

Macro Focus: Climate and capital

Green protectionism: Threat or opportunity?

- ▶ A green protectionism of sorts is bubbling up within the EU, expressed in the EU Commission’s recently launched Green New Deal. It envisions carbon tariffs, which could help raise the price of carbon globally and thereby reduce global emissions.
- ▶ In Sweden’s case, the tariffs would mean higher costs for households and businesses but could also make some companies more competitive.

Carbon pricing is seen by many economists as a smart solution to reduce global emissions. A regional price on carbon raises the problem of carbon leakage, however, and means that carbon-intensive businesses may decide to move abroad to avoid emission costs. Many economists have therefore called for a global carbon tax, which in theory could be an optimal solution but will be difficult to enact. Enter carbon tariffs.

Carbon tariffs are basically a tax on carbon emissions from imported goods. The idea is to treat them like domestic goods in a market that puts a price on emissions. Carbon tariffs have been called for by politicians in the EU and the US as a way to reduce global emissions and keep domestic industry competitive. There are major practical problems, however, not least the risk of increased trade tensions. In Europe carbon tariffs and the elimination of free emission allowances would increase industry’s costs, but could also benefit companies with low carbon intensity. This could give Swedish industry a competitive advantage.

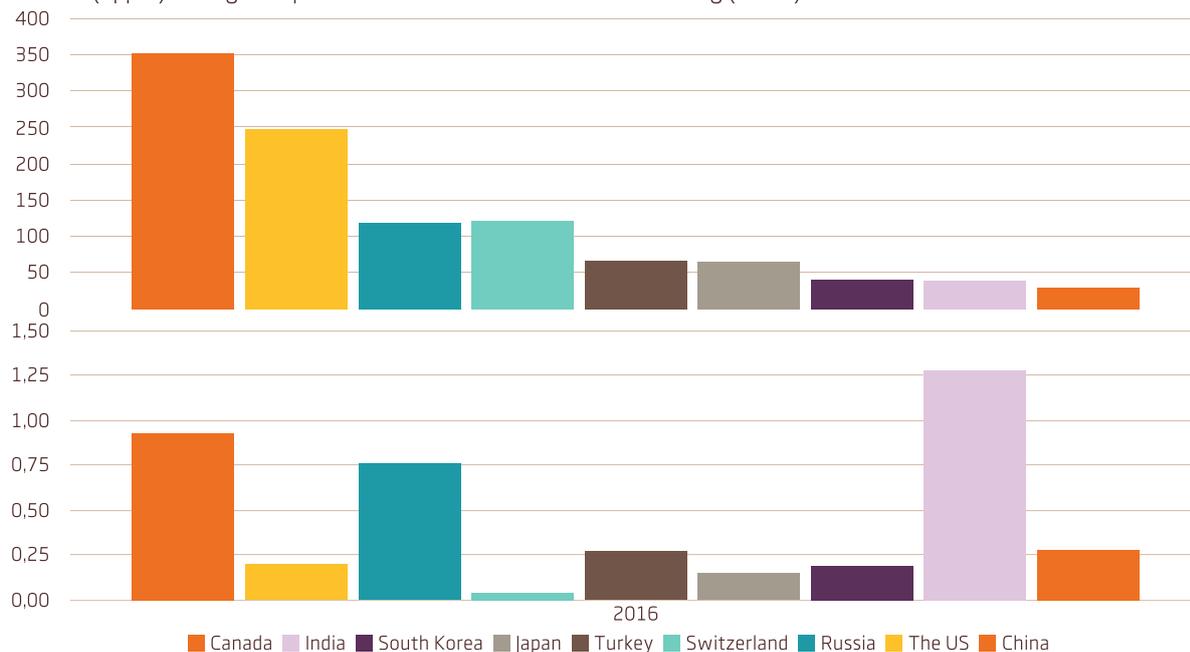
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EU 28, imports from and the manufacturing emission intensity of the largest trading partners

Bn EUR (upper) and kg CO2 per dollar of value added in manufacturing (lower)



Sources: Eurostat, BP, UNDESA, Swedbank Research & Macrobond

Carbon tariffs are finding their way onto more political agendas...

