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HOW SHOULD AN EU CARBON BORDER ADJUSTMENT MECHANISM LOOK LIKE?

Policy paper by
Senior economist Jens Hjarsbech

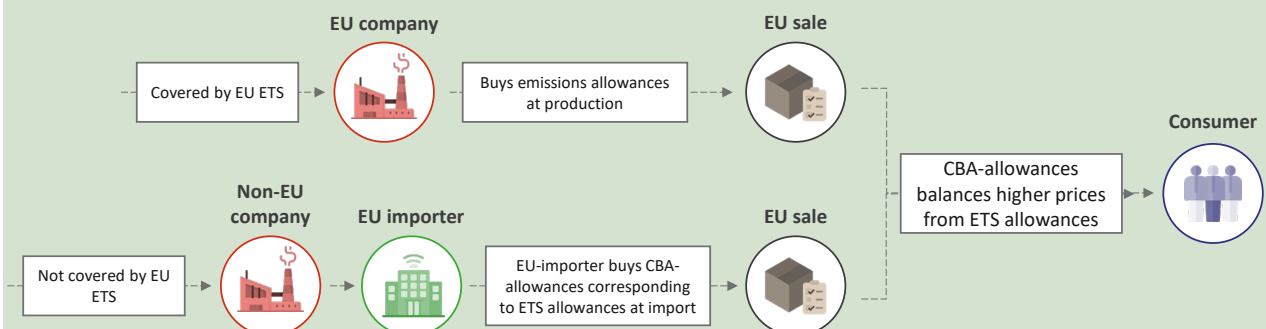
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MAIN POINTS

- The EU has taken the lead in the green transition with a target of carbon neutrality in 2050 and a goal of around 55 pct. reduction of greenhouse gas emissions by 2030.
- A critical tool to reduce greenhouse gas emissions is to make it more expensive for companies to emit greenhouse gases. This could be through carbon taxes at the national level and through the EU Emissions Trading System (ETS).
- But when European companies have to pay more to emit greenhouse gases than others, competition will be harmed. This can lead to carbon leakage, meaning that reductions in global greenhouse gas emissions will be smaller than the emissions reductions in the EU because production moves to countries outside of the EU with lower environmental standards.
- To avoid the risk of carbon leakage, the European Commission is working on a so-called Carbon Border Adjustment mechanism (CBA). The idea is that non-EU-based companies selling products in the EU must pay a tax corresponding to EU-based companies' carbon expenses.
- A CBA is a complex mechanism that needs to balance efficiency with administrative costs, international trade regulation etc. In this policy paper we present a list of principles which should be followed for the EU to impose an efficient CBA.
- A central challenge is to make the CBA WTO compliant. If the CBA clearly addresses environmental change rather than competition issues it will be in line with WTO legislation. Therefore, it is essential that the CBA reflects the costs of greenhouse gas emissions incurred by EU companies.
- In addition, an efficient CBA will require that it is possible to measure the carbon content in the products imported to the EU. Therefore, it should only be imposed on "simple" products where greenhouse gas emissions can be measured relatively accurately. More complex products with numerous components should not be included.
- The above challenges are best solved by making the CBA parallel to the EU ETS. The CBA can be designed such that a tax, corresponding to the cost of buying emission allowances at the EU carbon market, is imposed on the EU importer – see the illustration below.



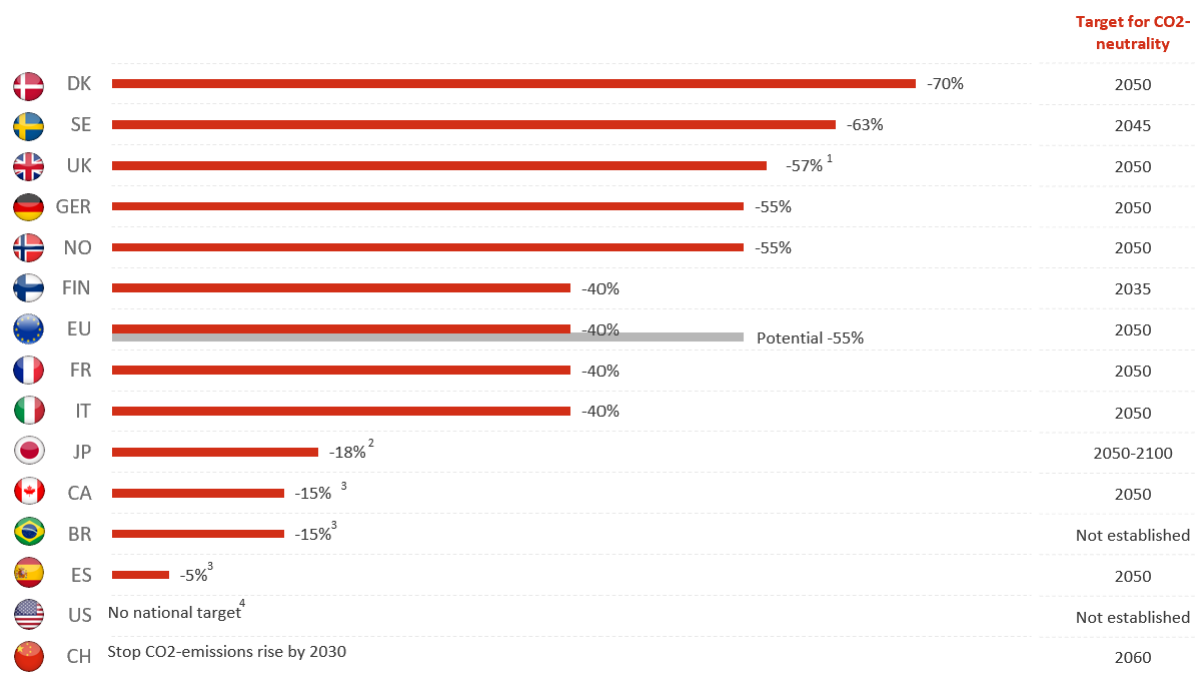
- For the CBA to clearly address climate change it should only include industries with a high risk of carbon leakage. This means industries that are relatively carbon intensive and exposed to competition from non-EU-companies. These are mainly industries that produce raw materials such as aluminum and cement. The production of electricity should also be included to support the demand for renewable energy.

- It can be considered to reduce the scope if e.g. the administration costs of estimating greenhouse gas emissions for certain industries are too high, or if least developed countries are affected disproportionately negative in specific industries. However, our analyses show that the latter risk is relatively limited. It can also be considered to omit certain industries if there is a high risk that other EU-companies dependent on input that are covered by the CBA could lose competitiveness in the EU-market due to the CBA. Our analyses show that this risk also is relatively limited.
- To avoid the risk of the CBA being seen as a protectionist measure, all revenue from the CBA should, as far as possible, go to climate initiatives in- and outside the EU. Combined with the direct linkage to the EU ETS, this would also reduce the risk of EU-countries using the CBA as a protectionist measure to shield certain industries from competition rather than to address climate change.

