reductions at all.⁷⁸ In such a case of "over-allocation" than needed, benefit is clearly conferred to the receiving firms. Henschke(2012) explained that since Article 1.1(a)(1) defines the financial contribution as the provision of goods, the measure or point of comparison is the provision of the permits, not the whole creation of ETS. In fact, The SCM agreement on its face does not take into account the fact that in creating ETS the government has effectively imposed an additional cost on domestic business.⁷⁹

To sum up, it can be concluded that benefit is conferred if there is clear

⁷⁸ Howse(2008).p.11

⁷⁹ Henschke(2012), p.43

evidence that any over-allocation or over-compensation exist compared with the case in normal market conditions, though the calculation of benefit may be difficult. If there is an improvement of financial position of the firms resulted from the free allocation, it can also be regarded as a benefit.

2) Specificity

According to Article 1(2) of the SCM Agreements, subsidy must be specific in order to be actionable, prohibited or subject to countervailing duties. Article 2.1 of the agreement explains the meaning of "specificity". If the measure explicitly limits access to the subsidy to certain enterprise, it is *de jure* specificity. If the eligibility to the subsidy is governed by "objective criteria or conditions", there is no *de jure* specificity. The article also introduces the notion of *de facto* specificity, which includes;

Use of a subsidy program by a limited number of certain enterprises, predominant use by certain enterprises, the granting of disproportionately large amounts of subsidy to certain enterprises, and the manner in which discretion has been exercised by the granting authority in the decision to grant a subsidy. In applying this sub paragraph, account shall be taken of the extent of diversification of economic activities within the jurisdiction of the granting authority, as well as of the length of time during which the subsidy program has been in operation.

In the ETS, allowances are allocated to only certain sectors and limited firms

which are covered by ETS. If the allocation is based on objective criteria or conditions, it is not *de jure* specific. To be governed by objective criteria or conditions, they should be neutral, which do not favor certain enterprises over others, and which are economic in nature and horizontal in application, such as number of employees or size of enterprise.⁸⁰ It is needed to look into the design of ETS and allocation methods to determine the existence of *de jure* specificity. However, the allocation can be regarded as *de facto* specific as well. It is related to the "dominant" use of subsidy, so if certain sectors benefit more by free allocation, there is a strong possibility.

In the EU ETS, this issue was raised in two perspectives. First, if firms are over-allocated or over-compensated, it can be regarded as "subsidy" because benefit is precisely conferred to certain groups of enterprises. Second, if some firms are allocated free of charge while others are not, such free allocation can be regarded as subsidy. In the EU ETS phase III, EU listed sectors which are deemed to be carbon leakage, so given free allocation. If only certain groups benefit from free allocation, it is *de facto* specific.⁸¹

In the Korean ETS, allocation is more likely to be "specific" than in the EU ETS. Korea will set 24 different sectoral caps, which reflect each sector's expected growth and show different reduction rate of emissions. If most of firms in sector A is all favored compared with firms in sector B, it can be regarded as subsidy which

⁸⁰ Footnote 2 SCM

⁸¹ Similarly, the Australian Scheme also defined 'emissions-intensive trade-exposed industries(EITES)'.

is specific to certain enterprises. During the phase II and III, the Korean scheme will also specify "carbon leakage" sectors, which EU did in phase III. The ETS act of Korea states that trade-exposed industries will be included in carbon leakage sectors, though the specific criteria are not yet determined. Therefore, allocation in the Korean ETS is more likely to be a subsidy which is "specific" to certain enterprises.

3) Adverse Effect

The definition of prohibited subsidy is provided in Article 3 of the SCM agreement. It states that subsidies contingent upon export performance or the use of domestic over imported goods shall be prohibited and neither granted nor maintained by Members. These kinds of subsidies are classified as prohibited regardless of its effects and all prohibited subsidies are deemed specific. As free allocation does not correspond with this definition, it is not categorized as "prohibited subsidy".⁸²

However, specific subsidies are classified as "actionable subsidies" if they cause adverse effects to the interests of other WTO members. According to the SCM agreement, adverse effects may include ; injury to the domestic industry of another country ; nullification or impairment of benefits accruing to other Member under GATT 1994, or ; serious prejudice to the interests of another Members.

