Third Countries' Reactions to the EU CBAM: a Law & Economics Approach

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The Carbon Border Adjustment Mechanism (CBAM) is a measure of the European Union (EU) aimed at imposing its carbon price on foreign producers of certain carbon-intensive products, with the final goal of addressing the risk of carbon leakage and contributing to the objectives of the Paris Agreement. However, it has been widely perceived by third countries as a protectionist instrument, and as a way to interfere with their domestic climate policies. This article explores how third countries may react to the CBAM, given the current weakness of the IEL and WTO dispute resolution systems. It divides the possible responses between cooperatives and non-cooperatives and concludes that while the CBAM bears the risk of further fragmenting international climate policy, it has the potential to contribute to the reduction of greenhouse gas emissions by incentivizing the adoption and strengthening of carbon pricing systems in third countries.

INTRODUCTION

The Paris Agreement[1] requires its parties, including the European Union (EU) and its member states, to submit nationally determined contributions (NDCs)[2] intended to limit global warming to well below 2 °C above pre-industrial levels, and ideally under 1.5 °C.[3] The EU needs to reduce its net greenhouse gas (GHG) emissions "by at least 55% compared to 1990 levels by 2030", as set in its NDC[4] and made binding by the European Climate Law.[5] As part of its

* This article draws from my thesis project for the award of the degrees from USI – University of Lugano and the Catholic University of Milan. The thesis is supervised by Professor Ilaria Espa, to whom goes my gratitude for her guidance and support during the last two years.

[1] U.N. Framework Convention on Climate Change, Report of the Conference of the parties on its Twenty-First Session, U.N. Doc. FCCC/CP/2015/10/Add.1, Annex, (Jan. 29, 2016) [hereinafter Paris Agreement].

[2] *See* Paris Agreement, *supra* note 1, art. 3.

[3] *See* Paris Agreement, *supra* note 1, art. 2.

[4] *Submission to the UNFCCC on behalf of the European Union and its Member States on the update of the nationally determined contribution (NDC) of the European Union and its Member States*, 14286/23 COR 1 (Oct. 18, 2023).

[5] European Parliament and Council Regulation 2021/1119, art. 4, 2021 O.J. (L 243).

strategy,[6] the EU intends to implement the Carbon Border Adjustment Mechanism (CBAM),[7] a measure that would impose a carbon price on certain imported products, with the aim of reducing the risk of carbon leakage, contributing to the objectives of the Paris Agreement, and championing its role in international climate policy.[8] The transitional period of the CBAM started in October 2023[9] and it will become fully operational in 2026,[10] but its adoption has already sparked backlash from numerous countries and forums of countries due to its potential impact on their national climate policies and on international trade.[11]

At this stage of the implementation there are more questions than answers, however this article tries to explore what options third countries have to respond to the CBAM and to evaluate them through an international law and economics approach. To do so, the article is divided into four sections. The first section introduces the economic model of climate change, the cap-and-trade system as one of the possible instruments to reduce GHG emissions, and the EU Emissions Trading System (ETS). The second section introduces the CBAM as a response to the carbon leakage allegedly caused by the ETS, exploring its features and its shortcomings under the current international trade and environmental law frameworks, while comparing their respective enforcement systems. The third section explains the international law and economics framework under which third countries' responses will be analyzed. The fourth section analyzes the possible responses and divides them between non-cooperatives and cooperatives. The article then concludes that while the CBAM bears the risk of further fragmenting international climate policy, it has the potential to contribute to the reduction of GHG emissions by incentivizing the adoption and strengthening of carbon pricing measures in third countries.

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[6] *See "Fit for 55": delivering the EU's 2030 Climate Target on the way to climate neutrality*, at 12, COM (2021) 550 final (July 14, 2021).

[7] European Parliament and Council Regulation 2023/956, 2023 O.J. (L 130) [hereinafter CBAM Regulation].

[8] Alice Pirlot, *Carbon Border Adjustment Measures: A Straightforward Multi-Purpose Climate Change Instrument?*, 34 J. ENV'T L. 25, 26 (2022).

[9] *See* CBAM Regulation, *supra* note 7, art. 32.

[10] *See* CBAM Regulation, *supra* note 7, art. 36.

[11] *See* Erblina Sejdiu, *Decarbonizing the World: can the EU CBAM Provide the Incentive we Need?*, 44 ENERGY L. J. 219, 233-40 (2023).

I. CLIMATE CHANGE AS AN ECONOMIC PROBLEM

Climate change is a consequence of GHG emissions from human activities,[12] and imposes high costs on nature and people by, among the others, increasing the chances for extreme weather events, reducing food and water security, and contributing to the spread of infectious diseases.[13] Moreover, climate change affects disproportionately the communities "that have historically contributed the least to current climate change",[14] highlighting the GHG emissions' nature of negative externality.[15] This is an economic concept that applied to GHG emissions refers to the mismatch between the costs incurred by the emitter to produce a good or provide a service, and the cost borne by the third parties, that did not acquire and consume the product.[16] In this situation the equilibrium price of the product in the market does not signal the external costs imposed on society, causing an excessive offer of the harmful product.[17]

To solve the misallocation of resources and increase the social welfare, the negative externality must be internalized, meaning that the external costs must be incorporated into the production costs of the emitter.[18] This can be done by applying the polluter-pays principle, a cornerstone of environmental law that requires the emitters to compensate the parties that suffered from the damages caused by their emissions.[19] An application of the polluter-pays principle is the cap-and-trade system, under which public authorities can set a cap on the amount of GHGs that can be emitted by producers.[20] A system based on allowances – received for free or bought through auctions – allows them to emit a certain amount of GHGs.[21] Additionally, producers can trade allowances with each other, in a system that incentivizes them to reduce the emissions per unit of product, in order to reduce the amount of allowances

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[12] *See* IPCC, Climate Change 2023: Synthesis Report, at 42-44 (2023), https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_FullVolume.pdf

[13] *See id*. at 50.

[14] *Id*. at 5-6.

[15] *See* SCOTT J. CALLAN & JANET M. THOMAS, ENVIRONMENTAL ECONOMICS & MANAGEMENT: THEORY, POLICY, AND APPLICATIONS 62 (6th ed. 2012).

[16] *See id*. at 61-62. Consumption too can be associated with negative externality. *See id*.

[17] *See id*. at 65.

[18] *See id*. at 75.

[19] *See* Stefan, Ambec & Lars Ehlers, *Regulation via Polluter-Pays Principle*, 126 THE ECON. J. 884, 892 (2016).

[20] *See* Callan & Thomas, *supra* note 15, at 114-15.

[21] *See id*.

to buy, and eventually to sell their surplus to other producers, privately or on the financial market.[22]

A. *The EU ETS*

The EU's cap-and-trade system is the Emission Trading System (ETS),[23] which covers "approximately 40% of [its] total emissions".[24] The mechanism provides that firms are assigned or have to auction allowances, each equivalent to one tonne of CO_2-equivalent emissions, and every year they have to surrender to the administrative authorities the number of allowances required to cover the emissions of the previous year, under penalty of a non-compliance fine for each tonne of CO_2-equivalent emissions not covered by the allowances surrendered.[25]

The ETS applies also outside the EU, in particular to Iceland, Liechtenstein, and Norway, as members of the European Economic Area (EEA),[26] and to Northern Ireland for the electricity sector.[27] It covers CO_2 emissions mainly from mining, industrial production, electricity, the aviation sector for flights within the EEA and from the EEA to Switzerland or to the UK, and the maritime transportation sector, fully for intra-EEA voyages, and partially for extra-EEA voyages.[28] Furthermore, in 2020 the EU ETS was linked to the Swiss ETS through an international agreement that provides for the mutual recognition of their allowances, thus

[22] *See id*.

[23] European Parliament and Council Directive 2003/87, 2003 O.J. (L 275) [hereinafter ETS Directive].

