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research paper

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**CARBON PRICING AND BORDER TAX  
ADJUSTMENTS: THE COMPATIBILITY  
WITH WTO RULES**

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## ABSTRACT

There is currently broad consensus that the most cost-effective instrument to address the global warming problem is a worldwide carbon tax with a uniform rate since the reduction in carbon dioxide emissions will take place where abatement costs are lower. However, if this solution is not feasible in the short run, since some major countries cannot accept the same increase in energy taxation, unilateral initiatives are needed. In this case, border tax adjustments should be adopted to prevent the protection of the global commons from aggravating competitive conditions for the most environmentally-friendly countries.

Furthermore, taxing goods at the border according to their carbon content is a prerequisite for the political acceptability of the carbon tax, ensuring that environmental protection does not significantly damage economic growth. This paper emphasises that the border tax adjustment not only increases global welfare, but also could be shaped so that it is compatible with WTO rules.

**Keywords:** Border tax, Carbon Tax, CO<sub>2</sub> emissions, Emissions Trading Scheme, European Union, global warming, Kyoto Agreement, WTO.

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**1. Macron and the Carbon Tax**

French President Macron's speech, given at La Sorbonne University in Paris, proposing an "Initiative for a sovereign, united, democratic Europe", puts forward many new ideas. In view of the upcoming negotiations on the next Multiannual Financial Framework, the most significant suggestion emerging from his speech concerns the resources to be allocated to finance the European budget. Here, particular emphasis is put on the role of a carbon tax. This is considered as the price to be paid for using fuels that during the combustion process emit carbon dioxide and pollute the environment, increasing the risks of climate changes. From this point of view, the carbon tax could be considered as the price to be paid not only to compensate for the damages caused by polluting a common good, but also – and this is the other side of the coin – to purchase the "permit" to (legally) release the greenhouse gases into the atmosphere. Then, to a certain degree, the carbon tax could be seen as a way to "get prices right" similar to the emission allowances that are the cornerstone of the Emissions Trading Scheme adopted by the European Union.

According to Macron, the levying of a carbon tax could be politically feasible only if "the European firms that are more involved in the globalisation process are put on a level playing field with the competing foreign firms that are working in countries with less stringent environmental constraints. For this reason, a border tax on carbon is unavoidable". This suggestion represents the only way to reach a consensus on carbon pricing since it allows problems of carbon leakages and the loss of competitiveness of European production to be avoided, while facilitating the transition towards a new model of sustainable growth. In the meantime, the implementation of border tax adjustments (BTAs) is highly controversial, both from an economic point of view and in terms of compatibility with WTO rules.

This paper will try to show that the combination of BTA and a carbon tax is a welfare-enhancing measure and could be structured so that it is consistent with the principles governing international trade relations.

**2. From the Carbon-Energy Tax Proposal to the Emissions Trading Scheme in the EU**

Economists increasingly agree that, in defining the best policy option to control global warming and fight climate change, economic instruments allow the goal of curbing greenhouse gas emissions to be achieved at a lower cost than standards and regulations. However, a choice

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<sup>1</sup> *Initiative pour l'Europe*. Discours d'Emmanuel Macron: *Pour une Europe souveraine, unie, démocratique*, Paris, 26 Septembre 2017.

should be made between price instruments, such as a carbon tax, and quantity instruments, such as emission permits. “In an environment of complete knowledge and perfect certainty there is a formal identity between the use of prices and quantities as planning instruments”. This is the basic assumption of the classical approach that goes back to Weitzman (1974). However, since asymmetric information is the rule and not the exception, a choice must be made.

In 1992, in preparation for the United Nations Conference on Environment and Development to be held in Rio, the European Community put forward a draft Directive introducing a carbon-energy tax<sup>2</sup>, with the double goal of promoting energy-saving through the share of the tax linked to the quantity of energy used and fuel-switching through the tax rate linked to the carbon content of each fossil fuel (Majocchi, 1993). However, after the failed attempt to introduce a carbon-energy tax, the EU Council decided to follow a different path and finally approved a Directive (2003/87) defining “A scheme for greenhouse gas emissions allowance trading within the Community” (Delbeke, 2006).