⁸² To determine whether certain industries are deemed to be 'carbon leakage', 'trade intensity' is used for calculation both in the EU and Korean ETS. Trade intensity is calculated from both imports and exports, so

Regarding the meaning of injury, the footnote 11 of the agreement states that injury to the domestic industry in Article 5 has the same meaning as it does in the context of countervailing duties. According to Article 15, in order to impose countervailing duties, it should be proved that there exists "material injury" or "clearly foreseen and imminent" threat of injury to domestic industry or "material retardation" of the establishment of such an industry. In this case, effects on volumes and prices with a connection with the subsidized imports should be considered.

The "serious prejudice" analysis rather relies on the competitive impact of the subsidy.⁸³ Article 6 expands on the concept of serious prejudice, stating that Members may complain that serious prejudice has arisen in the case of ; displacement or impediment of imports of a like product of another Member into the subsidizing Member's market ; displacement or impediment of exports of a like product of another Member from a third country market ; significant price undercutting of the subsidized products as compared with the price of a like product of another Member, significant price suppressions, depressions, or lost sales in the same market or ; increase in the world market share of the subsidizing Member in a particular subsidized primary product.

Suppose that two countries adopt ETS. If exporting country allocates free allowances to like products while domestic country auctions allowances, domestic industry will have to charge a higher price per unit, which may result in the

⁸³ Rubini, p.343

decrease of its market share. If one country allocates substantially more allowances to certain industry, a similar disparity will arise as well.

Adverse effects can only be analyzed based on case-by-case. Rubini (2012) stated that we can make a few general observations on this issue. First, although it is clear that free allocation undeniably increases the financial wealth of the recipients, whether this advantage translates into a distortion of international trade is not clear.⁸⁴ Second, the empirical evidence shows that firms receiving free allowances tend to pass on costs to consumers by changing prices, with the results that no major trade effects have been detected.⁸⁵

Allocation in the Korean ETS system is more likely to be regarded as "specific" to certain sectors, but to determine the existence of adverse effects will depend on how many allowances will be allocated to certain industries and effects of such free allocation on the international trade. Therefore, it can only be concluded by the actual practices of ETS whether free allocation is actionable subsidy or not.

4) General Exceptions

If free allocation is not justified by the SCM agreement, complaining Member can have access to remedies stated in Article 7, and the issue will be the calculation of benefit. Another question is whether there is a possible ground for

⁸⁴ Rubini(2012).p.343

⁸⁵ ibid,p.343

justification in the WTO system. Article XX of GATT is a possible candidate, though it is used as general exceptions for GATT obligations. The GATT regulates trade in goods which includes basic disciplines on subsidies. It has not been settled whether the GATT exceptions can be also applied beyond the scope, but if it can be extended to other agreements, the SCM agreement can be a plausible candidate.⁸⁶

The rationale resembles the analysis of general exceptions in the BTA issue. However, it will be more difficult to prove the measure is "necessary" to protect human, animal or plant life or health (paragraph b) or "relating to" the conservation of exhaustible natural resources (paragraph g). By imposing border tax adjustments, the measure is clearly applied to protect environment. On the contrary, free allocation to domestic entities will only "increase" the overall emissions, which makes it more difficult to be justified.

5) Summary and Implication for the Korean ETS

ETS is introduced with the purpose of regulating carbon emissions using market mechanism. It sounds ironical that the allowances allocated to firms by ETS may also constitute actionable subsidy under the WTO agreements. There is no actual WTO case so far, and the analysis has depended on the interpretation of the SCM agreement.

Most of researches agreed that free allocation was subject to the SCM agreement, though Carlarne(2005) did not agree that the allocation render firms

⁸⁶ ibid, p.345-346

financial contributions. Henschke(2012), Rubini(2012) and Redmond(2010), Howse(2008) argued that free allocation satisfied the requirements of subsidies.

Korea is now in the process of designing the scheme. It needs to set the cap of emissions for entire firms covered by the ETS, and create the methodology of allocation. What is clearly decided by the ETS act is that in the Korean ETS entities will be divided into more than 20 sectors, with different emissions caps. As Korea is non-ANNEX 1 country, the reduction will be based on the BAU (business as usual) level, while in EU it was based on the level of 1990s. Moreover, similar to the EU ETS, some groups of entities will be classified as "carbon leakage" sectors, which will benefit from free allocation even during phase II and III. Those characteristics of Korean ETS may satisfy the requirements of specificity in the SCM agreements. To determine the existence of "adverse effects" on the importing countries will be only possible after the Korean ETS actually started.

