

## OPINION

# The challenge of border carbon adjustments as a mechanism for climate clubs

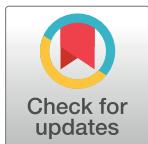
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## Introduction

At the G7 leaders' summit in June 2022, the G7 committed to establishing a climate club. The rationale is supporting “effective implementation of the Paris Agreement by accelerating climate action and increasing ambition”, and importantly references advancing climate policy transparency with a focus on industry to mitigate carbon leakage [1]. Nordhaus argues that a climate club with “penalties for non-members” is the most effective way to overcome the collective action problem in addressing climate change and substantially reduce emissions [2]. Following the European Union announcing it would transition from its emissions trading system to a carbon border adjustment mechanism (CBAM), there were calls for the CBAM to be the building block of a climate club, with a minimum common price and common border tariffs for countries outside the club [3,4]. Others argue carbon clubs are counter-productive [5]. With both moving to implementation, I focus on the pros and cons of border carbon adjustments (BCAs) in meeting the G7 climate club goals.



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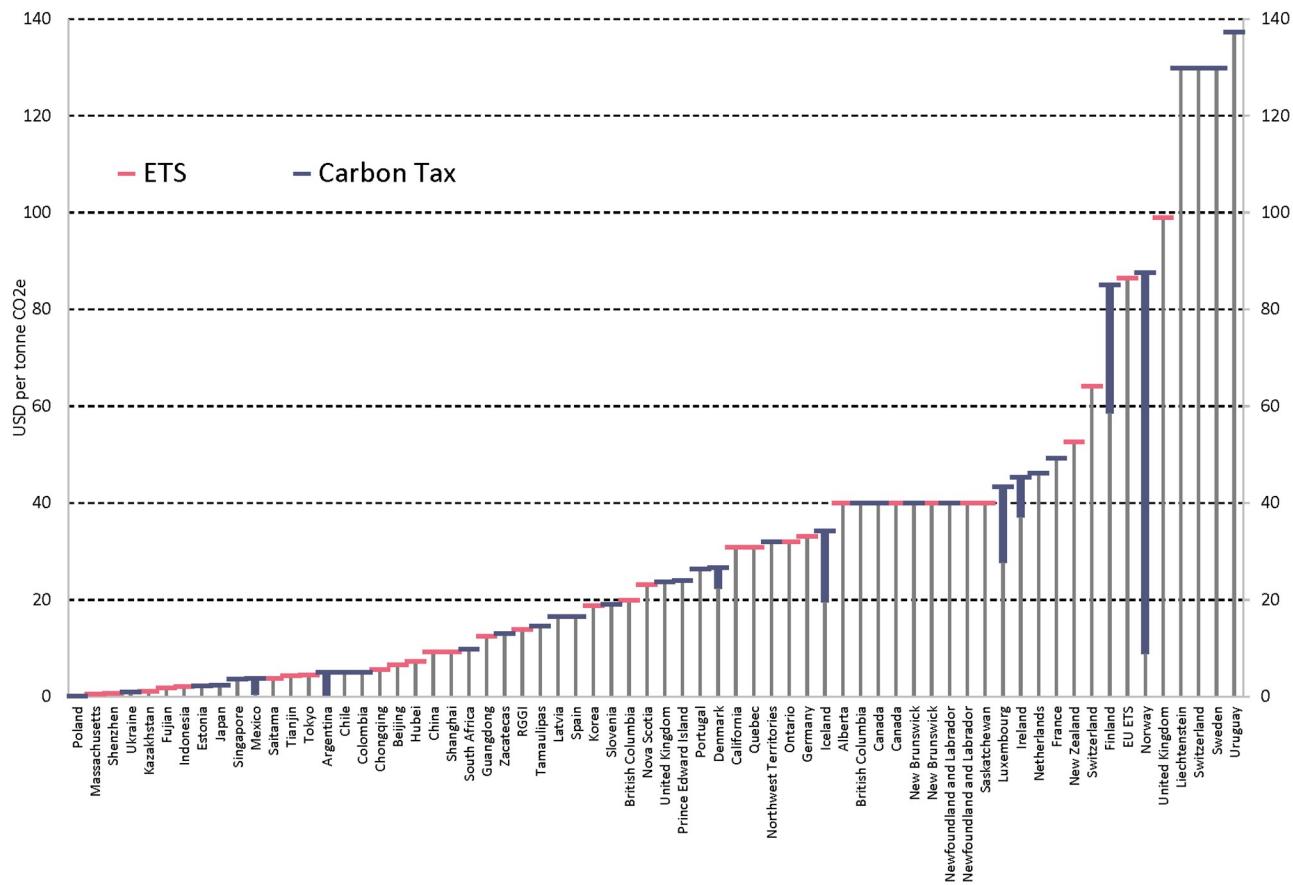
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## Addressing leakage

Carbon leakage occurs when economic activity leaves or “leaks” from a country with more stringent environmental policy, to jurisdictions with less stringency. The net effect is lost economic activity with no or little reduction in global emissions. Of several leakage channels, the most politically sensitive is competitiveness [6]. Emissions pricing reduces domestic firms’ competitiveness domestically (output becomes relatively higher-cost than imports) and internationally (exports are now higher cost). Negative competitiveness effects also depend on exposure to leakage—the emissions embodied in trade, and whether domestic industries are net importers or net exporters of emissions. While evidence of leakage is mixed [6,7], disparity in global prices (Fig 1) and pricing coverage creates scope for leakage [8].