The EU Emissions Trading Scheme (ETS) adopts a cap-and-trade method, that entails the allocation of entitlements before the trading period begins since it requires that polluters hold an entitlement to emit a given quantity of pollution, and covers carbon dioxide emissions from installations listed in Annex 1 of the Directive. The activities covered are all combustion installations with a rated thermal input exceeding 20 MW: mineral oil refineries, coke ovens, production and processing of ferrous metals, mineral industry (cement, glass, ceramic products), production of pulp and paper, for a total of nearly 11,000 installations, representing about 45% of total emissions.

Greenhouse gas emission permits are the key element of the ETS. The Commission initially proposed that for the first three years of emissions trading the allowances to participating installations should be allocated for free, with the possibility of auctioning up to 5% of allowances. For the five-years period beginning in January 2008, Member States shall allocate at least 90% of the allowances free of charge (Article 10), while “further harmonisation of the method of allocation was foreseen”, including a progressive shift towards the auctioning of allowances in place of cost-free allocation for the third trading period 2013-2020 (Article 30(2)(c) of the Directive). How many allowances had to be allocated and to whom was left to be decided through National Allocations Plans since there were differences between Member States’ commitments under the EU burden-sharing agreement and the Kyoto Protocol.

The possession of allowances entitles operators to emit greenhouse gases, and allowances can be transferred between persons within the Community. By 30 April each year at the latest, the operator of each installation must surrender a number of allowances equal to the total emissions from that installation during the preceding calendar year and these allowances will be subsequently cancelled (Article 12(c) of the Directive 87/2003).

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<sup>2</sup> The draft Directive on carbon-energy tax was presented by the Commission on 2 June 1992, but it was never approved by the Council.

### 3. The Limitations of the Kyoto Agreement on Curbing CO<sub>2</sub> Emissions

A worldwide agreement on curbing CO<sub>2</sub> emissions was reached on 11 December 1997 at the Conference of Parties (COP3) that took place in Kyoto<sup>3</sup>. The approach adopted in Kyoto entails that each country limits the quantity of its emissions so that the global emissions reductions target may be achieved. However, the Kyoto approach has one significant weakness, i.e. that it is based on emissions measured according to the level of production, not consumption. If a country is delocalising energy-intensive industrial production towards other areas where labour costs are lower, while importing the same goods from these countries, then carbon production has been cut down, but not consumption.

An example of switching production while maintaining high consumption may be found in Helm et al. (2007). UK carbon production went down by over 15% between 1990 and 2005 since the UK de-industrialised and switched from coal to gas to generate electricity. However, if carbon consumption is measured adding to production carbon imports – and aviation and shipping –, it is found that the UK's emissions went up by around 19%. Helm's conclusion is quite straightforward: “much of the emissions in China are for us, not the Chinese. The emissions are produced in China, to be consumed in Europe and the US... We should pay for our emissions wherever they are produced” (Helm, 2010, p. 62).

The Kyoto agreement contains a strong incentive in the energy-intensive sectors to switch production from capped towards other uncapped countries, then, reimport the goods for domestic consumption. This has a strong impact on the choice of the most effective instrument to move towards climate change mitigation. The system of permits is effective if all the major producing countries are capped. However, if this is not the case, a leakage problem arises that could be solved by implementing a carbon tax based on emissions linked to domestic consumption, regardless of where they are produced. This means that imported goods should be taxed in the same way as national products. In the absence of a similar measure, i.e. without the BTA, a cap-and-trade system could be counterproductive from an environmental point of view. In the case of the displacement of production abroad, carbon leakage refers to the amount of emissions avoided when domestic production falls in relation to the amount of carbon emitted in the areas of the world where production goes up. Hence, the displacement of production could lead to an increase in overall emissions if the carbon intensity of production abroad is much higher than at home.