INTRODUCTION

The EU has taken the lead in the green transition with the goal of around 55 pct. reduction of greenhouse gas emissions by 2030 and carbon neutrality in 2050. In contrast, the US has currently no target for carbon neutrality or concrete greenhouse gas reductions. China has pledged to stop the increase in greenhouse gas emissions by 2030 and carbon neutrality by 2060, cf. chart 1.

CHART 1: 2030 TARGETS WITH BASE YEAR 1990 (REDUCTION IN CO2-EMISSIONS)



Note: 1. Based on a carbon budget for 2028-2032, imposed by the UK Committee on Climate Change; 2. Based on -26% target from 2013; 3. Based on a target from 2005 carbon emissions: -30% for Canada, -43% for Brazil, -38% for Spain; 4. United States Climate Alliance (24 states and 55% of the US population) has a target of reduction CO₂e by 26-28% from 2005 (approx.. 15% from 1990) by 2025.

Sources: UNFCC; Climate Action Tracker; European commission report, press releases.

The ambitious targets in the EU are not free of charge. A central tool to achieve the targets is to make it more expensive for companies to emit greenhouse gases in their production process. This could be through country-specific carbon taxes or through the EU Emissions Trading System (ETS). When European companies must pay more to emit greenhouse gases than companies outside of the EU, it affects the competitiveness of companies in the EU. This can have various consequences:

- o European companies will lose market share, both in the EU and worldwide
- o European companies will move production outside of the EU to avoid the high carbon price
- o Non-European companies avoid investing in European companies due to lower competitiveness

Depending on how much the competitiveness will be affected, it may lead to carbon leakage. This

means that reductions in global greenhouse gas emissions will be smaller than the emissions reductions in the EU because production will move to countries outside of the EU where the environmental regulations are less strict.¹

The risk of carbon leakage is greatest in the most carbon intensive industries in direct competition with non-EU companies in both the single market and non-EU markets. This is predominantly very energy intensive industries – especially industries that cannot easily replace fossil fuels with electricity if very high temperatures are required. Or in industries like cement production where the production process itself is a source of greenhouse gas emissions.

An EU Carbon Border Adjustment mechanism can reduce carbon leakage

To avoid the risk of carbon leakage, the EU is working on a so-called Carbon Border Adjustment mechanism (CBA). The idea is that a tariff corresponding to the EU-based companies' carbon costs is imposed on non-EU-based companies selling products in the EU, as illustrated in chart 2.

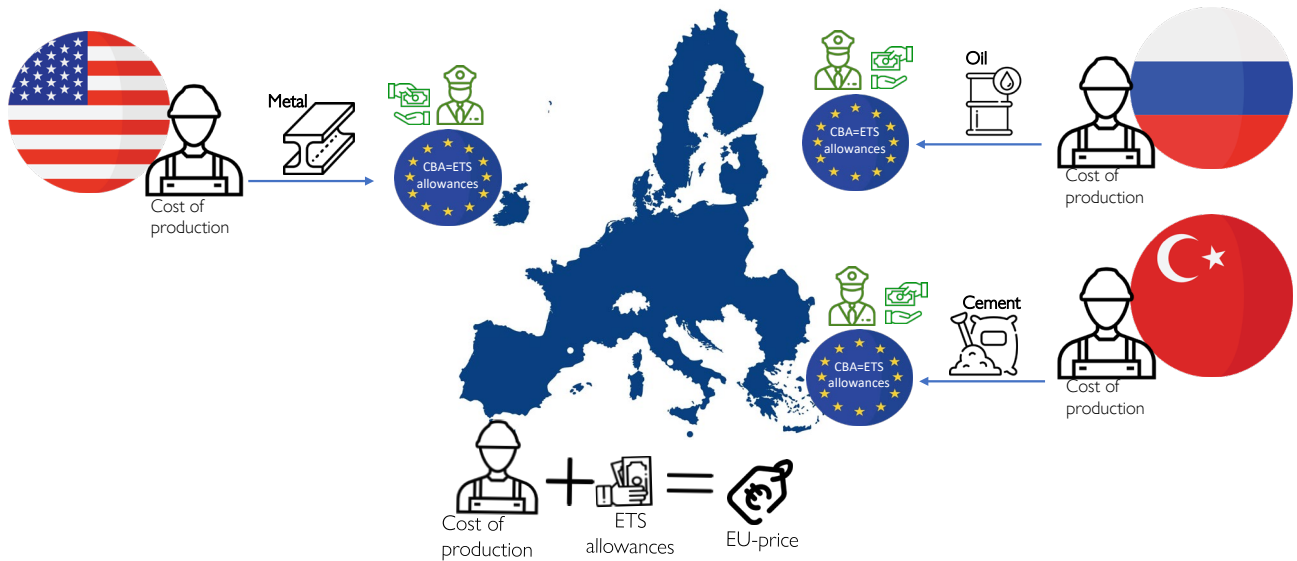
A CBA should equalize EU- and non-EU competitiveness on the European market and thereby reduce the risk of leakage. Additionally, it can lead other countries to reduce their greenhouse gas emissions to gain competitiveness in the EU market and thereby boost global carbon reductions. Over time, both supply and demand can converge towards more carbon neutral products rendering the EU ETS and a CBA redundant. However, in the short run, both have a purpose to push supply and demand towards green solutions by reducing price competition benefits from producing with higher greenhouse gas emissions.

If the CBA is successful in lowering greenhouse gas emissions from imports to the EU, it can have large positive consequences for the climate. Out of 4.6 billion ton greenhouse gas emissions in 2015, 1.6 billion ton was imported from countries outside of the EU.² A CBA will not have an effect on all imports but since it will affect the most carbon intensive goods, it has potential to become an important tool.

¹ Carbon leakage can also occur in other ways. As an example, the price on fossil fuels will fall as European companies switch to renewable energy. This will, in itself, make the consumption of fossil fuels rise and thereby increase carbon emissions (Cosbey, Droege, Fischer, & Munnings, 2019). However, a Carbon Border Adjustment cannot help this problem. The topic will therefore not be touched upon any further.

² Source: The Eora-database

CHART 2: A CBA SHOULD EQUALIZE COMPETITION EFFECTS OF HIGH CARBON COSTS IN THE EU



Source: Own illustration

A CBA is complicated to design, as it must consider administrative costs, difficulties in measuring carbon content precisely, international trade agreements etc. In this policy paper, we consider the challenges that arise by imposing a CBA and propose a list of principles that can inspire political leaders in the process of designing a CBA in the EU.

We also consider the economic effects of a CBA by analyzing the trade flows of leakage-exposed goods in and out of the EU.

CARBON BORDER ADJUSTMENT CHALLENGES

The purpose of the CBA is to combat climate change by reducing global greenhouse gas emissions. Therefore, a CBA should be designed to address climate change rather than to improve the competitiveness of European companies. But the ability of the CBA to reduce greenhouse gas emissions depends partially on how much it reduces the risk of carbon leakage due to higher carbon prices in the EU. Thus, addressing climate change and competitiveness goes hand in hand.