[24] *Report on the functioning of the European carbon market in 2023*, at 2, COM (2024) 538 final (Nov. 19, 2024).

[25] *See* ETS Directive, *supra* note 23, art. 3(a), 16.

[26] Agreement on the European Economic Area, Annex XX, art. 21al, May 2, 1992, 1994 O.J. (L 1). The EEA is a "*sui generis*" legal order that extends the participation in the single market (albeit with some exceptions) to these three EEA-EFTA countries without them transferring any legislative power to the EEA institutions. *See* FINN ARNESEN ET AL., AGREEMENT ON THE EUROPEAN ECONOMIC AREA: A COMMENTARY 175, 267-271 (2018). However, the EEA-EFTA countries are not members of the EU Customs Union and maintain the power to decide of their trade policies. *See* Peter-Christian Müller-Graff, *Free Movement of Goods*, *in* THE HANDBOOK OF EEA LAW 415, 415 (Carl Baudenbacher ed., 2016).

[27] Agreement on the withdrawal of the United Kingdom of Great Britain and Northern Ireland from the European Union and the European Atomic Energy Community, Protocol on Ireland/Northern Ireland, EU-U.K., art. 9 and annex 4, Jan. 24, 2020, 2020 O.J. (L 29).

[28] *See* ETS Directive, *supra* note 23, art. 3ga, annexes I and III.

allowing companies located in the EEA to surrender Swiss ETS allowances, and the other way around.[29]

B. *Carbon Leakage*

Since the ETS imposes an additional cost to production, it could make EU producers less competitive on international markets, incentivizing some of them to move (part of) their production processes outside the EU.[30] This concept is called carbon leakage and can be defined as the relocation of production and of associated emissions from a country or region where a system of carbon pricing is in force, to countries or regions where carbon prices are lower or non-existent.[31] Other than damaging a country's economy, carbon leakage may undo the progress made in GHG emissions reduction, as producers that relocate where there are lower or no carbon pricing mechanisms would emit more GHGs than before.[32]

Even though, up to this point, empirical evidence of carbon leakage is mixed,[33] it is a priority issue for policy makers. In particular, the EU has for years granted free ETS allowances to producers in sectors believed to be at risk of carbon leakage.[34] However, in order to meet its climate goals, the EU decided to gradually reduce the share of free ETS allowances from 2026, so that by 2034 all EU products covered by the ETS incorporate the carbon price.[35] This tension between pursuing the objectives of the Paris Agreement and the need to reduce the risk of carbon leakage is probably the main reason for the development of the CBAM.

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[29] Agreement between the European Union and the Swiss Confederation on the linking of their greenhouse gas emissions trading systems, EU-Switz., Nov. 23, 2017, 2017 O.J. (L 322) [hereinafter EU-Switzerland ETS Agreement].

[30] *See* Stefano Clò, *Grandfathering, Auctioning and Carbon Leakage: Assessing the inconsistencies of the new ETS Directive*, 38 ENERGY POL'Y 2420, 2421 (2010).

[31] *See id*.

[32] *See* Helene Naegele & Aleksandar Zaklan, *Does the EU ETS Cause Carbon Leakage in European Manufacturing*, 93 J. ENV'T ECON. & MGMT. 125, 126 (2019).

[33] *See id*. at 137-138 (finding no evidence for EU ETS-caused carbon leakage). *But see* Maria Wang & Tero Kuusi, *Trade flows, carbon leakage, and the EU Emissions Trading System*, 134 ENERGY ECON. 1, 12 (2024).

[34] European Parliament and Council Directive 2009/29, art. 10a, 2009 O.J. (L 140).

[35] *See* ETS Directive, *supra* note 23, art. Article 10a(1a).

II. THE CARBON BORDER ADJUSTMENT MECHANISM

The Carbon Border Adjustment Mechanism (CBAM) is a policy aimed at addressing the risk of carbon leakage "by ensuring equivalent carbon pricing for imports and domestic products".[36] When fully in force it will require EU importers (called authorized CBAM declarants)[37] to acquire and then surrender a number of non-tradable CBAM certificates corresponding "to the emissions embedded in goods imported during the preceding calendar year".[38-39] Failure to abide implies the application of penalties, in addition to the duty to surrender the outstanding number of CBAM certificates.[40] The rationale is that CBAM declarants will pass down the costs of CBAM certificates onto foreign producers by charging them (or the exporters) by the correspondent amount, therefore the price of the imported goods will increase by an amount approximately corresponding to the levy,[41] levelling the playing field for EU producers[42] while also incentivizing foreign producers to adopt "technologies that are more efficient in reducing greenhouse gases so that fewer emissions are generated".[43]

The EU institutions plan to apply the CBAM to all the sectors and sub-sectors covered by the EU ETS,[44] but currently it applies only to cement, electricity, fertilizers, iron and steel,

[36] *See* CBAM Regulation, *supra* note 7, recital 12.

[37] *See* CBAM Regulation, *supra* note 7, art. 5.

[38] CBAM Regulation, *supra* note 7, art. 26(1).

[39] A proposed amendment to the CBAM Regulation presented by the EU Commission, if approved, would exclude from CBAM obligations imports up to 50 tonnes of goods per year. This would "exempt the vast majority of importers […] while maintaining more than 99% of embedded emissions in the scope of the CBAM". *Commission Proposal for a Regulation of the European Parliament and of the Council amending Regulation (EU) 2023/956 as Regards Simplifying and Strengthening the Carbon Border Adjustment Mechanism*, at 2, COM (2025) 87 final (Feb. 26, 2025).

[40] *See* CBAM Regulation, *supra* note 7, art. 26(3).

[41] Guilherme Magacho, *Impacts of CBAM on EU Trade Partners: Consequences for Developing Countries* 5 (Agence française de développement, Research Paper No. 238, 2022).

[42] Henrique Morgado Simões, EU CARBON BORDER ADJUSTMENT MECHANISM. IMPLICATIONS FOR CLIMATE AND COMPETITIVENESS 3 (2023).

[43] CBAM Regulation, *supra* note 7, recital 14.

[44] *See* CBAM Regulation, *supra* note 7, recital 20.

aluminum, and hydrogen.[45] Additionally, it will cover the embedded direct and indirect[46] emissions of cement and fertilizers, but only the direct emissions of the goods falling into the other categories.[47] The transitional period – from October 1, 2023 to December 31, 2025[48] – will facilitate a "smooth roll-out" of the CBAM and the collection of information on the embedded emissions in the imported goods, as reported by importers.[49] From 2026 the CBAM will apply in full, but the duty to surrender CBAM certificates will be proportional to the reduction of the EU ETS allowances issued for free on the goods covered by the CBAM.[50] Specifically, the free ETS allowances will be gradually phased-out from 2026 to 2034, while CBAM certificates will be symmetrically phased-in,[51] as shown in Figure 1.

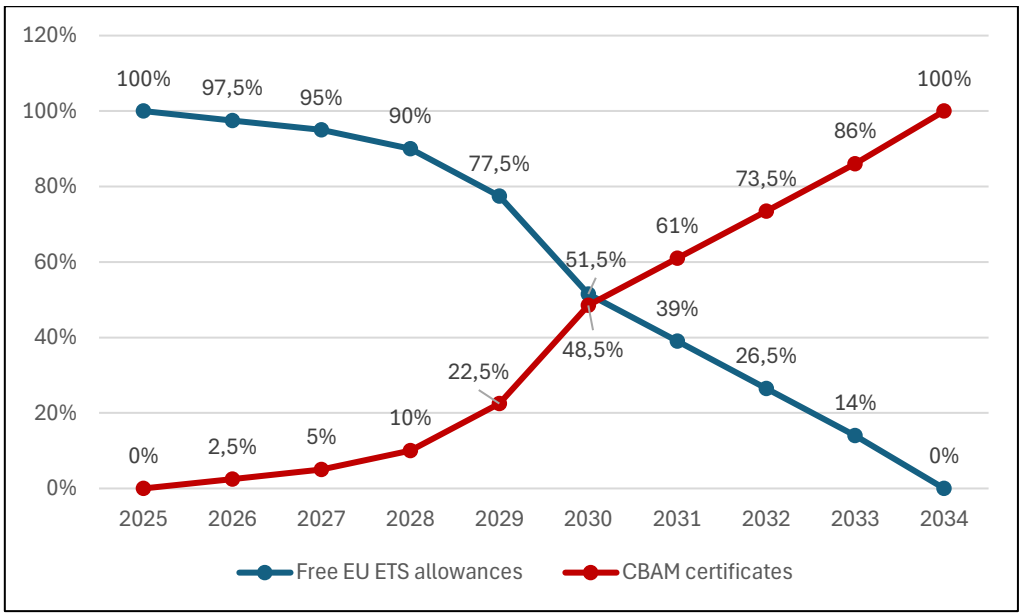

Figure 1: Evolution of free ETS allowances and CBAM certificates (2025-2034).[52]

[45] *See* CBAM Regulation, *supra* note 7, annex I.