Carbon tariffs are being pushed today by politicians in both the EU and the US. The EU Commission's president, Ursula von der Leyen, supports them and they are included in the Commission's "European Green New Deal." France and Germany have expressed support for the study of carbon tariffs as a climate policy measure. The Swedish government so far has not taken a stance on the issue and has chosen to wait for the National Board of Trade's study on the tariffs' effects. The study was recently published and was cautiously positive. Carbon tariffs are also on the debate agenda in the US, where several Democratic presidential candidates have expressed support for the idea.

... and are favored by many economists

The motivation for carbon tariffs is tied to the advantages of market-based climate policy instruments, which are often seen as effective in reducing pollutants or emissions. This is based on the theory of externalities, i.e., the side effects of consumption or production that the private sector fails to take into account. Forcing the private sector to pay the social cost of its externality, e.g., through taxation, based on the theory developed by Pigou (1920), is considered the most effective way to resolve the externality problem. The externality from carbon emissions can be internalized either through a carbon tax or an emission trading system. The difference between two is that carbon taxes regulate the carbon price directly, while an emission trading system regulates the amount of emissions that can be emitted, and the price of carbon is determined through trading in emission allowances. This is considered the most effective type of environmental regulation is that emissions are then reduced where the cost of this is the lowest.¹ Carbon tariffs are connected to the idea of climate clubs, groups of countries that set a common price of carbon and sanction those outside of the club in order to make them join (Nordhaus, 2015).

According to the IMF, a carbon tax, quickly be raised to USD 75 per ton by 2030, would be the most effective way to reach the goal to limit the global temperature rise to 2°C.² The current mean global price on carbon is only EUR 2 per ton, while the allowance price in the EU ETS is about EUR 27 per ton (IMF, 2019; Sandbag, 2019).

There are also economists who do not believe carbon pricing is a satisfactory solution. For example, Patt and Lilliestam (2018) argue that it would not remove the infrastructural and institutional barriers to fighting climate change, and that direct support for green technologies is therefore more effective. Others such as Jaccard et al. (2016) claim that carbon pricing works, but that the price would have to be so high to reach the Paris goals that it would be politically very difficult to implement, which suggests that other types of regulations will be used.

How likely is it that carbon tariffs become a reality?

How the EU's political process unfolds now that the EU Commission has decided to pursue the issue is still unclear. If carbon tariffs are interpreted as trade regulation, it is possible that the issue could be decided by a qualified majority in the EU Council. It is also possible, however, that the proposal instead is interpreted as an environmentally related tax on importers and therefore a question of environmental law rather than trade regulation. In that case it is likely that the European Council would have to reach a unanimous decision and any one country could block the proposal. Regardless, it is likely that certain countries could oppose the plans, especially if they mean the elimination of free allowances. A specific carbon tariff proposal will be published in 2021.

¹ The first specific example of such a system was established by the US Environmental Protection Agency in the 1990's to reduce emissions of sulfur dioxide (SO₂) (Schmalensee and Stavins, 2017).

² Regional differences in the price of carbon could also be reasonable, however. According to Parry (2019), a carbon tax of USD 35 per ton would be very effective in reducing emissions in countries with high carbon intensity and coal usage such as China, India and South Africa.

Local carbon markets risk carbon leakage

Various types of carbon taxes and markets have already been implemented in 46 countries, including Sweden, as well as over some 30 cities, regions and provinces (World Bank, 2019). The world's largest and oldest carbon market is the EU's Emissions Trading System (EU ETS), which covers power plants and heavy industry in the entire EU, Norway, Iceland and Lichtenstein. Within the EU ETS, member states auction off emission allowances that companies within the EU ETS can then trade among themselves. At the end of each year the companies must give up the allowances for each ton of CO₂ emissions they have emitted. The EU ETS was considered for a long time to be ineffective due to a very low carbon price and large surplus of emission allowances, but after the reform in 2018 the carbon price has risen significantly.

The emission allowance price in the EU ETS has increased after reforms



A well-known problem with geographically defined emission taxes and carbon markets is that they can make domestic manufacturers less competitive and lead to so-called carbon leakage, i.e., manufacturers choose to move to countries with looser environmental regulations. This is a threat to domestic industry and could make the carbon price ineffective.³

A global carbon price would solve the problem, and according to several economists would be the best way to reduce emissions. However, this is likely to be very difficult to enact in practice through international negotiations. Possibilities to spread carbon pricing and protect competition in other ways are therefore worth considering.