Many practical issues will have to be taken into consideration when the CBA is constructed. In this context, solutions to one challenge will often give rise to other challenges. Overall, four main considerations should be made:

- We must avoid that the CBA violates WTO-regulation
- It is difficult to measure the carbon content in goods imported to the EU
- The CBA can affect the competitiveness of the least developed countries negatively
- A CBA does not solve all problems and will impose new distortions

We must avoid that the CBA violates WTO-rules

It is important that a CBA complies with WTO regulation to minimize the risk of escalating trade disputes between the EU and its trading partners. Here, the principles of “*national treatment*” and “*most-favored nation treatment*” are central considerations.

“*National treatment*” means that domestically produced goods cannot be favored over *like* imported products. This means that higher direct or indirect costs cannot be imposed on imported goods compared to domestically produced goods. In addition, countries cannot favor domestic goods when imposing domestic taxation and fees on imported goods (Mehling, van Asselt, Das, & Droege, 2019).

The main challenge is to define *like products*. Is aluminum produced with high greenhouse gas emissions in the production process the same product as aluminum produced in an environmentally friendly way? Whether this is the case in terms of the WTO remains unclear (Mehling, van Asselt, Das, & Droege, 2019) (Mehling, van Asselt, Das, & Droege, 2019). This gives rise to a challenge of imposing higher carbon costs on imported goods above the potential cost imposed on EU-production. The reason is that imposing a lower tax on climate friendly EU-produced cement compared to cement produced outside the EU with high greenhouse gas emissions can be considered to contradict the *National Treatment-Principle* as the cement is the same product regardless of where it has been produced.

“*Most-favored nation treatment*” means that one cannot discriminate on the basis of the country of origin. That means, as an example, that favorable conditions cannot be given to companies in countries with higher environmental standards than other countries. Thus, companies from countries where carbon emissions are taxed or otherwise payed for can argue, that they incur larger expenses than companies from other countries when competing in the EU (Mehling, van Asselt, Das, & Droege, 2019). As a minimum, this requires that the CBA considers a carbon tax or similar costs paid by the particular producer of a good and not as a benchmark of the individual country’s climate policy.

WTO-regulation includes certain *provisions on environmental concerns*, which can most likely solve the issues of complying with the above principles. If the CBA is imposed to protect humans, animals, and plant life, or to conserve natural resources, the two principles can be disregarded. The CBA will have to prove a clear purpose of reducing carbon leakage to lower greenhouse gas emissions (Mehling, van Asselt, Das, & Droege, 2019). The argument that the CBA will put European companies in more equal competition to companies in other countries will therefore not hold – the purpose must be to avoid carbon leakage. This means that a CBA should only be imposed on the industries most exposed to leakage, meaning industries that are carbon intensive and exposed to non-EU competition at the same time (Mehling, van Asselt, Das, & Droege, 2019).

Difficult to measure the carbon content in goods imported into the EU

Regardless of whether the CBA aligns with WTO-regulation or not, it is challenging to measure the carbon content of imported goods accurately. For the CBA to be efficient in reducing carbon content of imported goods, there must be a relative precise and administratively manageable measurement of

carbon content.

Many goods are produced through long value chains with a variety of inputs from many different countries. This makes it challenging to measure the carbon content accurately and administratively manageable. This speaks to limit a CBA to imports of simple products such as raw materials to avoid having to measure carbon content from various parts of the good, which are potentially produced in different countries.

Combined with the requirement that the CBA should only affect industries with the highest risk of carbon leakage, the CBA should be restricted to the import of raw materials (or lightly processed goods), which are also relatively carbon intensive. This could, as an example, be aluminum, iron, cement, and electricity etc. Also, this means a CBA should not be imposed on e.g. cars even though the iron and aluminum content in cars are relatively high, as the carbon cost is relatively low compared to the rest of the production value, rendering the risk of carbon leakage low.

The CBA may hamper competitiveness in least developed countries

There is a desire, both from the ongoing climate negotiations in UNFCCC and in WTO-rules, to give special and differential treatment to least developed countries (LDCs) (Cosbey, Droege, Fischer, & Munnings, 2019). The argument is that the LDCs are unable to live up to the same climate requirements as developed countries as they do not have the resources or the competitiveness to pursue an ambitious environmental policy. Likewise, WTO's *special and differential treatment provisions* (WTO) gives LDCs easier access to global trade by assigning them more favorable terms of trade compared to other countries.

This might mean that a CBA cannot cover LDCs. This, however, introduces the risk of production moving to LDCs, meaning that climate effects are reduced. It also violates the *most favored nation-principle*, cf. above, and thereby undermines WTO-regulation. Our analysis shows that imports from LDCs to the EU of products, that could potentially be covered by a BCA, is rather small. LDC-concern also seem to carry a heavier weight than the *most favored nation-principle*. Therefore, this seems to pose a relatively small challenge.

A CBA does not solve all problems and creates new distortions

The CBA should equalize competition on the European market between EU and non-EU companies to avoid carbon leakage. But it does not consider that *EU-companies will lose competitiveness on markets outside the EU* if the cost from greenhouse gas emissions from production in the EU is high. A solution could be to give export subsidies to the exporting EU-companies covering the cost of emitting greenhouse gases imposed by the EU.

This is, however, not likely to comply with WTO rules on export subsidies. Even more challenging is that it might weaken the argument that the CBA only addresses environmental issues, since an export subsidy is likely to lower the incentives of EU companies to reduce emissions. If EU-companies are compensated for greenhouse gas emissions costs, it will not be necessary for them to reduce their emissions. This type of compensation as part of the CBA mechanism will reduce the environmental argument behind the CBA. Therefore, it is difficult to see that compensating exporting EU-companies can be combined with the CBA (Mehling, van Asselt, Das, & Droege, 2019) (Cosbey, Droege, Fischer, & Munnings, 2019).

Another challenge of the CBA is that it *distorts the market for products that contain CBA-covered intermediate products*, while not covered by the CBA themselves. A simple example is that steel can be covered by a CBA while nails are not. EU-importers of CBA-covered production inputs are therefore worse off since they compete with non-EU-companies that can buy production inputs cheaper and thereby sell their products cheaper.

This distortion can lead to carbon leakage. However, it must be expected that the climate effects are relatively limited since the question of which products should be covered by the CBA is to be determined by the risk of carbon leakage. However, it can lead to a loss of competitiveness for EU-companies further down the value chain, regardless of a low level of leakage risk due to a low level of carbon content in the product relative to the value of the product. Our analysis below shows that this risk is relatively limited.

PRINCIPLES OF CARBON BORDER ADJUSTMENT IN EU

Considering the above-mentioned challenges, we present a list of principles for introducing an EU CBA. These principles should increase the likelihood of introducing an efficient CBA which complies with WTO regulations.

A key element of these principles is that the CBA should reflect the carbon costs incurred by EU-companies and thereby be parallel to the EU ETS. Box 1 below presents a short description of the EU ETS.

BOX 1: EU'S EMISSIONS TRADING SYSTEM

The EU sets a price on greenhouse gas emissions from companies through the ETS (Emissions Trading System), which includes energy intensive manufacturing companies and energy supply as well as aviation inside EU borders.