[46] The difference between the two is that direct emissions are released during the production processes, while indirect emissions are released "from the production of electricity that is consumed during the production processes". CBAM Regulation, *supra* note 7, art. 3.

[47] *See* CBAM Regulation, *supra* note 7, annex II.

[48] *See* CBAM Regulation, *supra* note 7, art. 32.

[49] *See* CBAM Regulation, *supra* note 7, art. 35(1).

[50] *See* CBAM Regulation, *supra* note 7, art. 6(2)(c).

[51] *See* ETS Directive 2003/87, *supra* note 23, art. 10a(1a).

[52] Author's elaboration based on information provided by the ETS Directive and the CBAM Regulation.

However, it is worth noting that on February 26, 2025, the EU Commission published a proposal for the amendment of the CBAM Regulation that, if approved by the co-legislators, would delay the sale of CBAM certificates by one year. Therefore, importers will start buying CBAM certificates for goods imported in 2026, in 2027 but their price will still reflect that of the ETS allowances in 2026.[53]

A. *Exception*

To ensure that the carbon price imposed on the imported goods is equivalent to that borne by EU producers under the ETS, the price of CBAM certificates will correspond to the weekly average "of the closing prices of EU ETS allowances on the auction platform".[54] However, to comply with the General Agreement on Tariffs and Trade (GATT), the CBAM "should in no case result in more favorable treatment for Union goods compared to goods imported into the customs territory of the Union".[55] Therefore the CBAM Regulation sets up two mechanisms[56] to account for the eventuality that foreign producers already paid a carbon price.

Firstly, goods produced in countries outside the EU Custom Union that participate in the EU ETS or that link their national ETS to the EU ETS are exempt from CBAM.[57] At this stage, the former is the case of the EEA-EFTA countries, and the latter is that of Switzerland.[58] Secondly, CBAM declarants might consider carbon pricing mechanisms in force in other countries – and therefore claim a reduction in the number of CBAM certificates to surrender –

[53] *Commission Proposal*, *supra* note 38, at 4.

[54] CBAM Regulation, *supra* note 7, art. 21.

[55] CBAM Regulation, *supra* note 7, recital 12.

[56] In addition to these mechanisms, importation of electricity might be exempted from the CBAM if third countries' electricity markets are "integrated with the Union internal market for electricity through market coupling, and there is no technical solution for the application of the CBAM to the importation". CBAM Regulation, *supra* note 7, art. 2(7). Furthermore, the EU Commission can submit a legislative proposal to amend the CBAM Regulation to address the consequence of "an unforeseeable, exceptional and unprovoked event […] that is outside the control of one or more third countries subject to the CBAM, and that event has destructive consequences on [their] economic and industrial infrastructure". CBAM Regulation, *supra* note 7, art. 30(7).

[57] *See* CBAM Regulation, *supra* note 7, art. 2(4)-2(6).

[58] *See* CBAM Regulation, *supra* note 7, annex III, point 1.

by demonstrating that foreign producers have effectively paid a carbon price in the country where the imported goods were produced.[59]

B. *Shortcomings and Enforcement*

The CBAM is a unilateral trade measure[60] with a climate purpose,[61] thus it is necessary to analyze its compatibility with both international trade law and international environmental law (IEL). The legal scholarship has already raised concerns about its compatibility with the obligations of the World Trade Organization (WTO),[62] the principle of common but differentiated responsibilities and respective capabilities (CBDR-RC),[63] as well as about its possible detrimental effects on climate justice.[64] This short analysis will focus only on a fraction of the possible CBAM's failures to comply with WTO law and IEL, and then continue with a comparison between the two respective enforcement systems.

1. GATT

The National Treatment obligation requires WTO members to treat imported products not less favorably than "like domestic products", once they have legally entered their markets.[65] To ensure its respect, the CBAM covers only (some of) the products already covered by the ETS, mirrors its carbon price, and accounts for the payment of a carbon prices by foreign producers before their products entered into the EU internal market.[66] Nevertheless, the CBAM

[59] *See* CBAM Regulation, *supra* note 7, art. 2(6).

[60] *See* Justus Böning et al., *Benefits and costs of the ETS in the EU, a lesson learned for the CBAM design* 11 (European Central Bank, Working Paper No. 2764, 2023).

[61] *See* Ilaria Espa et al., *The EU Proposal for a Carbon Border Adjustment Mechanism (CBAM): An Analysis under WTO and Climate Change Law* 10 (World Trade Institute, Working Paper No. 06, 2022).

[62] *See id*. at 25.

[63] Gracia Marín Durán, *Securing Compatibility of Carbon Border Adjustments with the Multilateral Climate and Trade Regimes*, 72 INT'L & COMPAR. L. Q. 73, 84 (2023).

[64] Felicity Deane & Callum Brockett, *Carbon Border Adjustments: A Legal Tool for Mitigation or a Barrier to Justice?*, 13 CLIMATE L. 36, 44-45 (2023).

[65] The General Agreement on Tariffs and Trade art. III, Oct. 30, 1947, 61 Stat. A-11, 55 U.N.T.S. 194 [hereinafter GATT].

[66] *See supra*, section II.A.

distinguishes domestic and foreign like products based on their processes and production methods (PPM), which might make the foreign products more carbon-intensive in comparison with domestic ones, a distinction that may imply an unlawful discrimination of like products.[67]

Another cornerstone of the GATT is the Most-Favored-Nation (MFN) treatment, which provides that when a WTO member grants any advantage to the products originated from or destined to another WTO member, the former must extend this advantage to all the other members of the WTO.[68] The CBAM's compliance with the MFN treatment is contentious as it provides for differentiate treatment on the basis of the adoption of carbon pricing mechanisms in third countries – and therefore their climate policies.[69] However, this is required to comply with National Treatment, thus creating a tension over the compliance with both GATT obligations.

If the CBAM was found to be incompatible with any GATT obligation, it could nonetheless be justified under the exceptions found in Article XX.[70] Firstly, Article XX(b) justifies measures inconsistent with the GATT, but "necessary to protect human, animal or plant life or health" if there is no other measures to reach this objective and which is also less restrictive for international trade, a requirement that might be difficult for the EU to demonstrate.[71] Secondly, Article XX(g) can justify measures "relating to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption", including clean air.[72] Additionally, the CBAM would need to comply with the chapeau of Article XX, which requires the measure to not be "applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on international trade".

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[67] Kateryna Holzer et al., *The EU CBAM Proposal and WTO Law*, 7-11 (2022), https://www.bafu.admin.ch/dam/bafu/en/dokumente/klima/rechtsgutachten/rechtsgutachten-zur-einfuehrung-eines-co2-grenzausgleichsmechanismus-in-der-schweiz-annex-i.pdf.

[68] *See* GATT, *supra* note 66, art. I.

[69] Joachim Englisch & Tatiana Falcão, *EU Carbon Border Adjustments and WTO Law, Part One*, 51 ENV'T L. REP. 10857, 10880-81 (2021).

