

CARBON TARIFFS

Discussion paper

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INTRODUCTION

In May, President Macron reiterated his call for a carbon-based border adjustment mechanism for the EU. Later in the summer, Ursula von der Leyen pledged that she will introduce *a carbon border tax* to avoid carbon leakage¹.

Carbon tariffs or carbon-based border tax is not a new idea though evidently never implemented in a full-blown scale. Nobel Laureate Joseph Stiglitz proposed already in 2006 that other countries should impose tax on imported American goods that are produced using energy-intensive technologies. A number of initiatives and legislative blueprints have been drafted in the USA and Europe over the years. However, trade policy and other controversies have impeded the implementation of carbon tariffs into practice.

The basic idea of carbon tariffs is to level the playing field between domestic and imported products as regards CO₂ costs. This is relevant when a state or a region, such as the EU, has implemented climate policies that add CO₂ cost on domestic production while imported products do not have similar CO₂ cost burden from their country of production.

This paper aims to give a brief analysis of the instrument. The instrument is viewed from economics and trade policy angles. Practical implementation issues related to the design of the instrument are discussed, too. First, a brief look is taken to carbon tariffs within international climate policy discussions.

The paper looks at the issues from an EU angle.

Definitions

This paper is titled *carbon tariffs*, another commonly used term is *carbon border adjustment (CBA)*. In this paper, *carbon tariff* is understood as a *greenhouse gas (GHG) related border adjustment tax or tariff*; i.e. a monetary levy on imported products based on climate related criteria.

A broad and inclusive rather than a narrow definition is applied. The key point is that someone has to pay when importing products and that this payment is somehow based on (the lack of) climate policy of the exporting country and/or the GHG emissions related to the production of the imported product.

Whether the tariff is called *a tariff* or *a tax* can make a difference from a legal point of view. It can make a difference whether the instrument falls under EU or Member State competence and who would collect the revenues (*re*: customs union vs. national taxation). This issue is not discussed further in this paper. It is assumed that in the EU any carbon tariff would be an EU level instrument because trade and climate policies are within exclusive and shared EU competence, respectively.

CARBON TARIFFS IN INTERNATIONAL CLIMATE POLICY DISCUSSIONS

France has kept making high level proposals on carbon tax border mechanisms for a longer time under the presidencies of Sarkozy, Hollande and Macron. Denmark, too, was active during the run-up to the UNFCCC COP Copenhagen. Spain proposed recently a carbon border tax for EU's energy imports. Individual ministers and politicians in different countries have taken up carbon tariffs.

¹ A Union that strives for more. My agenda for the Europe, by candidate for the President of the European Commission, Ursula von der Leyen. Political Guidelines for the next European Commission 2019-2024.

However, France has been quite alone with its proposals when more serious discussions have taken place in the EU.

Motivations behind carbon tariff proposals vary. Clearly, there is the climate change mitigation aim. Tariffs have been proposed as a threat to force reluctant countries to agree upon international agreements to curb emissions, however at UNFCCC Copenhagen this was not successful. There is the aim of levelling the playing field between national production and imports. There could also be further protectionist as well as fiscal motivations. Current trade wars have also prompted comments about their use as a weapon.

Carbon tariffs are not being discussed on the official agenda of the UNFCCC. Discussions under the Paris Agreement have focused on the mechanisms of the Paris Agreement itself. Neither are carbon tariffs formally on the WTO agenda. The discussions have taken place mainly through media, speeches, studies, think tanks and informal discussions.

CBAs are mentioned as a prospective instrument in Mexico's contribution to the Paris Agreement. In the U.S., democrats included carbon border measures into their cap-and-trade legislative proposals in the 2000's. China, an obvious target, was ready to contest carbon tariffs at the WTO. Currently China is building its own cap-and-trade system and it would be interesting to see whether that will have any impact on China's position in the future.

Following its decision to opt out from the Paris Agreement, the U.S. would be one of the first targets of carbon tariffs and its position is therefore obvious. Interestingly, the republican government has been somewhat open for other border adjustment taxes for protectionist reasons. There are differences between state and federal levels in the U.S. The state of California was about to introduce a wider carbon tariff mechanism two years ago in connection of its new cap and trade scheme. It would have affected both national imports from other U.S. states and international imports to California. In the end the CBA was restricted to electricity.