The system sets a cap on greenhouse gas emissions in the industries covered by the system where the companies either receive or buy emission allowances that should cover their greenhouse gas emissions. Thereby, the system works as a form of carbon marketplace where companies can sell allowances, if they emit less than expected, or buy allowances, if they emit more than expected. In this way, it creates a market price for greenhouse gas emissions where more carbon efficient companies achieve a competitive advantage while less efficient companies have an incentive to reduce emissions.

To continuously lower greenhouse gas emissions, the number of available allowances is reduced. In the latest revision of the system, covering the period from 2021 to 2030, the reduction pace will increase from 1.74 pct. to 2.2 pct. annually.

In the same period, the free allowances will be removed for all industries except the ones considered to be at significant risk of carbon leakage (based on high carbon intensity and highly exposed to competition from non-EU companies). This is primarily industries producing raw materials such as aluminum and cement (EU, 2019).

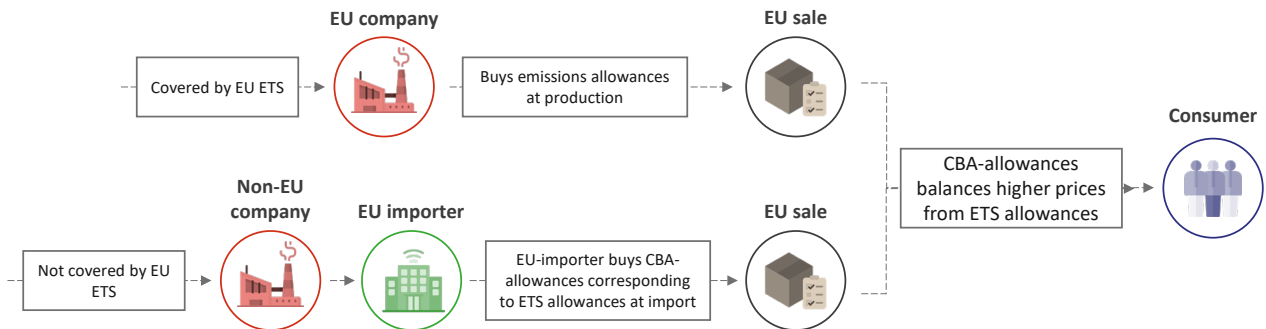
Free allowances will continue to be allocated to industries exposed to leakage. The allocation is determined by a benchmark within each sub-industry. The top 10 pct. most carbon efficient companies are allocated allowances that cover 100 pct. of their greenhouse gas emission. The remaining companies in the individual industries are allocated the same amount of allowances, which as a result do not cover their total emission, and thereby act as an incentive to reduce the greenhouse gas emissions since they otherwise have to buy allowances on the ETS-market.

The CBA should be connected to the EU ETS

In order to adhere to WTO's principle of national treatment, the CBA should be connected to the EU ETS, such that the cost of the CBA corresponds to the market price for greenhouse gas emissions in the EU. Thereby, the "infrastructure" surrounding the ETS can be used to measure and calculate the carbon content used in the CBA, while taking practicalities that would otherwise make the CBA complex into consideration.

To be specific, the CBA should be designed as *a tax, corresponding to the cost of buying emission allowances on EU's carbon market, imposed on the EU-importer* – a kind of “synthetic ETS-market” that reflects the carbon price on the ETS-market, cf. chart 3.

CHART 3: DESIGN OF AN EU CARBON BORDER ADJUSTMENT MECHANISM



Source: Own illustration

The allocation of free allowances needs to be considered. Therefore, the CBA should be calibrated such that the importer is only required to purchase synthetic allowances to cover emissions above an industry specific benchmark, e.g. the average number of allocated free allowances for EU producers. Likewise, the importer should have the opportunity to reduce the required purchase of synthetic allowances, if they can demonstrate with verified data that the imported goods are produced with a lower carbon content compared to the benchmark.³

If it can be demonstrated that the producer of the imported goods have already incurred expenses linked to the specific carbon content of the good, the importer should also be able to reduce the purchase of synthetic allowances accordingly. This way it can be avoided that non-EU-companies are double taxed while the producer and the importer have the possibility demonstrate climate related sustainable production. Thereby, the incentive for the importer and the producer to choose less climate harming producers and production methods is intensified.

By imposing a ‘synthetic allowance purchase’ on the importer instead of a direct purchase of allowances in the existing market, the EU maintains the possibility to calibrate the number of allowances to the production in the EU while non-EU-companies still incur the same cost as EU-companies.

If a non-EU-country are to impose a allowances system corresponding to the EU’s, the two systems can be linked, as is the case of the EU’s and Switzerland’s systems (European Commission). In the long run, a global ETS or a global carbon tax will make a CBA redundant. Nonetheless, there are currently no indications of that happening in a near future.

The CBA should cover industries in significant risk of carbon leakage in the EU ETS

It is important that the CBA only covers industries with a high risk of carbon leakage for it to have a

³ Also, it can be relevant to consider anti-dumping-measures imposed by EU as a result of import prices below market due to the energy input in production coming from cheap, state subsidized energy sources with a high carbon content.

clear environmental goal, meaning industries that are both relatively carbon intensive and exposed to competition from non-EU-companies.

The EU ETF defines such industries on a detailed level. The industries in significant risk of leakage are those that receive 100 pct. of their allowances for free (if they are among the 10 pct. best in their sub-industry), cf. box 1. This is primarily industries that produces raw materials such as aluminum and cement (EU, 2019).

The EU CBA should only include the same industries. To support the demand for renewable energy, the production of electricity should also be included, however, even though energy production does not receive free allowances in the ETS.

It should be considered whether the CBA should be smaller in scope, e.g. if it is too administratively heavy to map greenhouse gas emissions for certain industries outside the EU, or if least developed countries are affected disproportionately hard in specific industries. However, our analysis below shows that the latter risk is relatively limited. It can also be considered to leave out certain industries if there is a large and comprehensive risk of EU companies further down the value chain losing competitiveness. Our analysis below shows that this risk is also relatively limited.

A possible extension of the included industries should occur parallel to more industries being included in the EU ETS.

Allocation of revenues and deviations for least developed countries

The revenue from the CBA should to the extent possible be allocated to climate action – in and outside the EU – to reduce the risk that it will be perceived as a protectionist measure with a purpose to strengthen EU companies. Combined with the direct link to the EU ETS, it should also minimize the risk of EU countries using the CBA to protect certain industries for protectionist reasons rather than environmental reasons.

A possible solution is to place the revenue in a fund that supports climate solutions globally, perhaps allocating a disproportionately large share to the least developed countries. This can be combined with a differential treatment for least developed countries where importers are only required to buy e.g. half of the normal emission allowances or even fully exempt from buying allowances if they are importing from least developed countries. The decision of which countries should have differential treatment should be made on objective grounds to the extent possible. E.g. it is important that a country such as China does not get these conditions, despite identifying themselves as a developing country. The list of least developed countries should follow the list provided by the WTO and the UN⁴.

As a part of the EU's extraordinary recovery plan following the Covid-19 crisis, it has been discussed that a future EU CBA should be included in the own resources to be used for early repayment of the borrowing as part of the Next Generation EU recovery plan (European Council, 2020). However, only a limited part of the revenues from the CBA should be allocated to the recovery plan to ensure that the CBA addresses environmental concerns rather than to strengthen the economies of the EU.