The threat of carbon leakage is currently taken into account in the EU ETS through free allocation of emission allowances to industries that are considered to be especially threatened. However, this free allocation makes the system less effective in reducing industrial emissions. Carbon tariffs would address this problem by putting a price on carbon for imported products as well. In addition, they could lead to

³ Studies on whether stricter environmental regulations have negative competitive effects have reached different conclusions, but most suggest a fairly small effect (Condon & Ignaciuk, 2013; Dechezleprêtre & Sato, 2017). Even if the total effects on competitiveness happen to be fairly small so far, it is possible that they could be more significant if the carbon price rises to the levels needed to achieve emission reductions in line with the Paris Agreement.

emission reductions in the rest of the world by creating indirect carbon pricing and encouraging the implementation of local carbon markets and taxes.

Much depends on how carbon tariffs are designed

While carbon tariffs may seem useful in principle or theory, practical implementation could be difficult. One question is at what level carbon intensity would be measured. Ideally, emissions would be measured by factory or product, but this would be complicated in practice. Basing the tariffs on carbon intensity at a national or EU level, on the other hand, would not give individual producers an incentive to reduce emissions. One alternative that the National Board of Trade (2019) mentions is to base the tariffs on the level of emissions within the EU and let foreign manufacturers themselves prove that their production has lower emissions in order to pay a lower cost. In any case, carbon tariffs would likely require a heavy administrative system.

According to the EU Commission's climate policy plan, tariffs will be applied in selected sectors, which could mean that they affect steel and cement, for example, which are very carbon-intensive and have fairly simple value chains. Aside from the production, the emissions from the transportation of imported goods could also be considered. There are also plans to expand the EU ETS to shipping, but not the carbon tariffs (European Commission, 2019 b).

Even if the tariffs would be in line with WTO regulations...

According to the EU Commission's Green New Deal, carbon tariffs should be compatible with WTO rules. The WTO has no specific rules in this area, however. It is possible that tariffs could be accepted in the WTO as long as they cannot be interpreted as discriminatory or are designed as a barrier to trade. The GATT agreement allows certain exceptions from its main principles on environmental grounds, and if the tariffs can be structured as an extension of domestic environmental policy, they could be more easily interpreted as being compatible with WTO rules (Hillman, 2013). According to the National Board of Trade (2019), it would be possible to introduce a WTO-compatible carbon tariff as long as the principal purpose is to prevent carbon leakage.

One alternative mentioned by Horn and Sapir (2013) is a WTO agreement on how carbon tariffs can be applied, or even to negotiate tariffs at the WTO level. This would increase the legitimacy of carbon tariffs and could lead more countries to begin with similar rules. There is a risk, however, that this type of agreement would take a very long time to negotiate and that it would be politically watered down.

...they may still present risks for global trade

Even if the WTO were to approve carbon tariffs, there is no certainty that this would prevent other countries from taking countermeasures. Carbon tariffs could hence weigh on global trade, which is already under strain. An earlier example of the difficulty of extending domestic environmental policy to foreign players was the plan to apply the EU ETS to air travel to and from countries outside the EU, which was dropped after a strong push-back from other countries (Horn & Sapir, 2013). In a worst-case scenario, carbon tariffs could also complicate international cooperation on climate change. China's reaction is especially important, since it accounts for nearly one third of the world's emissions. As a sign that this concern is warranted, China has already expressed that carbon tariffs would damage the global climate change fight. The US reaction likely depends on the domestic political situation, as the different presidential candidates have different views on climate and trade policy.

How high could the tariffs be?