Carbon tariffs are a controversial issue. It is feared that they would trigger trade wars and sour the talks under the Paris Agreement and do harm for the UNFCCC multilateral process and respective national efforts.

Von der Leyen's pledge will certainly take carbon tariffs into the limelight should she include them into the new Commission Programme. VDL would have some internal convincing to do first, though. The thinking in DGs TRADE and CLIMA is that carbon tariffs are not a very good idea².

THE ECONOMICS - CARBON TARIFFS AMONG OTHER CLIMATE POLICY INSTRUMENTS

From the economics point of view climate change is a negative externality. The emitter of GHG-gases does not bear the external social cost of burning fossils. The social cost is the climate change and its negative consequences.

Climate policies try to rectify or mitigate this in various ways. Policy instruments can be divided into economic (monetary) and non-economic ones. The latter ones are mainly restrictions/limits/regulations on emissions, fuels, technologies and land-use.

² According to sources, not checked directly with the services.

The economic instruments aim to change economic incentive structures. They are either 'sticks' or 'carrots'; they either add cost (taxes, tariffs, fees) to GHG emissions or subsidize renewables, energy efficiency improvements and their development.

Tax on fossils at source - when pumping oil and gas up, digging coal at a mine - would be the most efficient and neutral economic stick instrument, adding a CO₂-cost already at the source. This cost would then flow downstream through the value chain and affect the choices through market mechanism. A fraction of the fossil CO₂-cost would end up to all products in the chain that are using the fossil energy content as input. In the real world, this is not possible as there is no global government that could introduce such uniform global fossil tax at source and enforce it.

Taxes, emission trading costs etc. economic stick instruments are national/regional (EU) and this creates disparity between countries or regions. There is no level playing field. Carbon tariffs would address this disparity.

EU emissions trading scheme (ETS) is a hybrid instrument. The cap, a regulatory limit, creates a scarcity and therefore a price. The emission allowances are then auctioned by governments and are comparable to a tax on CO₂.

A key reason why EU introduced ETS rather than more direct CO₂-taxes was that there is no EU competence on taxation. Something else had to be applied by the Commission. Nevertheless, the end result is that EU ETS sectors pay a CO₂-cost burden that foreign competitors don't have either at all or not to the extent that the EU producers have³. The idea of carbon tariffs is to impose a similar CO₂-burden to imported products. The obvious targets would be the ETS sectors, however, in theory, tariffs could be implemented also on other sectors facing (national) GHG taxes.

Carbon tariffs level the playing field only at domestic market

It is important to note that carbon tariffs address this disparity of CO₂-costs only at the domestic market - not at export markets. Let us take an example of the EU ETS sector: EU producer and a competitor from a non-EU country that does not have cost-adding climate policy. EU producer's production costs are higher than those of non-EU competitor, by the amount of CO₂-allowances (*ceteris paribus*). Therefore, the non-EU producer has cost (i.e. price) advantage both at EU market and non-EU markets. By introducing a carbon tariff equaling the ETS-cost, EU could level the playing field at the EU market. However, on export markets (foreign producer's domestic market and 3rd markets) the EU producer would still have a disadvantage.

EU carbon tariffs would address only the domestic consumption part of carbon leakage. They would not help EU's export industries on export markets.

Carbon leakage sectors receive certain amount of EU ETS allowances for free in order to tackle the carbon leakage problem. Carbon tariffs have been mentioned as an alternative to the free allocation. It is fundamental to note that carbon tariffs would tackle only one side - the domestic market - of the carbon leakage problem, not the export market side.

As such, carbon tariffs are a solid instrument to reduce CO₂ emissions in pure economic terms if we disregard the bad will and possible trade wars that their implementation would ignite. Carbon tariffs would reduce CO₂ emissions of domestic consumption by making imported CO₂-intensive

³ Depending on the policy of the country where they have production. EU's climate policy is normally considered the most stringent. However, this study has not looked into the level of CO₂-taxes or allowance prices in other countries.

products more expensive. Domestic consumers will pay the duty burden unless exporters or their agents sacrifice some of their margins.