[70] *See id*. at 10937-38. *See also* Espa et al., *supra* note 62, at 27.

[71] *See* Englisch & Falcão, *supra* note 70, at 10937.

[72] *See* Carlos A. Alonso Gayon, *The EU's CBAM, Complying with the CBDR Principle Could Also Mean Compliance with WTO Law*, 32 MINN. J. INT'L L. 269, 295 (2023).

This is considered the biggest obstacle to CBAM's compliance with WTO law,[73] as the scholarship has identified as problematic, among others, the decision to ignoring the role of "non-pricing mechanisms" such as regulation, in reducing GHGs emissions in third countries,[74] and the lack of real engagement with third countries over the CBAM's design.[75]

2. CBDR-RC

The CBDR-RC acknowledges that all the states have a duty to address environmental challenges, including climate change, but also that their obligations differ based on their historical emissions and on their technical and financial capabilities in addressing the problem.[76] The Paris Agreement incorporated the principle by underlining that National determined contributions (NDCs) need to reflect the "different national circumstances", granting the Parties more flexibility based on the efforts that they can take on.[77]

In order to design a CBAM compliant with international trade law, the EU has overlooked the CBDR-RC.[78] In principle the carbon price imposed by the CBAM applies uniformly to all third countries, impacting more, in proportion, "those who have less, for the same emissions".[79] Additionally, the EU did not adopt measures that could mitigate the effects on low- and middle-income countries, such as redirecting part of the CBAM revenues to their decarbonization

[73] *See* Durán, *supra* note 64, at 95. *See also* Giulia Claudia Leonelli, *Export Rebates and the EU Carbon Border Adjustment Mechanism: WTO Law and Environmental Objections*, 56 J. WORLD TRADE 963, 973 (2022).

[74] Ilaria Espa & Kateryna Holzer, *From Unilateral Border Carbon Adjustments to Cooperation in Climate Clubs: Rethinking Exclusion in Light of Trade and Climate Law Constraints*, *in* EUROPEAN YEARBOOK OF INTERNATIONAL ECONOMIC LAW 2022 389, 399-400 (Jelena Bäumler et al., 2023).

[75] Joachim Englisch & Tatiana Falcão, *EU Carbon Border Adjustments and WTO Law, Part Two*, 51 ENV'T L. REP. 10935, 10944 (2021).

[76] DANIEL BODANSKY ET AL., INTERNATIONAL CLIMATE CHANGE LAW 27 (2017).

[77] *See* Paris Agreement, *supra* note 1, art. 4(3).

[78] Christoph Böhringer et al., *Potential impacts and challenges of border carbon adjustments*, 12 NATURE CLIMATE CHANGE 22, 27 (2022).

[79] Fausto Corvino, *The Compound Injustice of the EU Carbon Border Adjustment Mechanism (CBAM)*, ETHICS, POL'Y & ENV'T 1, 8 (2023).

programs.[80] Other measures could have been adopted but were not, including a relaxation of monitoring requirements for producers in low- and middle-income countries.[81]

It is evident that the EU made few efforts to comply with the CBDR-RC, focusing on the WTO legal framework, where the CBDR-RC has an importance but also where it would not be interpreted in a way that would allow discrimination among its members.[82] The most likely reason for the different attention paid to the two legal systems is to be found in how they treat violations, and consequently in the incentive to comply, a reasoning that passes through the study of the respective compliance mechanisms.

3. Dispute Resolution and Enforcement

A member of the WTO cannot retaliate *sua sponte* against a measure adopted by another member, but it has to address the matter to the Dispute Settlement System (DSS), which provides for consultations between the parties, and if no agreement is reached, the matter needs to be composed by an arbitration panel and, in case of appeal, by the Appellate Body (AB).[83] The reports must be confirmed by the Dispute Settlement Body (DSB) by reverse consensus,[84] and if found to be in breach of WTO law the member who adopted it has a duty to "bring [it] into conformity with WTO law".[85] In case of failure, the DSB has the power to impose to the parties to enter into negotiations for a compensation, and if these fail, to allow the complainant to adopt retaliatory trade measures of equivalent measure to the damage suffered.[86]

However, the AB is currently paralyzed,[87] due to the refusal of the United States to concur to the consensus needed to appoint its members, while other WTO members "have played

[80] *See* Durán, *supra* note 64, at 90.

[81] *See* Natalie L. Dobson, *(Re)framing Responsibility? Assessing the Division of Burdens Under the EU Carbon Border Adjustment Mechanism*, 18 UTRECHT L. REV. 162, 172-173 (2022).

[82] Susannah Dibble, *Exporting the European Green Deal: The WTO Compatibility of the EU's Carbon Border Adjustment Mechanism*, 53 GEO. J. INT'L L. 757, 773 (2022).

[83] *See* Peter Van den Bossche & Denise Prévost, ESSENTIALS OF WTO LAW 39 (2nd ed., 2021).

[84] *See id*. at 37.

[85] *See id*. at 46.

[86] *See id*. at 46-47.

[87] *See* Peter Van den Bossche, *Can the WTO Dispute Settlement System Be Revived?* 5 (World Trade Institute, Working Paper No. 3, 2023).

along".[88] This allows members that receive unfavorable panel reports to appeal them "into the void" – meaning to the non-functioning Appellate Body – preventing the adoption of such reports by the DSB.[89] This situation may disincentivize members to bring their controversies to the WTO,[90-91] instead pushing them to adopt unilateral measures.[92]

Contrary to the WTO system, the United Nations Framework Convention on Climate Change (UNFCCC)[93] and the Paris Agreement do not set up a dispute resolution mechanism but draw a procedure that can be followed in case of disputes related to "the interpretation or application" of the two agreements,[94] which should be settled "through negotiations or any other peaceful means".[95] The UNFCCC also establishes an opt-in solution for compulsory jurisdiction of the International Court of Justice (ICJ)[96] or an arbitration mechanism "in accordance with procedures to be adopted by the Conference of the Parties", which extends to

[88] Bernard M. Hoekman & Petros C. Mavroidis, *Burning Down the House? The Appellate Body in the Centre of the WTO Crisis* 1 (European University Institute, Working Paper No. 56, 2019).

[89] *See* Van den Bossche, *supra* note 88, at 6.

[90] *See id*. at 6-7.

[91] Since 2020 is operational the Multi-Party Interim Appeal Arbitration Arrangement (MPIA), which requires its participants, in controversies among them, to commit not to appeal WTO panel awards into the void and resort instead to alternative arbitration mechanisms foreseen by the WTO Dispute Settlement Understanding (DSU). The panel award would not need to be adopted by the DSB, but if the losing party failed to comply with it, the prevailing party could invoke the compliance and retaliation mechanisms that is possible to activate in case of failure to comply with an award adopted by the DSB. *See* Joost Pauwelyn, *The WTO's Multi-Party Interim Appeal Arbitration Arrangement (MPIA): What's New?*, 22 WORLD TRADE REV. 693, 694-95 (2023). An additional way to settle a dispute around the CBAM would be available to countries that concluded a free trade agreement (FTA) with the EU. Indeed, these agreements generally include dispute settlement provisions, however, they are rarely invoked, as the parties prefer to raise the issue at WTO level. *See* Geraldo Vidigal, *Why Is There So Little Litigation under Free Trade Agreements? Retaliation and Adjudication in International Dispute Settlement*, 20 J. INT'L ECON. L. 927, 949-50 (2017).

[92] Philip Blenkinsop, *At WTO, growing disregard for trade rules shows world is fragmenting*, REUTERS (Oct. 2, 2023), https://www.reuters.com/business/wto-growing-disregard-trade-rules-shows-world-is-fragmenting-2023-10-02.

[93] United Nations Framework Convention on Climate Change, May 9, 1992, S. Treaty Doc. No. 102-38, 1771 U.N.T.S. 107 [hereinafter UNFCCC].