According to Gros and Egenhofer (2010, p. 33), “a key parameter in any judgement of the efficiency of the ETS is thus the difference in energy and carbon intensity between the EU and its major trading partners”. In the literature (Peters G., Hertwich E., 2008) it is estimated that each \$1,000 of exports from China contains about 2-3 tonnes of carbon, which is about four/five times more than the 0.5 tonnes of carbon embodied in \$1,000 of exports from the EU. If the carbon intensity of GDP is the issue, it appears that it is ten times higher in Russia than in the EU and six times higher in China. If it is agreed that as a benchmark Chinese production is generally about 4

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<sup>3</sup> The Kyoto Protocol is an international agreement linked to the United Nations Framework Convention on Climate Change, which commits its Parties by setting internationally binding emission reduction targets.

to 5 times as carbon-intensive as that of the EU, it follows that the ETS might lead to an increase in global emissions if production leakage is somewhat above 20-25%.

There is another strong argument in favour of complementing the cap-and-trade system with a carbon tax. To reach the necessary CO<sub>2</sub> emissions reduction goal, a floor price for permits should be guaranteed at the level needed to underpin low carbon investments. This outcome is not easy to achieve since governments should intervene in the market by buying back permits to hold up the price. However, this behaviour implies a loss of revenue for treasuries that are already constrained by the SGP's rules. A strong signal to the market of the determination to guarantee a carbon price floor could be represented by the implementation of a carbon tax with a rate proportional to the carbon content of each energy source. Contrary to what happens with the grandfathered permits, the carbon tax, considered as a complement to the ETS, will provide new revenue that could be used to fund the investments required or to cut down other distortionary taxes, opening the way to the achievement of a double dividend, at least in the weak version (Goulder, 1995, Bovenberg, 1999).

#### **4. The Rationale for Border Tax Adjustments**

A well designed carbon tax - introduced as a complement to the existing emissions trading system within the European Union - should take into account that the tax should be levied on carbon consumption, then taxing imports of energy-intensive goods as well. This implies that the carbon tax should combine a domestic proxy for consumption and a border tax adjustment<sup>4</sup>. The existing ETS covers less than half of total carbon emissions, since buildings and domestic sector are not covered and much of the transport sector is excluded. Agriculture is excluded from the ETS as well. The new carbon tax could be a fuel tax levied on coal, gas and oil, weighted according to their carbon content, and to the extent that consumption is targeted by its carbon inputs, it is a proxy for a carbon consumption tax.

This domestic tax should be complemented by a border tax adjustment (BTA). Since a global cap-and-trade system or a carbon tax encompassing all the major greenhouse gas emitters is at this stage unrealistic, a simple way to move towards a global level pricing of carbon would be for Europe to impose an import tax on the CO<sub>2</sub> content of all goods imported into the EU from countries that do not put a price on the use of carbon. This measure is extremely controversial since important administrative problems must be solved and it is sometimes rejected as contrary to WTO rules. However, while a level playing field seems to be an important condition for fair competition at the international level, what is more important is that a BTA is essential to prevent domestic firms from risking a loss of competitiveness could make it difficult to adopt such a tax (as already happened with the 1992 EC draft Directive), while an externality tax on a global public

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<sup>4</sup> "A 'border tax' is a tax (or customs duty) imposed on imported goods, while a 'border tax adjustment' is an adjustment of the taxes imposed domestically on products when the goods are imported" (WTO-UNEP, 2009).

<sup>5</sup> GATT Working Party Report, *Border Tax Adjustment*, L3464, 2 December 1970.

<sup>6</sup> GATT, *Japan - Taxes on Alcoholic Beverages*, Report of the Appellate Body, WT/DS8, 10/11AB/R, 4 October 1996.

bad is undoubtedly an efficiency enhancing measure. As Gros and Egenhofer put it (2010, p. 38), “an import tariff improves global welfare because this transfers carbon pricing, at least partially, via trade flows, even to those parts of the world whose governments have so far refrained from imposing any domestic measures”. It remains to be seen whether a carbon border tax is compatible with WTO rules.

## 5. Border Tax Adjustments and WTO Rules

The BTA is based on the principle that goods are taxed where they are consumed, not where they are produced. Therefore, according to the GATT<sup>5</sup>, a border tax adjustment is defined as “any fiscal measure which puts into effect, in whole or in part, the destination principle”. There can be two types of BTAs: the levying of a tax on imported goods at the same level as the domestic tax levied on similar goods (BTA on imports); the rebate of domestic taxes when goods are exported (BTA on exports). In the case of the ETS, the BTA could require that importers be obliged to purchase an amount of permits corresponding to the quantity of emissions created during the manufacturing process of the imported goods.