⁴ https://www.wto.org/english/thewto_e/whatis_e/tif_e/org7_e.htm

WHAT IS HAPPENING IN OTHER COUNTRIES/REGIONS?

Even if the above principles secure WTO compliance, an EU CBA may still provoke trading partners to respond with trade restrictions. Both Russia and China have already highlighted the risk of protectionism in the name of climate change and argued that the CBA will be against WTO regulation (Euroactive, 2020) and (Reuters, 2019).

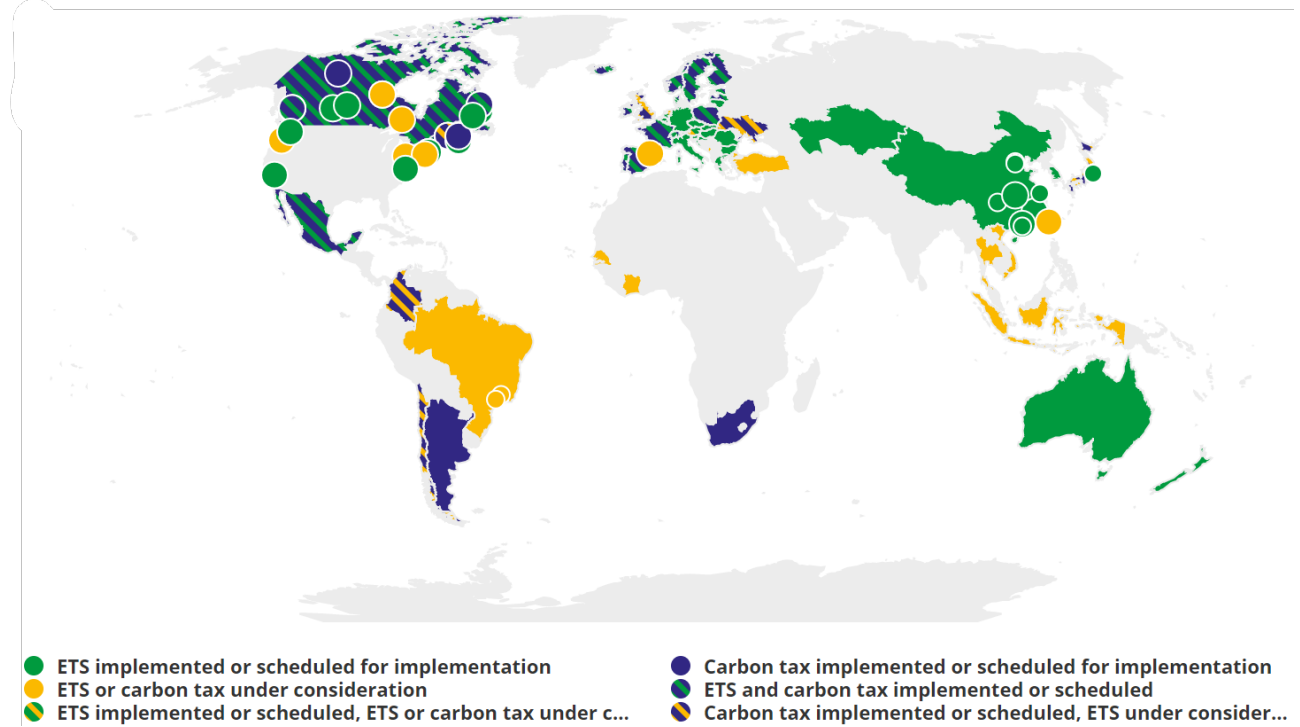
Under the Trump administration, the U.S. has withdrawn from the Paris-agreement (US Department of State, 2019). With Joe Biden as the president-elect, however, US sentiment is likely to change, as Biden has expressed thoughts of introducing a CBA in the U.S. (joe Biden.com). In this case, it is likely that the U.S. will view an EU CBA in a more positive light and forming the CBA in a partnership with the U.S. is even possible. It may even mean that the EU and the U.S. systems can be linked together at some point, similarly to the EU's and Switzerland's.

Many countries have or consider imposing allowances and taxes

The EU is not alone in imposing carbon taxes or emissions allowances systems. Several countries and regions have either have implemented an ETS or carbon taxes, or consider doing so, cf. chart 4. Among those are China, who decided in 2017 to implement a nation-wide allowances system, planned to come into effect this year (International Energy Agency, 2020).

The optimal solutions will of course be to impose a global, homogenous carbon tax as it would eliminate the risk of leakage. However, this seems like a long shot at the moment, which is why imposing a CBA in the EU parallel to the ETS makes sense, given that it is enacted under the above-mentioned conditions. But it is also important that the EU works together with trading partners around the world to make the system as homogenous and/or compatible as possible.

CHART 4: ALLOWANCES OR TAXES HAVE BEEN IMPLEMENTED OR CONSIDERED AROUND THE WORLD



Source: The World Bank (<https://carbonpricingdashboard.worldbank.org/>)

Note: ETS = Emissions Trading System

THE ECONOMIC EFFECTS OF AN EU CBA

How will an EU CBA affect companies in the EU if it is done in the manner outlined above?

It is difficult to determine the economic activity affected by a CBA with certainty because the CBA is imposed on specific sub-industries while data for trade within very detailed industries is not easily available. We will therefore not cover all economic consequences at the moment – that will require more analysis.

We consider the consequences in two ways:

- We calculate the amount of foreign trade in the EU in industries exposed to leakage.⁵
- We estimate the effects from increased input prices on companies dependent on CBA-affected goods further down the value chain.

Comprehensive trade with products exposed to leakage in the EU

We consider the EU-wide trade in products that correspond to the industries exposed to leakage in the EU ETS. It is a somewhat crude measure of foreign trade in these industries, since the trade of goods can e.g. occur via wholesale companies (not included in the ETS). Thus, the trade in goods may overestimate imports and exports in the industries exposed to leakage. Nonetheless, it shows the scale of trade with the exposed goods in the EU.