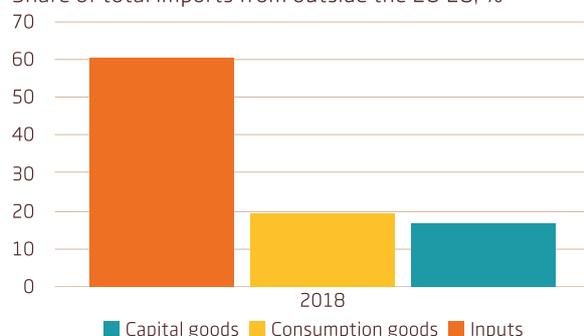
Carbon tariffs at levels that actually are environmentally effective could have a significant impact on trade. The tariffs could range in size, as illustrated by a simple example. Of the proposals that have been presented so far at the EU level, most suggest basing the tariffs on the average emissions per unit of weight of a given good in the EU (National Board of Trade, 2019). Within the EU an average of about 2 tons of carbon dioxide are emitted per ton of steel (LKAB, n.d.). To arrive at an estimate of the carbon tariff for iron and steel imports, we have first multiplied this carbon intensity by the carbon price and then multiplied this coefficient by the EU's iron and steel imports in tons in 2018, using data from Eurostat. This total emission cost can then be compared with the value in euros of the same imports to get an indication of the tariff's size. As a rough estimate, today's carbon price in the EU ETS of approximately EUR 25 per ton of carbon dioxide would mean a tariff of about 7%. If there instead was a significantly higher price of USD 75 or about EUR 68 per ton of carbon dioxide, in line with IMF (2019), it would mean an average carbon tariff of about 20%. Tariff levels would be different for different goods, however.

Countermeasures such as green tariff offsets could reduce the negative effects

Carbon tariffs could also be introduced in connection with lower trade barriers in other areas. One possibility would be "green tariff offsets" that reduce other types of tariffs when carbon tariffs are introduced. Countries would still be affected differently, however, since the WTO's most favored nation principle implies that the EU's tariffs generally should be equally high for everyone (National Board of Trade, 2019).⁴ In addition, this could reduce the possible competitiveness benefits of carbon tariffs. In spite of this, some level of tariff offsets is worth considering, while carbon tariffs could also be part of the EU's future free trade agreements. Other countries could also be permitted to avoid carbon tariffs if they introduce their own carbon pricing, e.g., until they have reached a specific price floor. However, this would disadvantage countries that want to implement their climate promises in ways other than with market-based measures, which could violate the political freedoms in the Paris Agreement (IMF, 2019).

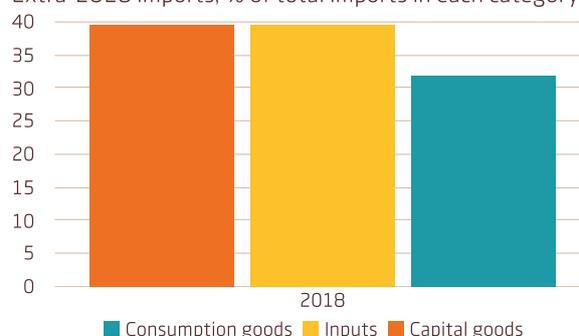
A large share of EU imports consists of inputs

Share of total imports from outside the EU 28, %



A large share of inputs from outside of the EU

Extra-EU28 imports, % of total imports in each category



⁴ Except in cases where the EU has free trade agreements with other countries or tariff concessions have been granted to developing nations, according to the WTO principle of "special and differential treatment" (SDT) (WTO, n.d. a)

Consequences for different countries as well as households and companies in the EU

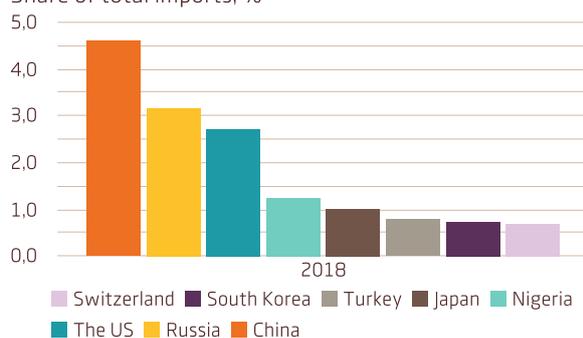
As an indication of which countries would be most disadvantaged by carbon tariffs in terms of goods exports, we can compare the carbon intensity of their industrial sector. Among the EU's three largest trade partners, China, Russia and India have the largest carbon intensity in their manufacturing industry (figure 1). Countries with an export- and industry-heavy economy as well as a fossil-based energy sector would be the most affected. Many developing economies are characterized by all these factors, which are common at a certain stage of industrialization. This means that carbon tariffs could disproportionately impact poorer countries. One alternative to compensate these countries would be to provide financing for green infrastructure and technology, possibly in part by using the revenue generated from the tariffs for this type of financing (Springmann, 2012). The most impoverished countries could also be freed from carbon tariffs and/or only have to set a relatively low national carbon price or reach other more achievable climate measures in order to eliminate the tariffs. The tariff burden on developing countries could also be reduced by using the WTO principle of special and differential treatment.