[94] *See* UNFCCC, *supra* note 94, art. 14. *See* Paris Agreement, *supra* note 1, art. 24.

[95] *See* UNFCCC, *supra* note 94, art. 14(1).

[96] The ICJ opt-in does not apply to the EU. *See* UNFCCC, *supra* note 94, art. 14(2).

the Paris agreement.[97] Additionally, if after twelve months from the notification of the dispute, a settlement has not been found, the matter should be subject to conciliation "at the request of any of the parties to the dispute" through a conciliation commission tasked to award a recommendatory award which should be considered in good faith by the parties.[98]

These mechanisms, that do not foresee penalties for non-compliance, have been adopted to ensure that almost all countries would participate in the agreements, at the cost of making the obligations unenforceable.[99]

III. Setting the Framework: International Actors' Strategies

This section introduces the international law and economics framework that will be applied to the analysis of possible third countries' response in section IV. The focus will be on game theory, under both rational choice theory and behavioral economics perspectives, helping to understand how the issues that the CBAM might cause would be perceived by third countries and how they would likely decide to act, based on the circumstances.

A. *Cooperation and Defection*

Cooperation emerges in the natural world[100] and in human society,[101] and can be defined as "involv[ing] acts by one individual (X) that benefit one or more other individuals (Y)".[102] Therefore, cooperation requires efforts that come with a cost for one agent, but that can benefit both agents.[103] Indeed in most social environments agents benefit from cooperation, but also from exploiting "the cooperative efforts of others".[104] Accordingly, in an environment where

[97] *See* Paris Agreement, *supra* note 1, art. 24.

[98] *See* UNFCCC, *supra* note 94, art. 14(5)-(6).

[99] Clara Reichenbach, *The Missing Dispute Resolution Mechanisms in International Climate Change Agreements*, 3 Glob. Energy L. & Sustainability 129, 146 (2022).

[100] *See* Tim Clutton-Brock, *Cooperation between non-kin in animal societies*, 462 Nature 51 (2009).

[101] *See* Robert Axelrod, *The Emergence of Cooperation among Egoists*, 75 Am. Pol. Sci. Rev. 306, 306 (1981). *See also* Lisa L. Martin, *The Political Economy of International Cooperation*, in Global Public Goods 51, 52 (Inge Kaul, et al. eds., 1999).

[102] Joel L. Sachs, *The Evolution of Cooperation*, 79 Q. Rev. Biology 135, 137 (2004).

[103] *See id*. at 136-137.

[104] Robert Axelrod & William D. Hamilton, *The Evolution of Cooperation*, 211 Science 1390, 1391 (1981).

two individuals interact only once, they may be incentivized to adopt a non-cooperative approach, which may lead to inefficient solutions. The best-known example of this situation is the prisoner's dilemma, a thought experiment in which two individuals are arrested and interrogated in separate rooms, and each must decide whether to cooperate with the other by remaining silent and receiving a light sentence (e.g., one year of prison), or confessing to get free, while the other will receive a heavier sentence (e.g., three years).[105] However, if both confess they will be sentenced to an intermediate penalty (e.g. two years).[106] While cooperation would lead to the best outcome[107] for both (one year each), they will choose to confess, as this strategy offers the best personal outcome regardless of the other's choice.[108] However, this defection leads to the worst result (two years each).[109]

The prisoner's dilemma is a noncooperative game, where each player chooses the action that he finds "to be in his best interest", and it is an example of a strategy in which the agents are incentivized to defect instead of cooperate, resulting in a sub-optimal outcome for the players.[110] Differently, when individuals interact multiple times they can learn from past experiences, and even in situations like the prisoner's dilemma cooperative strategies can emerge,[111] as demonstrated in two famous experiments by Robert Axelrod, who showed that in an iterative prisoner's dilemma – in which the game is played repeatedly by the same participants – not only cooperative strategies emerge, but tend to be the most successful ones.[112] In the experiments the best results came from reciprocal strategies, which are not the first to

[105] *See* WILLIAM POUNDSTONE, PRISONER'S DILEMMA 118 (1993). For a more formal analysis *see also* STEVEN TADELIS, GAME THEORY: AN INTRODUCTION 48-53 (2013).

[106] *See* Poundstone, *supra* note 106, at 118.

[107] This is the best outcome because of the total number of years of prison. In this example, one year each equals to two years in prison between them. If only one confessed, he would get freed while the other would serve three years, for a total of three years. Finally, the worst outcome is when both confess and receive a sentence of two years each, for a total of four years of prison.

[108] *See* Poundstone, *supra* note 106, at 118-119.

[109] *See* Tadelis, *supra* note 106, at 51-53.

[110] *See* id. at 55, 57.

[111] *See* Axelrod & Hamilton, *supra* note 105, at. 1391-1392.

[112] For the first experiment, *see* Robert Axelrod, *Effective Choice in the Prisoner's Dilemma*, 24 J. CONFLICT RESOL. 3 (1980). For the second one, *see* Robert Axelrod, *More Effective Choice in the Prisoner's Dilemma*, 24 J. CONFLICT RESOL. 379 (1980).

defect,[113] and that reward cooperation and retaliate against defection.[114] Additionally, they are relatively simple, so that the opponents can understand the conditions under which they will be rewarded or punished.[115]

B. *Rational Choice Theory and Behavioral Economics*

Whereas in most law and economics scholarship human behavior is studied through the lenses of rational choice theory[116] - which assumes that individuals are rational, and their actions are aimed at achieving a desired result, after careful consideration of the alternatives[117] – behavioralists introduce concepts from psychology[118] that criticize the assumption of rational agents,[119] introducing concepts such as: (1) bounded rationality, as cognitive processes do not necessarily entail that all the information was well pondered, nor that this is possible,[120] (2) bounded self-interest, as actors do not always act in their own best interest, but take into account instances of fairness and reciprocity,[121] (3) bounded willpower, as actors have self-control limitations and tend to prefer short-term gains over long term interests.[122]

Overall, while rational choice theory predicts that individuals decide to cooperate or not based on the expected costs and outcomes, behavioral economics stresses that the choice is

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[113] *See* Robert Axelrod, THE EVOLUTION OF COOPERATION 113-117 (1984).

[114] *See id*. at 118-120.

[115] *See id*. at 120-123.

[116] Rational choice theory is based on methodological individualism and assumes that "complex social phenomena can be explained in terms of the elementary individual actions of which they are composed". John Scott, *Rational choice theory*, *in* UNDERSTANDING CONTEMPORARY SOCIETY: THEORIES OF THE PRESENT 126, 127 (Gary Browning et al. eds., 2000).

[117] *See* N. GREGORY MANKIW, PRINCIPLES OF ECONOMICS 2-4 (9th ed., 2021).

[118] BRANDON LEHR, BEHAVIORAL ECONOMICS: EVIDENCE, THEORY, AND WELFARE 3 (2022).

[119] The rational choice theory is successful because its predictions about complex behaviors are often confirmed by empirical studies. *See* Thomas S. Ulen, *Rational Choice Theory in Law and Economics*, *in* ENCYCLOPEDIA OF LAW AND ECONOMICS, VOLUME I. THE HISTORY AND METHODOLOGY OF LAW AND ECONOMICS 790, 793 (Boudewijn Bouckaert & Gerrit De Geest eds., 2000). However, it has been criticized because it cannot explain some recorded behaviors. *See id*. at 801.

[120] *See* Klaus Mathis & Ariel David Steffen, *From Rational Choice to Behavioural Economics*, *in* EUROPEAN PERSPECTIVES ON BEHAVIOURAL LAW AND ECONOMICS 31, 36-37 (Klaus Mathis ed., 2015)

[121] *See id.* at 37.

[122] *See id.* at 38.

influenced also by many other factors, such as mental attitudes.[123] This may bring to a sub-optimal outcome, as individuals may decide to cooperate even when the best solution would be to not cooperate, and *vice versa*, to not cooperate when they actually should.