Currently, no one can predict whether the allowances will be sufficient or deficient in the Korean ETS. Some analysis even predicts that the price in the Korea ETS will be set very high compared with the price in the EU ETS. To address this subsidy issue, Korea needs to design its scheme carefully not to over-allocate allowances to entities nor give disproportionately large amount of allowances to certain groups of industry.

IV. Future Issues

1. Current stage of linking different carbon markets

Emissions trading systems are regarded as linked when a participant in one system can use a carbon unit issued under another system to meet domestic compliance obligations. Markets are linked in some sense through CDM or JI projects indirectly, as credits obtained other countries by those projects are recognized in domestic carbon market as emissions allowances. The current issue regarding linkage is about "direct" linkage between different schemes. All the EU member countries linked their market with other members', and some non-EU countries such as Norway, Lichtenstein, Iceland and Croatia also joined in EU ETS.

Besides the case of EU ETS, current and expected carbon markets vary significantly in their size, design characteristics and geographical scope.⁸⁷ There has been no direct market linkage between different schemes so far, and cooperation between countries has been limited only to the exchange of information and experiences. In 2007, the International Carbon Action Partnership(ICAP) launched with the aim of contributing to the establishment of a well-functioning global cap and global carbon market by enhancing the design of different schemes and providing the opportunity to share best practice and learn from each other's experiences.⁸⁸

⁸⁷ Tuerk(2013).p.342

⁸⁸ International Carbon Action partnership , <http://icapcarbonaction.com/>

Linkage of different schemes will result in prices in different schemes harmonized. By linking markets, the size of carbon market becomes larger, which means that there is a greater diversity of abatement options and cost. With more liquidity, volatility and manipulation will be reduced. As the prices converge, the incentive for carbon leakage will decrease. On the other hand, linkage may cause several challenges and tradeoffs. It may bring about distributional issues as countries with loose cap will gain from additional sales by selling allowances to the countries with more stringent cap. Participants with rising prices will be faced with increased compliance costs, which affect energy price in the whole economy and industrial competitiveness. Each government will also lose the power to control its own climate policy, and certainty over emission abatement.

Article 25 of EU directive in 2003 states about "links with other greenhouse gas emissions trading schemes". It stated that agreements should be concluded with third countries listed in Annex B to the Kyoto Protocol which have ratified the Protocol to provide for the mutual recognition of allowances. Revised directive in 2009 added that Agreement may be made to provide for the recognition of allowances between the Community scheme and compatible mandatory greenhouse gas emissions trading systems with absolute emissions caps established in any other country or in sub-federal or regional entities.

The first serious effort to linkage began when the EU and Australia signed a MOU regarding "linking of the European emissions trading system and the Australian emissions trading scheme" in August 2012. It stated that a full two-way

link, by means of the mutual recognition of carbon units between the two cap and trade systems, is to commence no later than 1 July 2018. The Australian government will make some changes to the design of its carbon price such as elimination of the price floor, and limit of the use of Kyoto Units.

In the Korean ETS, Article 36 of the ETS Act states that the government shall endeavor to link domestic emissions allowances markets with international carbon markets in accordance with the United Nations Framework Convention on Climate Change and relevant protocols or agreements entered into with states that measure, report and verify greenhouse gas emissions in an internationally reliable manner. However, Article 3 of Decree of the Act also prohibits the conversion of emissions generated by the external project performed in any foreign nation in the first and second commitment periods (2015-2020). Therefore, linkage with other carbon markets is not allowed in Korea until 2020.

2. Additional Issues related to the linkage

Though linkage is not a current issue at least in the Korean carbon market, it entails various WTO related issues which should be addressed in the future. Without linkage, emissions cannot be directly traded internationally, so the previous debates on ETS and WTO were dealt with the trade of product, not of emissions itself.

To analyze what will constitute issues of linkage, it may be helpful to draw possible barriers for linking different schemes. To be linked market, the different

systems should be "compatible". Turk(2009) divided system differences into two groups ; system differences unlikely to create barriers or which are relatively easy to harmonize such as monitoring, reporting and verification rules, banking provisions, registries, rules governing new entrant and closures, compliance periods and allocation methods and ; system differences likely to pose significant barriers such as relative stringency of targets, stringency of enforcement, eligibility of offset credits, intensity targets and cost-containment measures.⁸⁹ Those barriers are closely related to the WTO issues.