In the real world of complex supply chains, carbon tariffs would hit also domestic production, and in particular domestic export industries. This depends on the share of imported inputs in products and the level of carbon tariff on them.

There are some 70 countries in the world that have an active climate policy. The policies vary but some create price for CO₂, like the EU ETS does. These prices vary from system to system. Should one wish to create level playing field for domestic and imported carbon from these different systems - i.e. have equal carbon tax level - there should be a differing level of carbon tariff depending on the source country.

Impact on the Finnish economy

The impact of carbon tariffs on the Finnish economy has been studied by Jere Lehtomaa in his master's thesis.⁴ The study is a solid piece of work. The results of his modelling suggest that carbon tariffs would be detrimental to the Finnish economy. This is due to high material intensity and a dependence on imported materials in the industry. The tariffs would add up to a notable growth in total production costs. The negative impact would be most evident within export-oriented process industries. This is a paradoxical result as these are mainly the sectors that carbon tariffs would intuitively be established to shelter.

TRADE POLICY ASPECTS

WTO

Climate change, and carbon tariffs in particular, are not part of the WTO's ongoing work programme and there are no WTO rules specific to climate change or carbon tariffs. However, the horizontal WTO/GATT rules are relevant.

Carbon tariffs have not been tested in the WTO, there is no dispute settlement ruling from WTO or GATT on carbon tariffs. Should EU or another WTO Member introduce carbon tariffs it would be evident that they would be contested.

There are studies and speculations to both directions: that carbon tariffs would be compatible with WTO rules and that they are not. These opposing views are based on Article XX, the environmental exception, on one hand, and the so-called PPM rule on the other hand.

The classic interpretation is that *like* products may not be discriminated on the basis of production and process methods (PPMs). This interpretation stems from the famous tuna-dolphin case. GHG emissions associated with the production would be considered part of PPMs, not actual characteristic of the product itself. Therefore, carbon tariffs would not be compatible with WTO rules.

⁴ Jere Lehtomaa, Climate policy and international trade: Impacts of EU carbon tariffs on the Finnish economy, University of Helsinki, 2017.

The other interpretation is based on Article XX of GATT. Under its paragraphs (b) and (g), trade restrictions are allowed if necessary to protect human, animal or plant life or health or relating to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption. Other conditions, listed in the chapeau of the Article, apply, too. Because atmosphere has been found exhaustible natural resource it is claimed that carbon tariffs - if well designed - would be compatible with WTO rules.

The trend in interpreting WTO rules seems to go towards environmental direction, i.e. more supportive of the latter, Article XX based interpretation. Anyhow, the present situation is that there is no clarity whether WTO rules allow carbon tariffs or not.

EU Free Trade Agreements and GSP

EU has a number of bilateral free trade agreements (FTAs). The parties to these FTAs would presumably react that the FTAs define the respective trade relations and carbon tariffs could not be implemented without their consent. Anyhow, one should check carefully what the individual FTAs actually stipulate about introducing new measures.

On the other hand, EU is negotiating new FTAs, too, and the old ones are reviewed at certain intervals. This opens a possibility to tie tariff reductions or their time table to climate policy of the partnering country.

Similar approach could be taken through the GSP system. EU gives unilateral tariff reductions to least developed countries. A climate policy condition could be added to GSP reductions, too. Similar measures have been used, EU included an additional tariff reduction dependent on sustainable forest management to the GSP Regulation already in 1990's.

Present trade policy atmosphere

It is likely that introduction of carbon tariffs would prompt not only WTO complaints but also counter measures. These might be more straightforward and heavier than EU's carbon tariffs that would presumably be designed in a rather sophisticated way.

The multilateral system is in many ways under threat at present. Unilateral introduction of carbon tariffs might be gasoline into the fire. Rules-based multilateral system is extremely important for small open economies like Finland. Rather than taking unilateral action, the carbon tariff issue should be discussed and agreed upon as far as is possible at multilateral fora, mainly at UNFCCC and WTO. Before that the EU should discuss the issue internally.