C. *International Actors and International Law*

International anarchy is a fundamental concept in international relations scholarship, but its implication and consequences are interpreted differently by each theoretical perspective.[124] Traditional law and economics views states as self-interested entities that cooperate only when this benefit them.[125] One of the most studied areas of cooperation is compliance with international law, and in a rational choice perspective States and international organizations (or their decision-makers) have an incentive to comply with it because the gains they would obtain from future cooperation are greater than those that they would obtain from defection.[126] In a two-party game, international actors comply with international law when there are: (1) "coincidence of interests", (2) coercion by one of them, (3) fear of negative consequences,[127] (4) coordination of strategies based on the expectations about each other's actions.[128]

Differently, the behavioral approach stresses that international actors are not entirely rational[129] and do not decide to comply with international law only because it is beneficial for

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[123] Richard Schuster & Amir Perelberg, *Why cooperate? An Economic Perspective is not Enough*, 66 BEHAVIOURAL PROCESSES 261, 266 (2004).

[124] *See* JOSEPH M. GRIECO, COOPERATION AMONG NATIONS. EUROPE, AMERICA, AND NON-TARIFF BARRIERS TO TRADE 1 (1990). *See also* ARTHUR A. STEIN, WHY NATIONS COOPERATE. CIRCUMSTANCE AND CHOICE IN INTERNATIONAL RELATIONS 3-4 (1990).

[125] *See* JACK L. GOLDSMITH & ERIC A. POSNER, THE LIMITS OF INTERNATIONAL LAW 13, 39 (2005).

[126] *See id*. at 90.

[127] These negative consequences have been systemized by Guzman in: (a) reputational, signaling that they are not reliable partners, and consequently excluding them from future cooperative opportunities, (b) reciprocal, since the counterparties might decide not to comply in turn, causing the infringing party to lose the advantage that it had before the violation, (c) retaliatory, since the infringing party would suffer a direct cost from the adoption of sanctions or the reduction of cooperation. *See* ANDREW T. GUZMAN, HOW INTERNATIONAL LAW WORKS: A RATIONAL CHOICE THEORY 33-48 (2008). These punishments can be imposed by other actors because they bear no additional costs for them, or because the benefits they would gain are higher than the costs, for example to force the other party to comply. *See id*. at 40, 46-47.

[128] *See* Goldsmith & Posner, *supra* note 126, at 26-35.

[129] *See* Tomer Broude, *Behavioral International Law*, 163 U. PA. L. REV. 1099, 1108-09 (2015).

themselves.[130] The application of behavioral insights to international actors are justified by scholars on the grounds that are decision-makers – individuals or group of individuals subject to cognitive biases and heuristics – that make the biased determinations ascribed to international actors.[131] In this model international actors may, for example, be subject to *status quo* biases,[132] and act on the basis of "strong reciprocity".[133] Therefore, they may comply with international law also because of other factors not included in rational choice theory analyses, such as fairness[134] and ethical considerations,[135] and might also decide to sanctions or not a party that violates international law based on whether "the defection is perceived as intentional as well as unfair and [unkind]".[136]

IV. POSSIBLE RESPONSES FROM THIRD COUNTRIES

The restrictive effects of the CBAM on international trade are projected to damage the exports of many third countries. This suggestion comes from the World Bank, that with its "Relative CBAM Exposure Index", tries to determine which are the countries most exposed to the

[130] *See* Anne van Aaken, *Behavioral International Law and Economics*, 55 HARV. INT'L L. J. 421, 472 (2014).

[131] *See* Anne van Aaken & Betül Simsek, *Rewarding in International Law*, 115 AM. J. INT'L L. 195, 228-29 (2021). *See also* Emilie M. Hafner-Burton, *Elite Decision-making and International Law: Promises and Perils of the Behavioral Revolution*, 115 AM. J. INT'L L. 242, 242 (2021). Nonetheless, doubts can be raised about the assumption that individuals' biases can be (entirely) transposed to international actors. *See* Broude, *supra* note 130, at 1121-22.

[132] *See* Jean Galbraith, *Treaty Options: Towards a Behavioral Understanding of Treaty Design*, 53 VA. J. INT'L L. 309, 352-53 (2013) (showing that more countries tend to accept ICJ jurisdiction when there is an opt-out clause, compared to when there is an opt-in clause).

[133] Van Aaken, *supra* note 131, at 474 (emphasizing that this behavior contrasts with rational choice expectations). Essentially, there is strong reciprocity when an actor's decision to cooperate "cannot be justified in terms of self-interest or extended kinship". Herbert Gintis, *Strong Reciprocity and Human Sociality*, 206 J. THEOR. BIOL. 169, 170 (2000).

[134] Van Aaken, *supra* note 131, at 472. *See also* Armin Steinbach, *The Trend towards Non-Consensualism in Public International Law: A (Behavioural) Law and Economics Perspective*, 27 EUR. J. INT'L L. 643, 660-61 (2016).

[135] PHILIP MOREMEN, PERCEPTIONS OF STATE: THE US STATE DEPARTMENT AND INTERNATIONAL LAW 70 (2024) (which, based on interviews with former officials of the US Department of State, found that "[e]thical considerations, including ethical values underlying international law rules and respect for the rule of law", are among the main factors that favor compliance with international law).

[136] Van Aaken, *supra* note 131, at 474.

CBAM's effects, by good category, and as aggregate effect, for fifty-seven economies.[137] Figure 2 illustrates the "Aggregate Relative CBAM Exposure Index" on a map where red values signal an exposure to the CBAM, and green values signal a gain of competitiveness. It highlights that low- and middle-income countries will likely be more exposed than high-income countries, *ceteris paribus*.

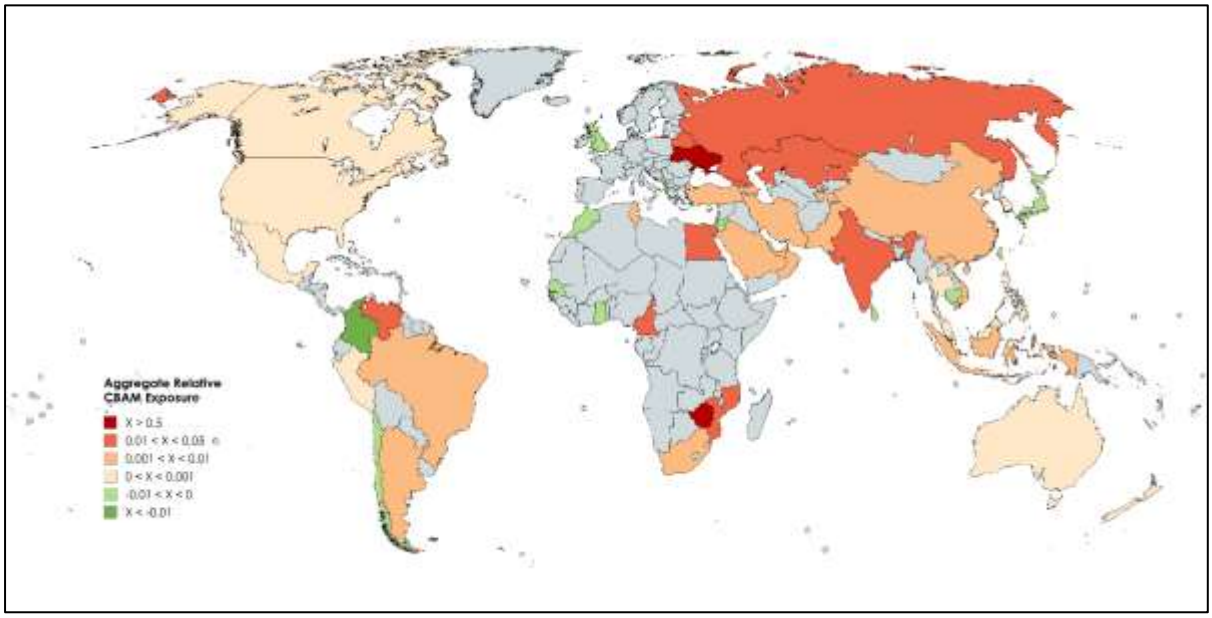

Figure 2: Map of the Aggregate Relative CBAM Exposure Index.[138]

The alleged inconsistence of the CBAM with international law,[139] paired with the expected effects on trade, and the concerns about the CBDR-RC and climate justice, make it evident why many countries declared their opposition to the CBAM at the WTO,[140] and why they have incentives to retaliate in response to its implementation.