The first thing to be discussed is whether emission itself can be categorized as a "good" by GATT or a "service" by GATS. There has been no clear conclusion on whether carbon markets fall under the WTO regime. Emissions allowances can be traded not only between covered firms but also through other financial institutions and brokers. WTO uses case-by-case analysis to determine whether something constitutes a "product" and has not yet analyzed whether allowances constitute a product.⁹⁰ Though allowances can be regarded as commodities with market value, the traditional approach of WTO perceives products as something tangible. Then, whether emission trading activity is covered by GATS is also not an easy question. In ETS system, money moves in exchange for "pieces of paper with guarantees", which make emissions allowance seem more fit to the definition of a financial service.

⁸⁹ Turk(2009) p.346-347

⁹⁰ Carlarne(2005) p.66

If emissions allowance is regarded as a good in trade, various GATT issues may be raised. Suppose that allowances are allocated free of charge in country A, which are sold to country B where allowances are auctioned. It will make a profit to country A. In this case, it fits clearly to the definition of subsidy as it is a "direct transfer of funds" in the SCM agreement, and have an "adverse effect" on country B. Even in the case that allowances are auctioned both in country A and B, carbon prices may differ depending on stringency of targets, methodology of monitoring, reporting and verification or cost containment measure such as banking, borrowing or market stabilization, which were mentioned as barriers to linkage. Whether the lower price resulted from these differences of systems constitute subsidy is questionable. If importing country restricts the quantity of the emissions permits from other countries, it may also violate Article 11 of GATT.

EU directive stated that the relevant agreements can be concluded with the ANNEX B countries of Kyoto protocol which ratified the protocol. According to the directive, EU can only open its market to certain groups, so for example, allowances of California cannot be traded in EU. Whether this policy violates MFN obligation of GATT is also questionable. If emissions allowance is regarded as a service, it will also have to be justified by GATS obligations of MFN principle.

There have been several researches on linkage issue in the EU from the economic perspective. However, legal aspects have not been analyzed in details, which may also demand some changes of WTO agreements. Korea is not at the stage of pursuing linkage with other schemes as the first phase of ETS will only

start in 2015. However, regions such as EU and Australia explicitly mention that they want to link the markets with the Korean schemes. Therefore, Korea will also need to take economic and legal researches on this issue in advance, and carefully prepare and make plans for linkage.

V . Conclusion

As ETS is a new and still developing system, there are not enough cases to study. Although only developed countries in ANNEX 1 parties of UNFCCC are obliged to reduce emissions, Korea voluntarily chose to introduce ETS as the first country among non-ANNEX 1 parties. Korea is now in the process of designing its scheme, but it is very difficult to predict how the carbon market will be functioning in the future. Carbon price in the EU ETS has fall down to below 5 euro, and other countries seem careful about implementing ETS. EU started to take measures to uphold its carbon price, and is now reforming the structure of ETS itself to make more resilient market.

In this circumstance, there are several things which should to be considered in designing the Korean ETS. First, Korea should address competitive concerns from industries. Businesses are very worried about additional costs which ETS may bring to them. As the Korean economy depends on exports in large part, worries that the new obligation imposed by the ETS may weaken the competitiveness of industry are being stronger. In July 2013, the representatives of businesses delivered their official opinion to the National Assembly, insisting that the start of the ETS should be postponed as the condition of carbon market is not predictable. To address this issue, the scheme should be designed not to give too much burden to industries and some measures to alleviate such concerns including border tax adjustment needs to be introduced. Allocating enough allowances to firms can also

reduce the concerns, in particular for trade-exposed sectors.

Another task is that the carbon market should be functioning well. To be a well-functioning market, there should be enough demands and supplies. The cap of emissions allowances needs to be quite stringent, and various entities such as private financial institutions are to be allowed to participate in the market. However, this task seems also conflicting with the first one, as it may cause more serious oppositions from industries.

Every ETS practice and related measure should be justified by the current WTO regime. As there have been no actual cases and the situation of each scheme differs, it cannot be clearly concluded whether they are justified or not as a whole. As analyzed in previous chapters, to implement border tax adjustments to imports and exports may not be easy as setting the level of adjustment not to violate the NT or MFN obligations will be very complex in the Korean scheme. Free allocation to all entities covered, and different levels of reduction target to each sector may also cause subsidy issues. It will depend on how many allowances are allocated to firms and how the allocation method is designed. It will also be affected by the functioning of the carbon market and how the market participants will react to the new system.