EU should though keep carbon tariffs in its toolbox as a negotiation chip. They could be used as a threat, on one hand for others to establish carbon price, and on the other hand as a countermeasure in conventional trade wars. Another issue is, whether they should ever be implemented. Should EU go forward with VDL's pledge it would be advisable to find some allies with whom to introduce the tariffs together.

THE DESIGN OF THE INSTRUMENT

How to design a carbon tariff system is a practical challenge. On what basis would a tariff be levied? As usual, the devil is in the detail. Three evident options are discussed below.

Carbon footprint approach

Ideally, the tariff should be variable and reflect as well as possible the GHG content of imported products, i.e. their carbon footprint. The greater the carbon footprint, the greater the tariff.

This would be comparable to the CO₂-costs included in the competing domestic EU products, bearing in mind that the ETS costs and other climate taxes are normally proportional to the CO₂ emissions. Imitation of domestic products' CO₂-costs would make the instrument more compatible with WTO rules, too.

Such a design would also create an incentive to reduce emissions of the production process outside EU as the tariff would be lower in case of smaller carbon footprint. Same products produced by different installations would have different levels of tariff depending on their carbon footprint. The system would therefore be operator-based in essence.

It can be argued that such a tariff system would be the fairest system. And more so if there was a deduction element for the possible CO₂ costs included in the product stemming from the climate policy of the country of origin.

However, the implementation of a carbon footprint-based system would be problematic for at least two reasons.

First, the carbon footprints of products should be calculated. That leads immediately to a question of which inputs are included in the calculation. Would e.g. the transport emissions be included, and how far would you go in supply chains and in including the emissions of the raw-materials and intermediate products? This brings about a need for carbon footprint standards. These would be applied in the calculation of carbon footprint and the respective tariff level of individual imported products. In order to ensure the credibility of the calculations the process might need to be certified. This all would create a lot of work and a cost burden for non-EU producers (or importers) and would become a technical barrier to trade, at least for SMEs.

Second, the customs operate based on customs codes - the harmonized system, HS, and CN in the EU. An additional, variable, operator based, element should be added and programmed to systems. This is doable but might be more difficult than what it seems at first sight.⁵ Anyhow, it would add work burden and costs for customs authorities.

Customs code approach

A simpler way would be to determine uniform carbon tariff levels for different products, HS (CN in the EU) code specific tariffs. It would be reasonable to allocate a tariff only to products that are CO₂-intensive, mainly the products included in the EU ETS.

The drawback of such a system is that the tariff would be the same for 'good guys' and 'bad guys'. It would not create an incentive for companies to cut the emissions of the mills that are outside EU even though they are producing to EU market. Exporter from outside EU would face the same carbon tariff at the EU border irrespective of what are the actual emissions of the mill. One could establish a derogation mechanism for 'good guys', however it would be laborious⁶ to analyze a great number of such applications.

⁵ This issue was not investigated during this study. It should be explored with customs professionals.

⁶ Most probably this burden would fall to the European Commission, DG TRADE.

A key question is how to define the level of the tariff for each product or product group. It should be somehow comparable to the CO₂-cost that domestic producers bear. One possibility would be to base it on EU ETS-costs.

EU created a benchmark system for free allocation of CO₂-allowances to ETS industries. Benchmarks define a standard amount of CO₂ emissions for producing a certain product. There are 54 product benchmarks. The benchmarks are ambitious, setting the standard to the level of best performing installations. Generally, benchmarks were based on the average GHG emissions of the best performing 10% of the installations producing that product in the EU.

Using EU ETS benchmarks as such - the low emission ones - without a correction coefficient would underestimate the carbon footprint of imported products. A more neutral way would be to set the carbon tariff benchmark at the level of average or median emissions of EU installations. It should be able to calculate such benchmarks from the data that was used in determining the ETS benchmarks. Another approach would be to use data of average emission levels outside EU. However, the latter data presumably is not available.

The simple formula for carbon tariff would then be multiplying the CO₂-allowance price⁷ with the benchmark.⁸ Correction factors could be added.

Whatever the carbon tariff formula, it would become subject of strong advocacy by various interest groups. The same would apply for the decision which products (HS codes) would be included in the system and which not.