[137] WBG, https://www.worldbank.org/en/data/interactive/2023/06/15/relative-cbam-exposure-index (last visited Feb. 28, 2025).

[138] Author's elaboration based on data from the World Bank Group. WBG, https://www.worldbank.org/en/data/interactive/2023/06/15/relative-cbam-exposure-index (last visited Feb. 28, 2025).

[139] *See supra*, section II.B.

[140] WTO, https://tradeconcerns.wto.org/en/stcs/details?imsId=148&domainId=CTG (last visited Feb. 28, 2025). WTO, https://tradeconcerns.wto.org/en/stcs/details?imsId=69&domainId=CMA (last visited Feb. 28, 2025).

A. *Retaliatory Measures*

Applying game theory to the CBAM's implementation, it is possible to frame a game between two parties: the EU (and its member states) and a third country (or a group of third countries). The CBAM's implementation may (and will likely) be considered a non-cooperative first move, thus a third country might decide to retaliate. In general, a party has an incentive to retaliate against another's measure if it suffers economic damage, or even if it just considers that measure unfair, but it may decide to retaliate only if the expected benefits are greater than the disadvantages, or if it wants to punish the unfair party. The consequences of this are framed differently between the IEL and WTO frameworks.

The procedure for dispute settlement in relation to the CBDR-RC is fundamentally non-incisive since no instrument, apart from negotiations and voluntary arbitration, could be a threat to the EU for the CBAM's implementation.[141] Therefore, in a game where a third country decides to retaliate against the EU under the IEL framework, its only options would consist in reputational sanctions. This option has been put in practice multiple times, for example by the BASIC countries – Brazil, South Africa, India, and China – which proposed, unsuccessfully, to include in the agenda of COP 28[142] and COP 29 their "[c]oncerns with climate-change related unilateral restrictive trade measures […] such as unilateral carbon border adjustment measures".[143]

Under the WTO framework too it is possible to resort to reputational sanctions, in particular raising issues at the WTO at the Ministerial Conference, at the General Council, at the Council for Trade in Goods, or at the relevant committees.[144] However, its main feature is the DSS which, if it was functioning properly, would allow third countries to legally retaliate if they were unlawfully damaged by the CBAM or if they perceive it as unfair.[145] Nonetheless, the paralysis of the AB

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[141] *See supra*, section II.B.3.

[142] BRAZIL, AGENDA ITEM PROPOSAL BY THE BASIC GROUP OF COUNTRIES TO BE INCLUDED IN THE PROVISIONAL AGENDAS OF SBI/SBSTA, COP28, CMP18 AND CMA5 (2023), https://unfccc.int/sites/default/files/resource/COP28_BASIC-Agenda%20proposal.pdf.

[143] CHINA, SUBMISSION BY CHINA ON BEHALF OF THE BASIC GROUP (2024), https://unfccc.int/sites/default/files/resource/Submission%20by%20CHINA%20on%20behalf%20of%20the%20BASIC%20Group.pdf.

[144] *See* GATT, *supra* note 66, art. III:2, IV. *See also* note 140.

[145] According to the AB, a complaint about a case of nullification or impairment does not require the demonstration of harm. *See* Appellate Body Report, EC – Bananas III, ¶ 249-54, WTO Doc. WT/DS27/AB/R (adopted Sep. 9,

may incentivize more countries to adopt autonomous measures, even in conjunction with the submission of a complaint to the DSS. The objective here is not to analyze any possible strategy that could be followed by the two parties, but only the ones that would reasonably be followed by two actors that believe that they are correct in retaliating against an unjust measure.

In a one-shot game the two parties take one choice each and do not interact again, therefore they do not consider future consequences. Yet, in international relations this is hardly the case, thus the focus should be on multi-stage games, in which each party makes a choice at every stage, adapting their strategies to the previous outcomes. This game can be played in two ways:

1) The third country retaliates by complaining through the WTO DSS, and they both agree to be bound by the panel award.[146] In this scenario, either the CBAM is found to be consistent with WTO, or it is not, and the EU has to implement the necessary amendments, while the other party may be authorized to retaliate by temporarily suspend its GATT concessions to the EU as a form of compensation.

2) The third country imposes retaliatory measures in response to the CBAM without authorization from the DSB (including the case in which it complained to the DSS, but the panel award was appealed into the void by either party). In this case the EU, which believes the CBAM to be legitimate, may retaliate in turn.[147] At this point the game can go on indefinitely one retaliation after another, including with the adoption of non-WTO-compliant subsidies, reasonably leading to at least four separate outcomes: (1) acceptance of a new *status quo*, with firms from both sides adapting their production and their export patterns, (2) adoption of WTO-compliant subsidies by the third country to help decarbonize its industry, (3) implementation of a carbon pricing system by the third country to redirect the resources of its firms from the EU budget to its own, (4) de-escalation through negotiations[148] that may include modification to or the withdrawal of the CBAM.

The strategy choice for any third country would depend on many factors, including, but not limited to the amount of the (eventual) damage suffered, the state of their mutual relations, the

1997). *But see* Joost Pauwelyn, *The Nature of WTO Obligations* 10 (The Jean Monnet Center for International and Regional Economic Law & Justice, Working Paper No. 1, 2002), https://jeanmonnetprogram.org/archive/papers/02/020101.html.

[146] Including through the MPIA. *See supra*, note 92.

[147] Through the Enforcement Regulation or the Anti-Coercion Instrument, based on the specific situation. *See* European Parliament and Council Regulation 2014/654, 2014 O.J. (L 189). *See also* European Parliament and Council Regulation 2023/2675, 2023 O.J. (L).

[148] Gene M. Grossman & Elhanan Helpman, *Talks, Trade Wars and Trade*, 103 J. POL. ECON. 675, 702-04 (1995).

economic strength relative to one another,[149] their subjective preferences in addressing multilateral issues,[150] as well as by any effort by the EU to address their concerns.

B. *Cooperative Responses*

In a repeated game, in which the same game is played multiple times by the same parties, more cooperative outcomes may emerge. For example, considering the risk of a trade war to be concrete, a third country that prefers long-term payoffs may decide to cooperate from the start, offering to open negotiations with the EU, implementing a carbon pricing system, or in a different way. However, if the efforts are not reciprocated, or one of the two parties do not prioritize long-term payoffs, an escalation remains possible.

This section analyzes possible cooperative responses to CBAM that would likely be reciprocated by the EU in line with the spirit of the recitals of the CBAM Regulation that – although not legally binding – encourage the EU Commission to cooperate with third countries with respect to "the implementation of specific elements of the CBAM".[151] The reasoning starts from the implementation of carbon pricing systems in third countries, which is the most convincing cooperative option that can be found in the literature, and builds over its consequences.

It is necessary to underline that the subdivision between cooperative and non-cooperative responses does not imply that third countries have binary and exclusionary choice options, but they can pursue a mix of cooperation and retaliation. For example, they may adopt a carbon pricing system while at the same time complaining against the EU at the WTO. Similarly, if the CBAM was found to be inconsistent with WTO obligations and the DSB authorized the adoption of countermeasures, the countries that in the meantime adopted carbon pricing systems may decide to maintain them.