The last one to be considered in designing the scheme is issues regarding market linkage. As Korea is already pushed to open its carbon market to EU and Australia, analysis on economic and legal issues related to linkage should be conducted before starting the negotiations with other schemes. There are various

WTO issues to be examined such as subsidy, MFN obligation and quantitative restrictions.

It cannot be said that ETS has been established as an international norm or a global standard for climate policy. Only a few countries and regions have just started to implement it, and it cannot be concluded yet whether this new system has succeeded or failed. As Korea chose to be one of the pioneers, it needs to address many critical issues discussed above in order to make ETS well established in the world trading system and make it compatible with other relevant norms and systems.

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요약 (국문 초록)

배출권거래제는 새롭게 도입된 제도로, 아직까지 전세계에서 실제 시행된 사례가 많지 않다. 교토 의정서상 한국은 의무감축국이 아님에도 불구하고, 비 의무감축국으로서는 최초로 자발적으로 배출권거래제를 도입하기로 한 바 있다. 한국 정부는 현재 제도를 설계하고 있으나, 향후 탄소시장이 어떻게 기능할지는 예측하기가 어려운 것이 사실이다.

EU에서 배출권거래제와 관련된 WTO 이슈는 여러가지 측면에서 제기되어 왔다. 경쟁력 악화를 우려하는 산업계의 반발에 직면하여, 국내산업을 보호하고 탄소누출현상을 막기 위하여 국경세조정과 같은 무역 관련 조치들을 도입하여야 한다는 주장이 제기되었다. 또한 ETS 1, 2기를 거치며 막대한 양의 잉여배출권이 남아돌면서, 무상할당이 WTO의 보조금협정에 합치되는지 여부가 논의되었다. 2012년 EU는 항공부분을 ETS에 포함시키기로 하였는데, 이는 국내 뿐 아니라 국제항공을 포함시키면서 타국으로부터의 강한 반발과 논란을 일으킨바 있다. 또한 CDM과 JI 사업도 투자와 서비스 관련된 WTO 협정과 관련되어 논의되었다.

한국의 산업계 또한 경쟁력 악화를 우려하고 있다. 특히 한국경제는 많은 부분 수출에 의존하고 있어, ETS에 따른 새로운 의무가 경쟁력을 악화시킬 것이라는 우려가 매우 강하게 제기되고 있다. 이에 따라, 한국의 배출권거래제는 산업계에 너무 많은 부담을 주지 않도록 설계되어야 하며 국경세조정과 같은 조치의 도입을 검토해보아야 한다. 또한 한국은 모든 배출권을 무상으로 할당하기로

하였으며, 각 산업별로 감축 의무가 상이하게 적용되는 바, 이와 관련된 보조금 이슈가 EU에서보다 더 큰 논란이 될 가능성이 있다.

아직까지 배출권거래제와 관련된 실제 WTO 사례가 없기 때문에, 국경세 조정과 무상할당이 WTO 의무에 위반되는 지는 확실히 결론내릴 수는 없다. 그러나 수입품과 수출품에 대한 국경세 조정은, WTO 의무에 합치되는 수준으로 정하는 것이 어려울 작업이 될 것으로 예상된다. 무상할당은 보조금 정의에 부합하는 것으로 보이나, 결과적으로 그것이 조치가능 보조금 인지의 여부는 할당방식이 어떻게 결정되는지와 수입국에 대한 무역효과가 어떻게 나타나는지에 달려있을 것이다.

아직까지 탄소시장 연계가 이루어진 곳은 없으나, EU는 우리나라 탄소시장을 개방하여야 한다고 요구하고 있다. 서로 다른 배출권거래시장이 연계되면 GATT와 GATS 관련된 많은 이슈들이 제기될 것이며, 일부 WTO 규정에 대한 개정도 요구될 수 있을 것으로 예상된다.

배출권 거래제는 소수의 국가들만이 도입하고 있어 아직 그 성공이나 실패 여부를 결론내리기 어렵다. 한국은 자발적으로 ETS를 도입하기로 결정한 바, 세계 무역 체제에 ETS가 잘 정착할 수 있도록 여러가지 주요 이슈들을 해결하도록 노력해야할 것이다.

주요어 : 배출권거래제, WTO, 무상할당, 국경세조정, 보조금, 탄소시장

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