

Science for Environment Policy

Importing goods from sustainable production countries could lower EU's environmental footprint

A new study has analysed how to reduce the environmental footprint of EU trade by preferentially importing goods from countries that have greener production processes. The study concludes that the environmental impacts of 200 product groups imported into the EU could be considerably reduced in this way. For example, water consumption caused by these imports could be cut by 72%, and land use by 65%.

Importing goods, as opposed to producing them domestically, shifts the environmental impacts of production — which include pollution and resource consumption — to the exporting countries. This footprint is said to be 'embodied' in the traded goods, and is attributed to the importing nation. The footprint is increasing with globalisation.

The study was conducted to understand how the EU could reduce its embodied footprint in imports. Using the EXIOBASE 3.3 database, the study first traced the environmental impacts of 200 product groups throughout the global supply chains, focusing on four specific impacts: carbon emissions, land use, material use and water use.

The researchers then calculated the embodied environmental footprint for each of these four pressures for the EU-28. They considered the impacts of producing goods traded across EU Member States, as well as those that are imported into the EU. They excluded the impacts of domestic production, given the study's focus on trade.

The results showed that 13 of the 200 product groups were responsible for over half of each of the four footprints. These product groups are chemicals; motor vehicles; machinery; communication equipment; furniture; fur; food products; leather; air transport; vegetables, fruit and nuts (one product group); forestry products; meat from cattle; and crops.

In total, these 13 product groups accounted for 56% of embodied impact in the EU's carbon footprint for all 200 product groups; 59% for its material footprint; 76% for its water footprint; and 64% for its land footprint.

The researchers then ranked exporting countries by each of the four environmental footprints per million euros of value for each of the 200 product groups. This allowed them to prioritise imports for each product group from the country with the lowest environmental footprint (up to the export limit of that specific country), with the remainder of the imports coming from the next lowest impact country (up to its export level), and so on, until the EU's overall demand for the specific product group is met. The study assumed that overall production levels for each country remain the same.

Shifting the source of imported goods in this way could cut the total embodied water footprint by 72%, land use by 65%, material use by 53% and carbon footprint by 46% — when each footprint is optimised in isolation from the others.

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Rodrigues, J. F. D., &
Tukker, A. (2019).

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Contact:
[b.f.de.boer@cml.leidenuniv
.nl](mailto:b.f.de.boer@cml.leidenuniv.nl)

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The study gives the case of motor vehicle trade to illustrate the impacts of optimisation on trade patterns and embodied carbon footprints. Pre-optimisation, the EU-28 imported motor vehicles from 49 countries and regions, including EU Member States, with a mean global warming impact intensity of 2 gigagrams of CO₂ per million euros. Post-optimisation, the EU-28 would import from just 13 countries and regions with a mean global warming impact intensity of 0.4 gigagrams of CO₂ per million euros.

As lowering one footprint causes synergistic reductions in other footprints, the researchers also analysed how to enable the lowest overall impact across all four footprints. They concluded that optimising carbon and material use leads to the largest reductions in the other pressures. For example, a 46% reduction in carbon footprint could lead to a 42% drop in material use, 44% in water use and 25% in land use.

This study was conducted in the context of policy mechanisms such as a carbon border adjustment (CBA). This proposed policy has been gaining political interest in recent times. It places a higher tax on goods imported from countries with higher carbon emissions; the resulting increase in product price may sway consumers towards goods from countries with lower carbon emissions and, in turn, encourage exporting countries to lower their emissions. There is no equivalent to the CBA for other environmental pressures but the researchers suggest that lessons could be drawn for these from the CBA.

The study highlights the importance of adopting the best production technologies across all countries to lower the embodied environmental footprints of traded goods. It also identifies specific product groups (13 in total) that policymakers could target when considering measures to reduce embodied footprints.

It is crucial to note that the study does not consider how to lower *global* environmental impacts of traded goods, however. It considers how the EU could focus on importing goods with the lowest environmental footprint, which may mean that other countries import higher impact goods.