If the system was somehow based on the EU ETS, a discussion about the need of free allocation would most certainly follow. There, one should remember that carbon tariffs address only the domestic market. EU export industries could still need free allocation or some sort of compensation to be at par on 3rd markets.

Country based approach

Another dimension is political-geographical: levying carbon tariffs based on the country of origin of products. The basis would be the ambition level of the climate policy.

This raises a question how to measure the ambition level of the policies. And, in particular, is there a carbon price in place through taxes, emissions trading system or such. A binary system, where carbon tariff is applied or not would be the simplest. Or one could have a few categories of tariffs, allowing for different border adjustment based on the ambition level of the policy of the country of origin.

⁷ e.g. historical EU ETS average

⁸ ETS benchmark based carbon tariff (CT) formula could look something like:

$$CT = ETSBM(50\%) \times p(CO_2)$$

where:

ETSBM(50%) = EU ETS benchmark at median or average level of EU installations

p(CO₂) = price of EU ETS emission allowances

and including a correction factor for carbon price in the exporting country (p(CO₂)_{export}):

$$CT = ETSBM(50\%) \times [p(CO_2)_{EU} - p(CO_2)_{export}]$$

It is estimated that there are some 70 countries in the world with active climate policy. Obviously, these should be given a reduction or excluded of the tariff based on some assessment criteria of policy ambition and applied carbon price within their jurisdiction. This inclusion or exclusion would be a hot potato and an apparent source of trade disputes. Should (a core group of) these countries be able to agree together about the design and implementation of carbon tariffs, it would facilitate the process.

Combined approach

A combined country + product (HS) specific approach seems most implementable. It would take into account both the (lack of) policy, i.e. carbon price, as well as some average GHG intensity of products.

A good tariff system should be simple to implement, have clear criteria and not impose heavy calculation burden for economic operators. It should be based on some logic or methodology, like the benchmark calculations and CO2 price. If the tariffs were just arbitrary percentages or euros it would be argued that it is a mere disguised ordinary customs tariff. This would ignite bound tariff and most-favoured-nation discussions within the WTO as well as accusations of breaching a number of EU's FTAs that prohibit customs tariffs.

CONCLUSIONS

- Carbon tariffs are *theoretically* a sound instrument for levelling the playing field against carbon leakage on *domestic market* (inside EU)
- Carbon tariffs don't tackle carbon leakage as regards *export markets* (outside EU)
- Due to imported inputs in supply chains, carbon tariffs would add cost to export industries
- Carbon tariffs would be more harmful for open economies than for economies with large domestic sector
- In Finland, the net effect for export-oriented process industries would be negative, according to a study
- Introduction of carbon tariffs would trigger discussions about the need of ETS free allocation
- Carbon tariff implementation into practice would be cumbersome
- Options exist as regards the basis and formulation of tariffs, however all have their problems
- There is a trade-off between an incentivizing design and the bureaucratic burden of the instrument
- The bureaucratic cost for industry or customs administrations could be large in relation to revenue
- WTO compliance remains an open issue - PPM principle vs. Article XX approach
- EU FTAs and GSP could be used for "reversed" carbon tariffs - tying tariff reductions to climate actions
- Unilateral introduction of carbon tariffs would most probably ignite counter measures, trade wars
- EU could keep carbon tariffs in its toolbox as a negotiation chip - whether they should ever be put into practice is another story
- Common understanding - rules of the game - should be sought on multilateral fora (WTO, UNFCCC)
- Voluntary measures - such as EU-harmonized carbon footprint certification - could be explored as an alternative to carbon tariffs

ABOUT THIS PAPER

This paper has been prepared for the Confederation of Finnish Industries EK. The purpose of the paper is to assist EK in its process of formulating positions on Carbon Tariffs (Carbon-Based Border Adjustment Tax/Tariff) by providing a background analysis of the instrument.

The report is based on internet searches, interviews and Ohela Consulting's professional experience.

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The views presented in the paper⁹ are those of the author and what has been reflected in the literature and interviews. These views don't necessarily reflect the views of EK.

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⁹ The paper does not constitute any legal or contractual advice. Ohela Consulting or the author cannot be held responsible for any possible damage caused directly or indirectly by the information, recommendations and views presented in the paper.