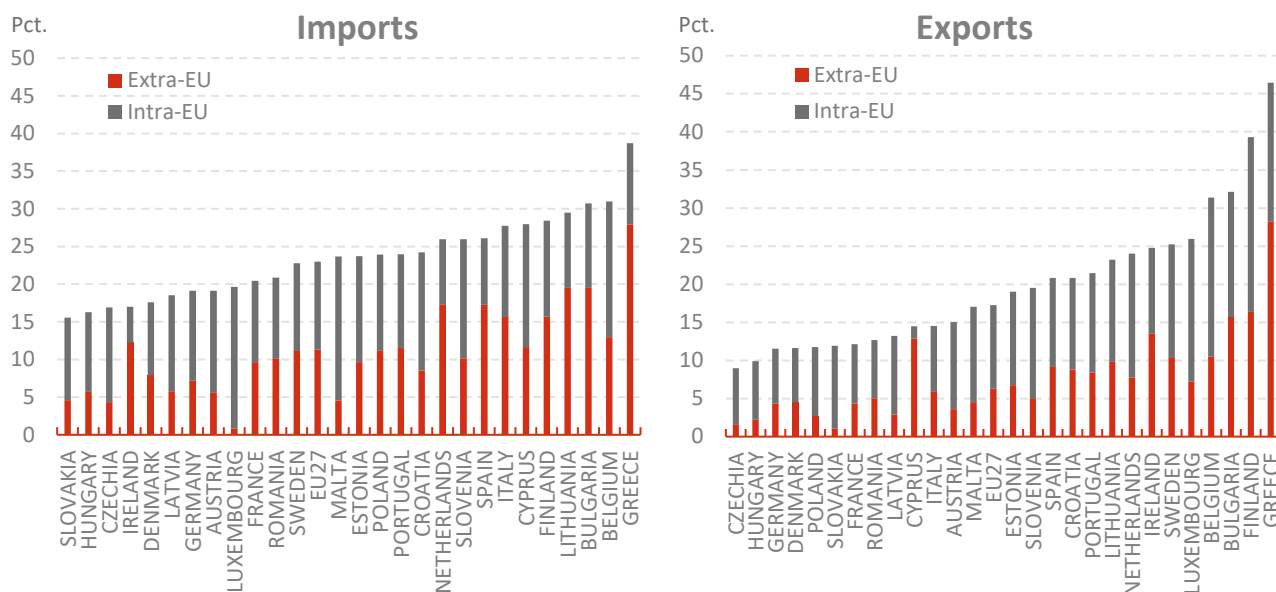
Imports of goods exposed to leakage make up 23 pct. of the total imports of goods in the EU, while exports only make up 17.3 pct. of the total exports of goods, cf. chart 5.

A CBA can only affect market conditions on the EU market, which makes it interesting to consider the amount of trade in goods inside and outside of the EU. The imports of goods exposed to leakage from other EU-countries are of roughly the same magnitude as imports from countries outside the EU, cf. chart 5. Export are more concentrated in the EU, as almost double the amount of exports of goods exposed to leakage goes to other EU-countries than countries outside of the EU.

This means that the challenges of competitiveness on the EU-market under the restrictions of higher carbon taxes for EU-companies will be larger than the challenges of competitiveness on the markets outside of the EU, ceteris paribus. This is positive since an EU CBA cannot correct for the challenges of competitiveness outside of the EU.

⁵ We calculate the products and industries exposed to leakage from (EU, 2019). It has not been possible to get specific data for the few industries that are defined from "Prodcom-codes" instead of NACE-codes. However, it is only a small part of the industries and is not expected to affect the results significantly.

CHART 5: TRADE IN GOODS EXPOSED TO LEAKAGE COMPARED TO THE TOTAL IMPORTS AND EXPORTS OF GOODS, 2019



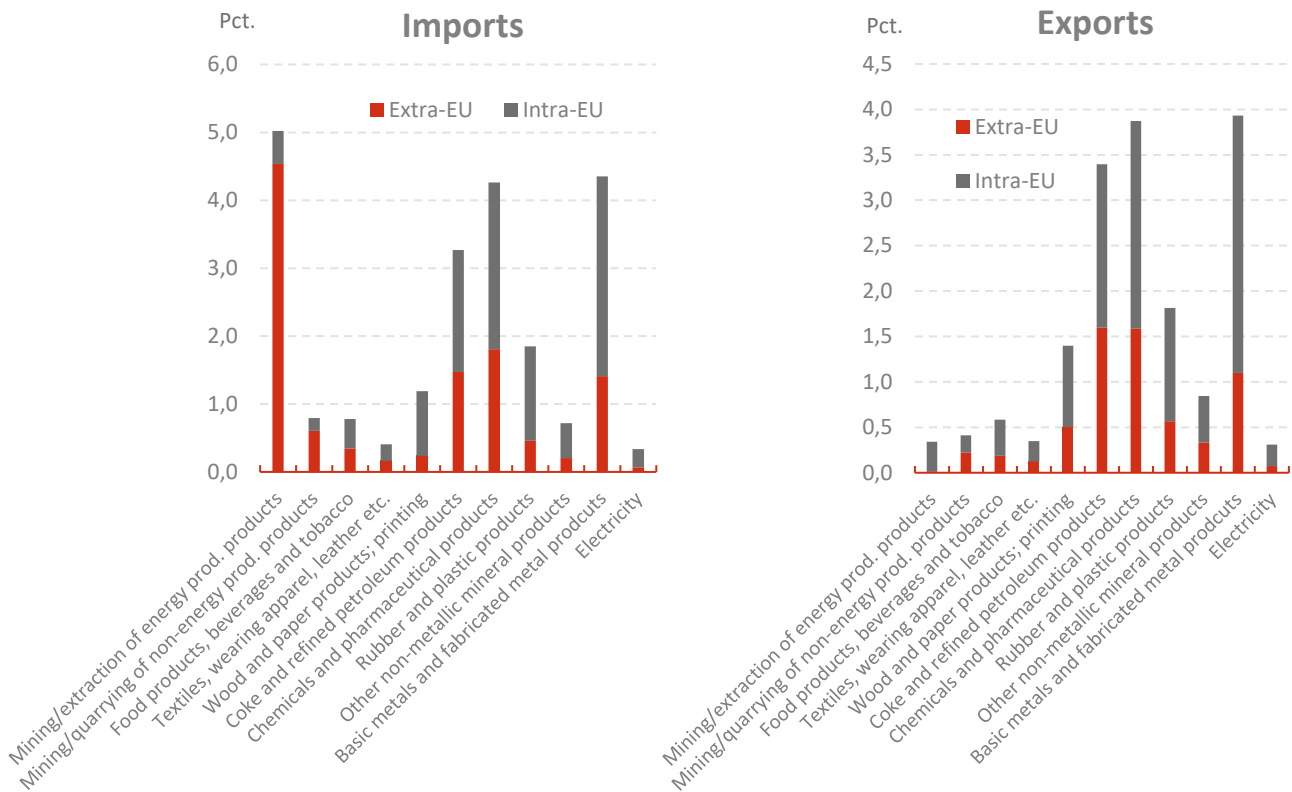
Source: Eurostat (EU trade since 1988 by CPA, 2.1), commission delegated decision (EU) 2019/708 and own calculations
 Note: We include trade with electricity even though it is not a part of EU's list of industries exposed to leakage in the ETS.

EU countries primarily import fuels from countries outside of the EU

We will now consider which goods exposed to leakage EU countries import and export, focusing on trading partners outside of the EU. EU-countries mainly import fuels such as coal, oil, and gas from countries outside the EU, cf. chart 6. This type of products account for 6 percentage points out of the 11.3 pct. that goods exposed to leakage take up in the total EU imports of goods from countries outside of the EU.

Fuels account for a smaller part of the exports to non-EU-countries, with exports of chemicals and pharmaceutical products being of similar size followed closely by metals, cf. chart 6.

