

Impact of a EU border carbon adjustment for the Global South

Combating climate change requires tighter domestic carbon policies; but these increase costs and raise concerns with respect to carbon leakage. Moreover unilateral policies may increase emissions elsewhere while hurting the domestic economy by increasing production costs. Indeed, leakage concerns have been blamed for missing unilateral carbon policies (Verde, 2020). Against this backdrop, the EU is discussing the introduction of a border carbon adjustment (BCA) to level the playing field between imports and domestic producers.

While BCAs are found to be effective in reducing leakage and avoid unfair competition, BCAs are criticised for their burden shifting effect (Böhringer, 2022). The basic mechanism of a BCA is like import tariffs, with exporting countries facing decreasing revenues and importing countries benefiting from improved terms of trade. However, second round and related income effects are less clear, such as effects on commodities that are not targeted by the BCA or effects on oil markets and related effects on production costs. Effects of a BCA on trade partners depend on trade structures, as only a selected group of commodities will be subject to the BCA, and the carbon content of exported goods, where data shows large variation between regions. Trade partners will also be affected indirectly from changing terms of trade and fossil fuel demand, and directly from a possible transfer of revenue funds.

To analyse these spill over effects on other regions, i.e., the Global South, this study analyses two alternative BCA scenarios as proposed by the European Commission and the European Parliament's ENVI Committee. The study investigates the relevance of different elements of policy design for third countries and global income distribution.

Method

The analysis of BCA is based on the July 2021 Proposal. The study uses a global CGE model (McDonald, 2021), calibrated to an augmented version of the GTAP power database with a base year of 2014 (Chepeliev, 2020). The model is implemented in its energy and recursive dynamic modes, featuring among others, endogenous updating of physical capital stocks, with partial adjustment to returns by activity and region on capital and updating of all parameter calibrations between solutions. A Business as Usual scenario is developed, covering 30 years, and featuring 34 sectors and 19 regions, identifying oil producers and income categories by geographic region, most importantly, distinguishing African low and lower-middle income countries, African oil producers, the South African Customs Union, China, India, Asian low and middle income countries, Asian oil exporters, Latin American oil exporters and other Latin America.

The model links regions through bilateral trade relationships and current account transactions. Energy use in the model allows for substitution in production between different energy inputs, subject to time dependency and vintage capital. The production of commodities involves emissions, i.e., CO₂ and other emissions (GTAP 10 Satellite Data), each of which can be subject to emissions tax instruments. The study includes a variety of specifications for BCA, including variations in sector coverage, development of EU price levels and the emission scope covered by BCA. In addition, the scenarios include the use of BCA revenue for decarbonisation, first, using all revenues for decarbonisation efforts inside the EU and, second, including additional finance made available for low income countries .

Results

The direct effects of the EU BCA impact the demand for imports from economies that are intensive users of coal and reduce the scale of global economic activity and carbon emissions. In the short to medium term the global demand for oil and gas increases as producers seek to reduce the use of coal. As investment in cleaner power generation technologies is accelerated and the lifespans of higher emission technologies are reduced, current consumption reduces by more than the GDP due to increased investment expenditure. The EU can partially offset the reduction in consumption by directing BCA revenues to accelerate investment in cleaner technologies. In the longer term, oil and gas exporters experience reductions in global oil and gas demand, with the reductions in demand for gas lagging behind that for oil. The magnitudes of the economic impacts depend critically on the rate at which cleaner power generation technologies are introduced and the proportionate reductions in emissions achieved by cleaner technologies. Transfers to low income countries made available for efforts towards decarbonisation in the framework of BCA may alleviate some negative effects and speed up decarbonisation.

References

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