The risk is that the BTA could turn out to be a hidden trade barrier. The GATT Report on BTAs indicated that only indirect taxes could be eligible for a border adjustment and that BTAs are compatible with existing rules if foreign and domestic goods are similar or like-products. In an Appellate Body’s decision within the GATT<sup>6</sup>, the likeness of a product is defined according to four characteristics: the physical properties of the product; the ability of the product to serve the same or similar end-uses; the consumers’ perception that a products could be considered as an alternative means to satisfy a particular want or demand; the international classification of products for tariff purposes.

The border charge on imports should be equivalent to the tax on the corresponding domestic product since, according to the WTO’s rules, a State shall not discriminate between domestic and foreign goods. The rules stipulate that the charge could be imposed through a measure equivalent to the internal tax “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” (Article II.2a). That the energy inputs and fossil fuels used in the production process could be considered to be such articles seems to be reinforced in Article III.2, which states that border tax adjustments are allowed in respect of the taxes applied “directly or indirectly” to like domestic products. Similarly, on exports, BTAs are considered as subsidies – and in this case are not admitted – only when they are levied “in excess” of taxes on like domestic products.

Even if a carbon border tax is considered a border enforcement of the EU domestic tax, it cannot treat imported products less favourably than “like” domestic products. According to an Appellate Body’s decision within the GATT<sup>7</sup>, two products are considered “like” if they are in a “competitive

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<sup>7</sup> GATT, *European Communities – Measures Affecting Asbestos and Products Containing Asbestos*, Report of the Appellate Body, WT/DS135/AB/R, March 2001.

relationship”. Consequently, even if a basic industrial product is produced using two different production processes, one of which is more carbon-intensive, they should be considered “like”. Hence, a carbon border adjustment, which is a tax on a “process” and not on a “product”, would infringe Article III.4, since it treats two “like” products differently. In this case, differentiation between “like” products is only permitted by invoking the General Exceptions. Trade-related measures are allowed under Article XX<sup>8</sup>, when they are needed to protect exhaustible resources or human, animal or plant life or health. A low-carbon atmosphere could reasonably be considered, since it is necessary to avoid catastrophic climate change, as an “exhaustible natural resource”.

Article III requires that imported goods not be treated worse than domestic goods; therefore, the EU must be careful to impose a carbon BTA based on the carbon content of the import and that does not exceed the domestic carbon tax. “The rate of the tax should be equal to the difference between the EU price of carbon (€) and the foreign price of carbon. Hence, the tax on a product is going to be equal to the carbon content times the difference in the EU carbon price and foreign carbon price” (Gros and Egenhofer, 2010, p. 61)<sup>9</sup>.

Basing the tax on the carbon content of the product ensures that a BTA will be compatible with Article I, according to which the EU cannot discriminate against an import based on its “origin”. The EU may argue that the BTA measure is not imposed based on origin, but on the production process. Therefore, one crucial detail in the implementation of the BTA is the methodology used to collect the information needed to determine the carbon footprint of each quantity of the imported good. This could be done, for example, by requiring imported products to be accompanied by a certification or the labelling of the relevant aspects of their production process and related carbon emissions used in their production (Hillman, 2013, p.7). If export countries do not provide information about the production process, according to Gros and Egenhofer (2010), the best solution (under WTO-compatibility considerations) would be to use an “external” standard, such as ISO 14067, to calculate the carbon footprint of imports.

## **6. Tax Exemptions and Border Tax Adjustments Combined with the Use of Economic Instruments**

The trade-off that seems to exist between environmental protection and external competitiveness is effectively one of the main hurdles to overcome in order to reach a political agreement to unilaterally implement domestic environmental protection measures, when the global commons are at stake. Even if, in the long-run, a sound environmental policy could improve the domestic industrial structure, and thus also the competitive position of the country concerned, when in the short run external competitiveness seems to be impaired, it is much more difficult to get advanced environmental legislation adopted throughout the political process.

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<sup>8</sup> Low, Marceau and Reinaud (2011), p. 487.