CHART 6: EU TRADE WITH GOODS EXPOSED TO LEAKAGE COMPARED TO TOTAL IMPORTS AND EXPORTS OF GOODS, 2019



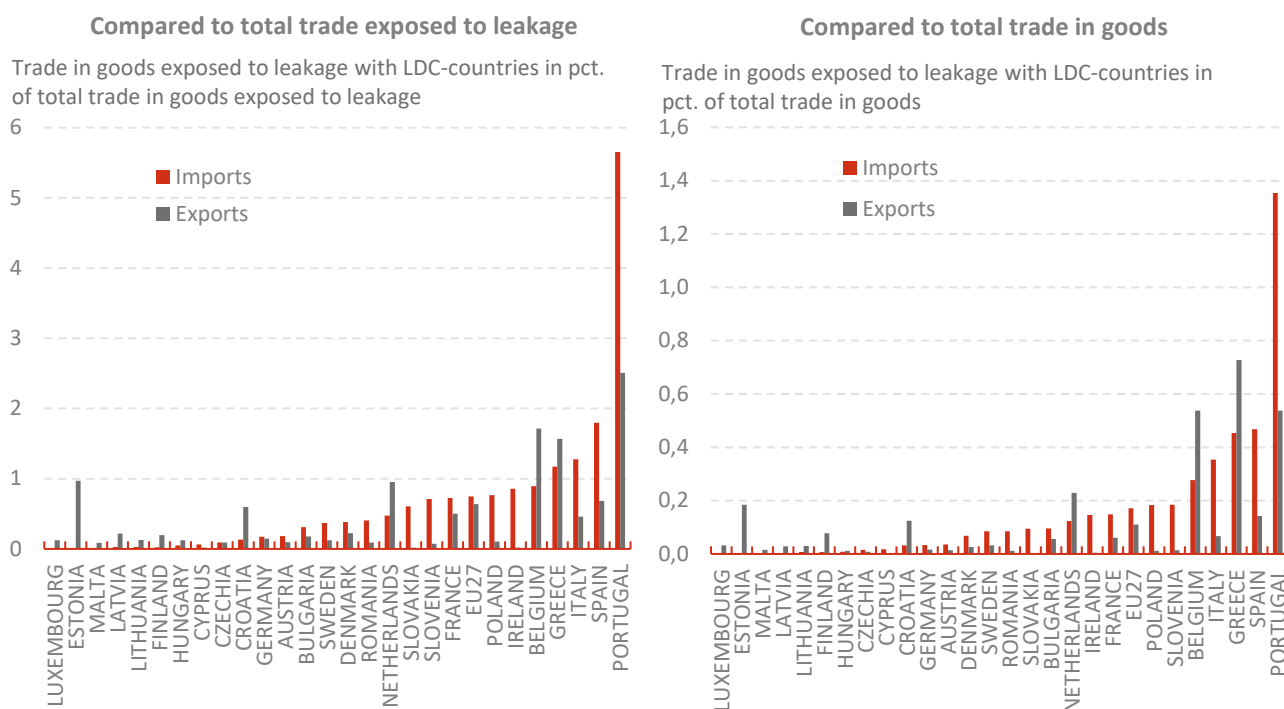
Source: Eurostat (EU trade since 1988 by CPA, 2.1), commission delegated decision (EU) 2019/708 and own calculations
 Note: We include trade with electricity even though it is not a part of the EU's list of industries exposed to leakage in the ETS.

The amount of trade with least developed countries is relatively small

A central challenge of an EU CBA is how to handle the least developed countries (LDCs) to avoid putting them in an unnecessary disadvantage in terms of competitiveness. A possibility is to exempt these countries from the CBA, cf. our principles above, but there is a risk that it will make the CBA inefficient if trade within leakage-exposed industries between the EU and LDCs occurs on a large scale.

When we consider trade with goods exposed to leakage between the EU and LDC-countries (per UN definition), it does not seem to pose a significant challenge. In the EU's total trade of goods exposed to leakage, trade with LDC-countries make up less than one pct., cf. chart 7. Portugal is the country where LDC-countries make up the largest share of trade with goods exposed to leakage, and even here, it is less than 6 pct. of imports and 2.5 pct. of exports. Thus, there are no indications that more favorable terms for LDC-countries will lower the efficiency of an EU CBA significantly.

CHART 7: LIMITED TRADE WITH LDC-COUNTRIES EXPOSED TO LEAKAGE



Source: Eurostat, commission delegated decision (EU) 2019/708 and own calculations

Goods covered by CBA takes up a relatively small part of production input in other industries

A core challenge with the CBA is that it creates a distortion in the market for products that use large amounts of inputs covered by a CBA in the production process without being covered by the CBA themselves. It pushes the bill further down the value chain. A simple example is that steel can be covered by a CBA while nails are not. Therefore, an EU-importer of the CBA-covered production input is worse off on, as they compete with companies from outside of the EU, who can buy the production input at a cheaper price and thereby sell their products at a lower price. There is thus a risk that a CBA reduces the competitiveness of EU companies too much compared to how much it reduces carbon leakage, if CBA-covered inputs from non-EU countries make up a large part of our economy.

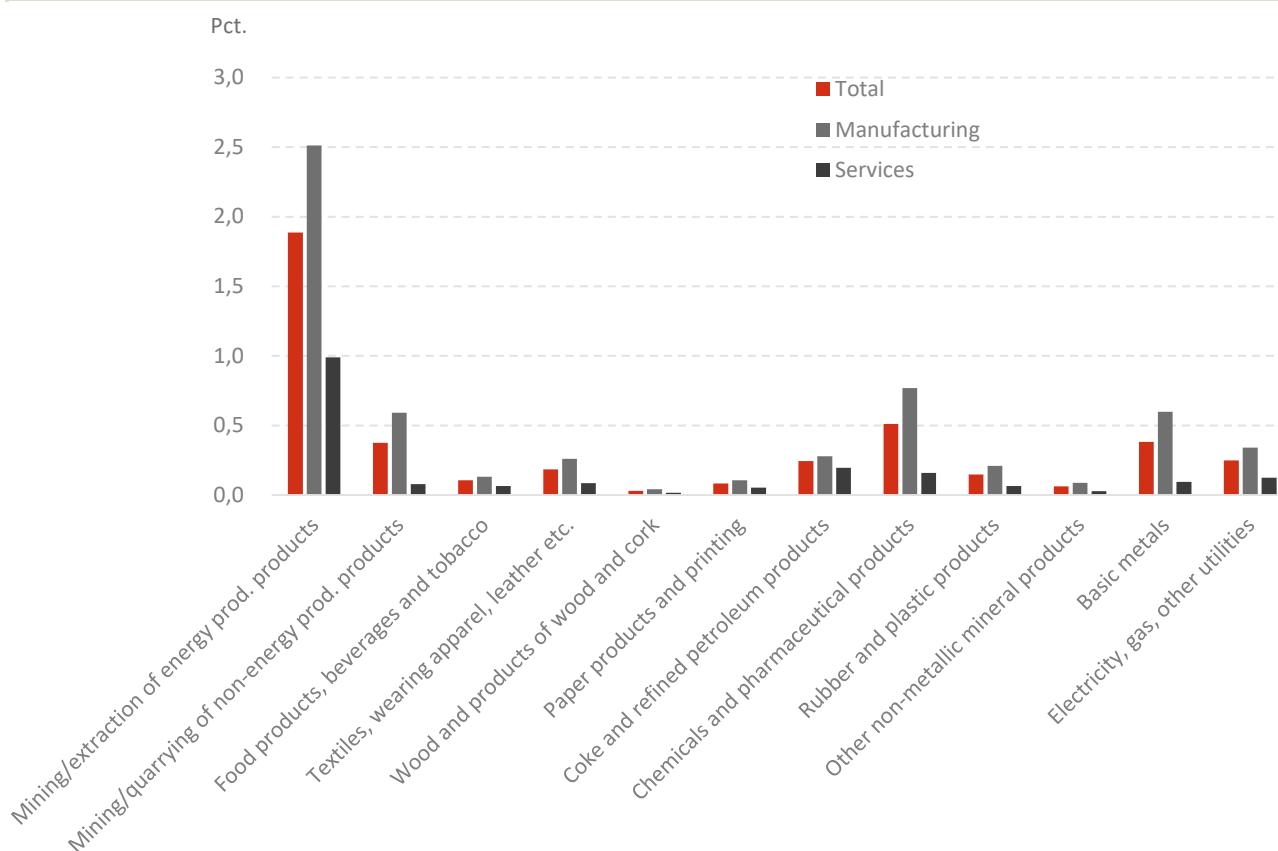
With data from the OECD, it is possible to calculate the production input in EU exports from non-EU-countries and from industries that could be covered by a CBA. However, the calculation cannot separate the exact industries and will therefore also include industries would not be covered by a CBA. In other words, the calculation overestimates the extent to which some industries will be affected. For some industries, this is a relatively large overestimation. As an example, it is only very specific parts of the food, beverages and tobacco industry that will be defined as exposed to leakage, but it is only possible to calculate the inputs into production at an aggregate level. Meanwhile, there will be individual industries that are more dependent on the inputs of production than what can be seen in the numbers.

