

Trade policy and the environmental impacts along global supply chains: an ex-post analysis

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The relationship between international trade and environmental outcomes has been, and remains, contentious. Linkages occur in several directions and both direct and indirect mechanisms are in place (Cappelli et al., 2021). Trade agreements could help to meet climate goals, for example, by removing tariffs and harmonizing standards on "clean" goods and services. However, tariffs could be lower on dirty than on clean industries, representing an obstacle towards greener trade (Shapiro, 2021). Nevertheless the relevance of this issue, relatively little attention is paid to the global trade architecture in climate policy discussions.

However, since production and trade are increasingly organized within Global Supply Chains (GSCs), assessing trade policy's effects is nowadays more complex than considering tariffs on gross trade. In other words, to evaluate the link between trade policy and environmental outcome, we need to approach the issue from a global supply chain perspective.

We use an updated version of the GTAP-RD model, featured with a module to account for energy-related CO₂ emissions embedded in trade allocated along the GSCs. The origins of emissions embodied in trade are estimated using a similar methodology to that used to compute the origin of value-added in trade (Antimiani et al. 2018). The methodology is based on Input-Output (IO) analysis and is combined with emission coefficients related to each industry's production processes to derive CO₂ equivalent emissions global multipliers from reallocating emissions to each productive link in the global trade system.

We use an economic model to compare two states of the world, with the only difference being the presence of a free trade agreement (FTA) – i.e. the effects of the Agreement are isolated from any other factor that in reality also comes into play. Since 2013, the European Union (EU) has a Trade Agreement with Colombia and Peru; Ecuador joined in 2017.

The baseline scenario is the "status quo", i.e. the case where both parties apply the reduced FTA tariffs, while the policy scenario is a counterfactual hypothesis assuming no FTA is in place and a reversion to pre-FTA tariffs, i.e. MFN tariffs. Applying the model in this way, we can decompose and compute the CO₂ emissions resulting from the agreement compared to what the case would have been without the agreement.

References

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