Numerous jurisdictions use domestic policy to lower the cost of emissions pricing via free permit allocations or output-based subsidies, lowering average costs while maintaining the marginal price [9,10]. An alternative is border carbon adjustments, brought into sharp focus by the European Union’s proposal.

The two approaches have different effects in mitigating leakage [8]. Domestic policy that lowers the average cost of emissions for domestic firms maintains domestic and international competitiveness (costs are lower regardless of the buyer). Border carbon adjustments price international production at the point of import. This levels the playing field domestically but does not protect domestic firms’ international competitiveness unless combined with export rebates. As G7 countries are net emissions-importers and have high leakage exposure [8], BCAs may be increasingly attractive.



**Fig 1. 2022 Emissions prices by jurisdiction and type.** Source: The World Bank (2022). Carbon Pricing Dashboard.

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## BCAs, climate clubs, and implementation challenges

There are five implementation challenges in using BCAs as a climate club enforcement mechanism. First, Paris Agreement Article 2 enshrines the concept of common but differentiated responsibilities for signatories' mitigation actions. BCAs, by taxing imports based on their emissions content, effectively offshores price-based climate policy to countries with less-stringent or unrecognized climate policy. Developing countries have more emissions intensive production and less stringent environmental policies due to their developing status [7,11]. BCAs shift the burden of emissions reductions to less-developed countries, an action inconsistent with Article 2, while exemptions would undermine the efficiency and effectiveness of the BCA.

Second, not all sectors or products are equally at risk of leakage; emissions reductions and the cost-effectiveness of reductions are decreasing in the number of products included [6,12]. The EU CBAM proposal includes five sectors, with plans to expand further [13]. Broader scope increases burden-shifting [11], while smaller scope limits the effectiveness of the climate club in incentivizing non-member actions.

Third, and relatedly, is determining the border adjustment factors: the tax rate on imports' embodied emissions. Important design features are types and scope of emissions included, products' domestic emissions benchmark, and accounting for differences in importers' emissions intensities. The most important is the domestic benchmark: a weak benchmark provides little incentive for emissions reductions outside the club, and a strong benchmark burden-shifts.

The simplest option is to only tax direct production emissions. A more complex system involves including indirect emissions (Scope 2 and 3), which also requires determining how far up the supply chain to go when including indirect emissions. Excluding indirect emissions means a share of total production emissions are unpriced. In contrast, including indirect emissions increases the complexity of calculating the adjustment factor, introducing a trade-off between accurately pricing emissions and administrative complexity. Including indirect emissions will increase burden-shifting. Border adjustment factors could include uniform treatment of imports, country-specific benchmarks, or firm-specific verification. Verification processes create an incentive for emissions reductions, but again increase complexity of maintaining the BCA. Moreover, WTO compatibility requires equal treatment of third countries [6,13]. Nordhaus proposes uniform tariffs, rather than product-specific duties due to their complexity [2].

The fourth challenge is whether member countries will use export rebates to preserve international competitiveness. The EU CBAM proposal does not include export rebates, but there is lobbying to include them [13]. Moreover, Canada and Japan currently have competitiveness-mitigation mechanisms in place, and a focus of the club is mitigating leakage. Expanding the club outside the G7 may require export rebates, though this may spur additional criticism of the climate club.

Fifth is treatment of domestic pricing and non-pricing policies. BCAs potentially disadvantage non-pricing policy due to the challenges of calculating an equivalent price for regulatory actions. However, the G7 statement explicitly allows for “explicit carbon pricing, other carbon mitigation approaches and carbon intensities” [1]. Lowering the BCA in response to domestic climate policies may incentivize other countries to adopt pricing or increase the stringency of non-pricing policies. Accounting for differing effective price levels and emissions coverage makes adjustments like this challenging, particularly as there are likely policy differences within the club. This will be particularly problematic for US, the only G7 country without pricing.

## Conclusions

The G7 commitment to a climate club is an interesting step in the evolution of cooperative climate policy amidst concern about leakage. The EU CBAM offers a roadmap for an enforcement mechanism, but enforcing a climate club using border carbon adjustments magnifies the challenges of unilateral BCA design and implementation. Given these challenges, in the near term it appears any climate club will be less mechanism-based, and more focused on gradual alignment [14].

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