Production inputs from industries exposed to leakage from non-EU-countries were almost 118 billion

USD in 2015, corresponding to 4.3 pct. of total inputs into production of goods and services in EU exports. The import of raw energy materials such as coal, oil and gas make up almost half of this import, cf. chart 8. These are inputs that are expected to decrease in importance over time as EU companies and households move towards renewable energy sources. The remaining industries make up relatively small parts of the production input into the total exports.

The risk that a CBA will affect the competitiveness of companies, who depends on CBA-covered inputs negatively, is thus relatively small – in particular, when it concerns inputs other than energy inputs.

CHART 8: PRODUCTION INPUT IN EU EXPORTS FROM INDUSTRIES EXPOSED TO LEAKAGE FROM COUNTRIES OUTSIDE OF EU28 COMPARED TO TOTAL PRODUCTION INPUT IN THE EXPORTS



Source: OECD's TiVA-data base, commission delegated decision (EU) 2019/708 and own calculations. Data from 2015

Note: In this calculation, it is not possible to separate the individual industries defined as exposed to leakage in the EU ETS. Therefore, the calculation includes more industries than would be covered by a CBA, thereby overestimating the effects. In the data, the UK is still a part of the EU.

LITERATURE

- BusinessEurope. (2020, juni). What trade can do for climate. Retrieved from https://www.businesseurope.eu/sites/buseur/files/media/position_papers/rex/2020-06-22_what_can_trade_can_do_for_climate_0.pdf
- Commission, E. (n.d.). *2030 climate & energy framework*. Retrieved from https://ec.europa.eu/clima/policies/strategies/2030_en
- Cosbey, A., Droege, S., Fischer, C., & Munnings, C. (2019). Developing Guidance for Implementing Border Carbon Adjustments: Lessons, Cautions, and Research Needs from the Literature. *Review of Environmental Economics and Policy, Volume 13*(Issue 1), 3-22.
- EU. (2019, februar 15). COMMISSION DELEGATED DECISION (EU) 2019/708. *Official Journal of the European Union*. Retrieved from <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019D0708&from=EN>
- Euroactive. (2020, 27 juli). Moscow cries foul over EU's planned carbon border tax. Retrieved from <https://www.euractiv.com/section/economy-jobs/news/moscow-cries-foul-over-eus-planned-carbon-border-tax/>
- European Commission. (2015). *EU ETS Handbook*. Retrieved from https://ec.europa.eu/clima/sites/clima/files/docs/ets_handbook_en.pdf
- European Commission. (n.d.). *EU Emissions Trading System (EU ETS)*. Retrieved from https://ec.europa.eu/clima/policies/ets_en
- European Council. (2020, July 21). Conclusions adopted by the European Council (EUCO 10/20), 20.10.2017. *EUCO 10/20*. Retrieved from <https://www.consilium.europa.eu/media/45109/210720-euco-final-conclusions-en.pdf>
- ING. (2020, april 14). EU carbon border tax: Unnecessary for now but still a good idea. Retrieved from <https://think.ing.com/articles/eu-carbon-border-tax-unnecessary-for-now-but-still-a-good-idea/>
- International Energy Agency. (2020). *China's Emissions Trading Scheme*. Retrieved from <https://www.iea.org/reports/chinas-emissions-trading-scheme>
- joebiden.com. (n.d.). *joebiden.com*. Retrieved from <https://joebiden.com/climate-plan/>
- Mehling, M. A., van Asselt, H., Das, K., & Droege, S. (2019). Designing border carbon adjustments for enhanced climate action. *American Journal of International Law, 113*(3), 433-481.
- Mehling, M. A., van Asselt, H., Das, K., & Droege, S. (2019, december 10). What a European 'carbon border tax' might look like. *VOX EU*. Retrieved from <https://voxeu.org/article/what-european-carbon-border-tax-might-look>
- Nielsen, S. R. (2020, marts 5). Carbon Border Tax: Klima- eller gummihammer? Tænk tanken Europa. Retrieved from <http://thinkeuropa.dk/ressourcer/carbon-border-tax-klima-eller->

gummihammer

Reuters. (2019, november 27). China says CO2 border tax will damage global climate change fight. Retrieved from <https://uk.reuters.com/article/uk-climate-change-accord-china/china-says-co2-border-tax-will-damage-global-climate-change-fight-idUKKBN1Y105P>

Sapir, A., & Horn, H. (2020, juni 23). Political Assessment of Possible Reactions of EU Main Trading Partners to EU Border Carbon Measures. Retrieved from <https://www.bruegel.org/2020/06/political-assessment-of-possible-reactions-of-eu-main-trading-partners-to-eu-border-carbon-measures/>

US Department of State. (2019, november 4). On the U.S. Withdrawal from the Paris Agreement. Retrieved from <https://www.state.gov/on-the-u-s-withdrawal-from-the-paris-agreement/>

WTO. (n.d.). *Special and differential treatment*. Retrieved from https://www.wto.org/english/tratop_e/dda_e/status_e/sdt_e.htm

CONTACT
JENS HJARSBECH
SENIOR ECONOMIST
TLF. +45 26 19 65 25
JH@AXCELFUTURE.DK