<sup>9</sup> “The border tax should tax the manufacturer or the importer at the point of the first sale or use of the imported product. The border tax should apply to all products as all products emit carbon during the production process” (Gros and Egenhofer, 2010, p. 61).

The way out of the dilemma between environmental effectiveness and external competitiveness that was suggested in the proposal for a carbon/energy tax presented by the EU Commission<sup>10</sup> was the provision of tax exemptions for energy-intensive industries largely open to international trade, that “are seriously disadvantaged on account of an imbalance in trade from other Member States or an increase in imports from third countries” (Article 9:2). Since there are plenty of reasons to question the rationale behind this solution, it may be very important to ensure that a policy setting up a system of border tax adjustments to balance the cost differentials between domestic and foreign production due to the environmental tax is compatible with the existing WTO rules.

If the adoption of an environmental tax is constrained by a conditionality clause, i.e. by the adoption of similar measures by other competing countries, this implies that deciding to unilaterally implement the environmental policy is out of the question, while it will still be extremely difficult to achieve multilateral consensus to address global problems. Exemptions for energy-intensive industries have been extensively adopted, but they largely impair the environmental result.

Border tax adjustments should be analysed in depth as a possible way out, bearing in mind that this solution seems to be easier to implement in the case of domestic environmental taxes rather than regulations. While regarding energy products the possibility of levying a compensatory duty on fuel imports seems clearly consistent with trade rules, problems could arise when a border tax adjustment is envisaged on imports of goods that use an amount of carbon-intensive energy in their production process.

It must be reminded that a negative conclusion was reached on border tax adjustments in a GATT Report<sup>11</sup> rejecting the principle of a “level playing field” and suggesting that “there is no difference between the competitive implications of the type raised by different environmental standards and the competitive consequences of many other policy differences between countries”. While this remark is generally correct as far as regulations are concerned, the possibility of border tax adjustments for environmental taxes levied on products, when these products are used as inputs in the production process of other products, was not rejected by a GATT Panel<sup>12</sup>, when the EC – together with Canada – challenged the *United States Superfund Amendments and Reauthorization Act* of 1986.

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<sup>10</sup> The 1992 proposal for a Directive introducing a carbon/energy tax was later revised. See COM(95)172 final. In 1997, a new one - COM(97)30 final - was put forward by the Commission revising the Community framework for taxing energy products. A further proposal was presented on 13 April 2011 (European Commission, 2011), but was withdrawn due to the Council’s lack of support.

<sup>11</sup> GATT, *Dunkel Report on Trade and Environment*, 11 February 1992.

<sup>12</sup> GATT, *United States Taxes on Petroleum and Certain Imported Substances (Superfund)*, Report of the Panel, 17 June 1987 (L6175 – 34S/136): “To the extent that the tax on certain imported substances was equivalent to the tax borne by the like domestic substances as a result of the tax on certain chemicals, the tax met the national treatment requirement of Article III:2”.

## 7. The Superfund Case

The Superfund Act authorised a programme to clean up hazardous waste sites and deal with public health programmes caused by hazardous wastes. It imposed a tax on certain chemicals with effect from 1 January 1987 and further levied a new tax on certain imported substances, entering into effect on 1 January 1989. The taxable imported substances were derivatives of the chemicals subject to the domestic tax on certain chemicals.

The amount of the tax on any of the imported substances was equal in principle to the amount of the tax which would have been imposed under the Superfund Act on the chemicals used as materials in the manufacture or production of the imported substance if the taxable chemicals had been sold in the United States for use in the manufacture or production of the imported substances. Hence, the Panel concluded that, to the extent that the tax on certain imported substances was equivalent to the tax borne by like domestic substances as a result of the tax on certain chemicals, the tax met the national treatment requirement of Article III:2, first sentence, of the GATT.

It must still be checked whether the ruling of the Superfund case could be applied when border tax adjustments are envisaged for products using a large amount of energy not as a raw material, but as a combustion fuel consumed during the production process. In any case, it should be proved that the tax is levied on a product (the fuel utilised during the production process) and not on the process as such - to avoid the ban of trade measures with extra-jurisdictional effects emphasised by the Tuna Panel Report<sup>13</sup>.