Besides the risks that carbon tariffs would mean for European trade, they could also negatively impact domestic industry; the price of imported inputs from the covered sectors would rise due to the tariffs, which could hurt industry profitability. About 60% of the EU's imports consists of input goods, while about 40% of imports in this category comes from outside the EU. Sectors that import a lot of goods with an especially high carbon intensity would be most at a disadvantage. At the same time the elimination of free allowances in the EU ETS would lead to higher costs from certain industries' own production in Europe. Downstream actors could see higher prices on both their own production in Europe and for input goods, which could in effect risk carbon leakage from certain industries (National Board of Trade, 2019). In the longer term, however, tariffs could lead to improved efficiency and increased circularity in resource consumption, which would reduce emissions and costs.

While carbon tariffs could also increase the price of consumer goods due to the increased costs paid by domestic industries. This would hurt consumption and push inflation higher. Tariffs could also lead to the substitution of goods with lower emissions, which would reduce consumption's carbon footprint.

Sweden, imports from outside of the EU ETS

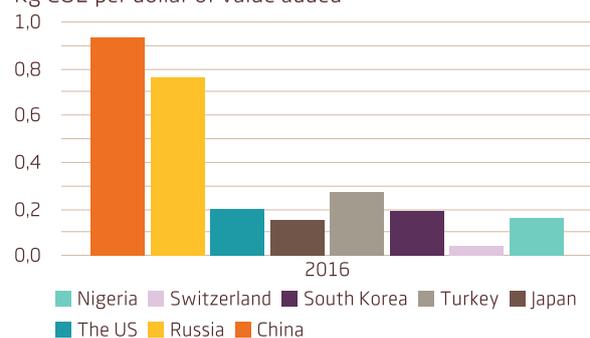
Share of total imports, %



Sources: SCB, Swedbank Research & Macrobond

Carbon intensity of manufacturing production

Kg CO₂ per dollar of value added



Sources: UNDESA, Swedbank Research & Macrobond

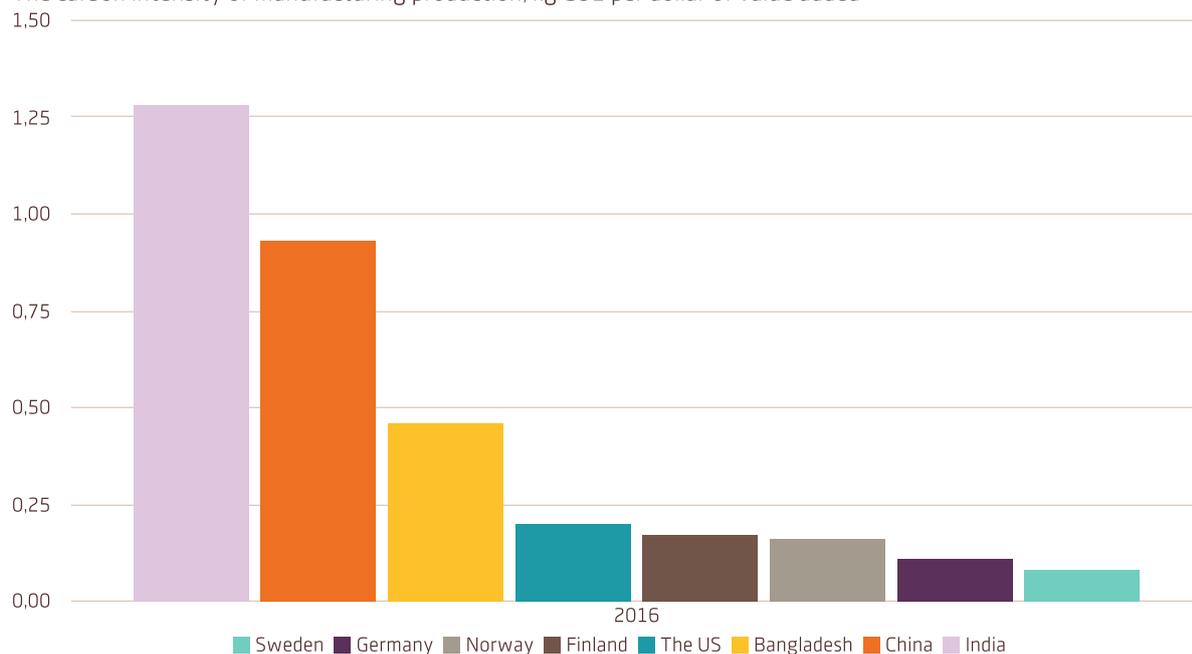
Swedish industry: Winners and losers

Swedish industry could both benefit and be harmed if carbon tariffs were introduced. In a system with a more uniform carbon price, the competitiveness of the Swedish industry would be supported by its relatively low carbon intensity. For example, emissions from Sweden's iron and steel production are already slightly lower than average (HYBRIT, n.d.). At the same time carbon tariffs would also mean higher costs for some input goods. At present, inputs account for nearly 60% of Swedish imports from countries outside the EU, and over one third of imported inputs come from outside the EU. Free allocation of emission allowances would probably be eliminated in connection with the tariffs, which would also raise emission-related costs for large parts of the industry.⁵ But this would also give those industries with relatively low emissions a competitive advantage in Europe.

In addition to these cost aspects, there is a risk that carbon tariffs would lead to increased tariffs from the rest of the world, which would harm Swedish exports. Despite a substantial industrial sector, Sweden's economy today is slightly more service-based than the EU average. In addition, nearly 70% of Sweden's goods exports are to the EU including the UK as well as Norway which is included in the EU ETS, while only about 6% is exported to China and 7% to the US (OECD with data from UN Comtrade, n.d.). In Sweden increased trade barriers therefore would mainly directly affect companies that are especially exposed to China, and possibly the US.