The Superfund Act envisaged the possibility of implementing border tax adjustments if the chemicals subject to the domestic tax on certain chemicals constituted more than 50% of the weight or the value of the materials used to produce such imported substances -determined on the basis of the predominant method of production. According to this provision - which was not contested in the Panel Report - it seems conceivable to levy a border tax adjustment even if the energy - which is taxed domestically - does not appear in a measurable physical quantity in the imported product, provided that the value of energy represents a certain percentage of the total value of the imported commodity.

## 8. The Importance of Macron's Proposal on Carbon Pricing

The public opinion's widespread support of environmental protection, especially in the most industrialised – and largely polluted – countries, should not mask the risk that tough, environmentally-friendly measures could be used as new, hidden trade barriers. It is quite clear that there are fully legitimate reasons for applying different domestic environmental policies, which reflect local conditions, preferences and levels of development. Thus, if environmental measures concern domestic goods, the argument for using trade restrictions can only be protectionist in nature, and must be firmly rejected.

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<sup>13</sup> GATT, *United States – Restrictions on the Import of Tuna (Tuna Dolphin)*, Report of the Panel (DS29/R), 16 June 1994.

When global environmental goods are at stake, the definition of international standards of environmental protection - as has been the case for technical, sanitary, phytosanitary standards - seems to be an appropriate way out to meet needs for environmental protection, while limiting negative impacts on trade. However, outside the technical framework, as a general rule, regulations do not represent the most cost-effective way to solve a global environmental problem. There is currently broad consensus that the most cost-effective instrument to address the global warming problem is a worldwide energy/carbon tax with uniform rate since, in this case, the reduction in carbon dioxide emissions will take place where abatement costs are lower.

If this solution is not feasible in the short run, since some major countries cannot accept the same increase in energy taxation, unilateral initiatives are needed. However, in this case, new solutions – and border tax adjustments are probably the most effective – should be adopted to prevent the protection of the global commons from aggravating competitive conditions for the most environmentally-friendly countries.

As a matter of fact, when it comes to the protection of the global commons, attention should be given to the fact that States are interdependent. Hence, the effectiveness of the policy pursued by one State depends on what the other States do. There are two types of such interdependence. First, if one country curbs its emissions, this benefits other countries as well. However, the country implementing emissions control does not receive any compensation for these benefits and therefore does not take them into account when setting its own abatement level. This implies that each group of countries will abate too little of its emissions relative to the amount that would be justified from a global perspective. Free-riding hinders the success of effective environmental policy.

Second, upon adopting strict environmental rules, the prices affected by the policy would rise and, as a consequence, comparative advantage would shift abroad. As the output of these goods rises abroad, emissions are likely to rise as well. These market effects are known as carbon leakages and undermine the environmental effectiveness of unilateral abatement policy.

The significance of Macron's suggestions in his speech at La Sorbonne are now quite evident. Macron has stressed the importance of ecological transition in shaping the new worldwide economic landscape and the crucial role that Europe could play by putting a price on carbon in curbing CO<sub>2</sub> emissions. He also remarked that, to be effective, the price put on carbon emissions could not be lower than €25-30 per tonne of CO<sub>2</sub>. However, if a loss of competitiveness for European firms is to be avoided and the risk of carbon leakages prevented, border adjustments are needed, allowing products flowing from countries with no price on carbon to be taxed at the same rate levied on domestic production.

There are many reasonable arguments against taxing goods at the borders. While the risk of increasing trade barriers should be ruled out – by carefully structuring European border tax adjustments so that they are compatible with WTO rules –, it must not be forgotten that putting a price on the use of fuels that emit carbon dioxide during combustion is a way to get prices right, since prices would include the costs of polluting the environment through the use – either domestically or abroad – of natural resources. However, taxing goods at the border according to their carbon content is also a prerequisite for the political acceptability of the carbon pricing

proposal, ensuring that environmental protection does not significantly damage economic growth. Thus, one aspect of the proposal – putting a price on carbon – cannot be separated from the other – applying an import tax at the border on foreign products coming from countries with no price on carbon.

This paper not only stresses how significant this link is, but also that the BTA system increases the global welfare and could be shaped so that it is compatible with WTO rules.

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