The Swedish industry has a relatively low carbon intensity

The carbon intensity of manufacturing production, kg CO₂ per dollar of value added



In the long term Swedish industry could also benefit from the positive effect that carbon tariffs could have on the global carbon price. This would support demand for emission-reducing solutions and could therefore increase Swedish exports of green technology.⁶ Despite the costs that a high carbon price and carbon tariffs would mean, they would also catalyze green investment and R&D, which would support growth in Europe. Over time this could lead to a structural transformation where sectors that succeed in reducing

⁵ In its communication about the Green New Deal, the European Commission, (2019 b) mentions carbon tariffs as an alternative to other measures to strengthen competitiveness, such as free allowances.

⁶ See also our previous analysis of green export opportunities (only in Swedish): [Klimatet och kapitalet: Kina, Indien och gröna exportmöjligheter](#).

their emissions or that offer green goods and services would benefit, while traditional carbon-intensive technologies would gradually disappear.

Carbon tariffs have large upside potential but must be designed carefully

Carbon tariffs could benefit climate policy by facilitating larger emission cuts in the EU and by spreading carbon pricing to more countries. However, there are major technological and political challenges and the system of carbon tariffs would have to be designed in collaboration with the WTO. While the tariffs should be designed simply enough that they are technologically implementable, they should also give foreign producers an incentive to reduce their emissions in order to maximize the climate benefits.

To justify carbon tariffs, the current system of free allocation of emission allowances for manufacturers within the EU ETS would have to be eliminated. Consideration should also be given to generally reducing other types of tariffs and trade barriers when carbon tariffs are introduced, so-called green tariff offsets. Moreover, selected developing countries could be compensated for the increased tariffs costs.

Taken together, our understanding is that the plans to introduce carbon tariffs within the EU should continue to be pursued, and that Sweden should support this process. At the same time as carbon pricing is an important tool in the climate work, other measures are also needed, such as public investment in the infrastructure necessary for the low carbon transition and support for research and development.

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Planned updates

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