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[149] *Cf.* Vincy Fon & Francesco Parisi, *Revenge and Retaliation*, *in* THE LAW AND ECONOMICS OF IRRATIONAL BEHAVIOR 141, 145-46 (Francesco Parisi & Vernon Smith eds., 2005) (reasoning that countries have different predisposition towards retaliation based on their strength and the cost for aggression, as well as due to their "subjective preferences").

[150] *Id.*

[151] CBAM Regulation, *supra* note 7, recital 71.

1. Implementation and Strengthening of Carbon Pricing Instruments

Even if many governments maintain their opposition to the CBAM, it has been noticed that there is a growing interest for carbon pricing programs.[152] This claim is corroborated by the data represented in Figure 3, that shows an increase in the number of carbon pricing programs officially under consideration, and unofficially in discussion, from 2021 – when the proposal for the CBAM Regulation was published – while the number of programs implemented and under development follow their trends pre-2021.

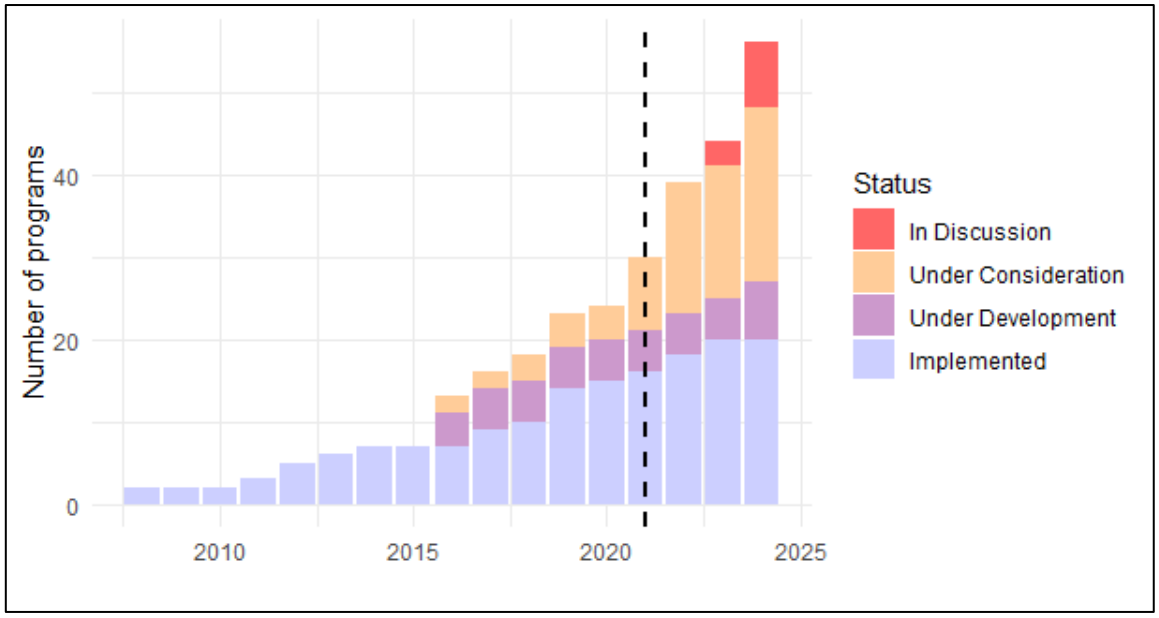

Figure 3: Evolution in the number of carbon pricing programs at national level (2008-2024).[153] It excludes the EU ETS, the schemes and taxes of EU, EFTA countries, and the UK. The dashed line highlights the year 2021.

[152] PIETER PAUW ET AL., THE CBAM EFFECT: HOW THE WORLD IS RESPONDING TO THE EU'S NEW CLIMATE STICK 3-5 (2022), https://www.clingendael.org/sites/default/files/2022-05/Alert_CBAM_effect.pdf.

[153] Author's elaboration based on data from the World Bank Group and Clausing et al. WBG, https://carbonpricingdashboard.worldbank.org/compliance/price (last visited Feb. 28, 2025). KIMBERLY CLAUSING ET AL., HOW CARBON BORDER ADJUSTMENTS MIGHT DRIVE GLOBAL CLIMATE POLICY MOMENTUM 8, 17-18 (2024), https://media.rff.org/documents/Report_24-20.pdf. "In Discussion" includes some but not all the programs found by Clausing et al. to be discussed unofficially at national levels. Some cases were excluded as they are supposed to amend already existing programs, not implementing new ones. The other three categories are part of the World Bank dataset. Carbon pricing instruments at subnational level were excluded as their adoption is more likely to be linked to local environmental concerns than to a strategy in response to the CBAM.

While it is not possible to state that there is a causal relationship between these developments and the impending implementation of the CBAM, it would be difficult to argue that it didn't contribute to bring more attention to carbon pricing.[154] The likely reason is article 9 of the CBAM Regulation, that allows CBAM declarants to take into account the carbon price effectively paid in the country where the goods where produced.[155] This is recognized by the EU Commission, pointing out that while the CBAM aims at "creating incentives for the reduction of emissions by operators in third countries",[156] it also "incentivises governments to use pricing measures to reduce emissions".[157] For example, Türkiye is planning to establish its own ETS and it explicitly mentioned the possible effects of the CBAM among the reasons why it is taking an ETS into consideration.[158] On the other side of the Atlantic, Brazil adopted its own ETS in December 2024, which is expected to be fully operative by 2030.[159] Differently from Türkiye, no reference to CBAM has been made, but it has been suggested that the EU measure played at least a minor role in the adoption of the Brazilian ETS[160] which was under consideration since 2022.[161]

Even if the CBAM incentivized third countries to adopt their own carbon pricing systems, that does not mean that the pressure would be enough to convince those that have not adopted it yet to do so. However, if some of them proposed implementing such mechanism, the EU

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[154] *See* Michael A. Mehling et al., *The European Union's CBAM: Averting Emissions Leakage or Promoting the Diffusion of Carbon Pricing?* 10 (Energy Policy Research Group, Working Paper No. 2416, 2024), https://www.jbs.cam.ac.uk/wp-content/uploads/2024/10/eprg-wp2416.pdf.

[155] *See id*.

[156] CBAM Regulation, *supra* note 7, art. 1.

[157] *Securing our future: Europe's 2040 climate target and path to climate neutrality by 2050 building a sustainable, just and prosperous society*, at 5, COM (2024) 63 final (Feb. 6, 2024).

[158] TÜRKIYE DIRECTORATE OF CLIMATE CHANGE, CLIMATE CHANGE MITIGATION STRATEGY AND ACTION PLAN 2024-2030 138-139 (2024), https://iklim.gov.tr/db/english/icerikler/files/CLIMATE%20CHANGE%20MITIGATION%20STRATEGY%20AND%20ACTION%20PLAN%20_EN.pdf.

[159] Press release from Presidência da República, President Lula signs law creating regulated carbon market in Brazil (Dec. 12, 2024), https://www.gov.br/planalto/en/latest-news/2024/12/president-lula-signs-law-creating-regulated-carbon-market-in-brazil.

[160] Sam Morgan, *Europe's emissions trading mission goes global*, FORESIGHT CLIMATE & ENERGY (Aug. 15, 2024), https://foresightmedia.com/story/seznXDp3-me6kzga0-548c5.

[161] WBG, https://carbonpricingdashboard.worldbank.org/compliance/price (last visited Feb. 28, 2025).

would likely provide technical assistance, in particular to low- and middle-income countries.[162] This can be facilitated through the Task Force for International Carbon Pricing and Markets Diplomacy tasked with the promotion of carbon markets abroad, both for national carbon pricing systems and international carbon markets under article 6 of the Paris agreement.[163] Moreover, the CBAM Regulation allows the conclusion of international agreements for the application of article 9,[164] which would potentially simplify the process of accounting for the carbon price paid by foreign producers.

If a third country adopted a carbon pricing system (also) as a consequence of the CBAM, it is not a given that it would be able – due to economic and political reasons – to apply a carbon price similar to the EU's one. As Figure 4 makes evident, most of the carbon prices already in force are lower than the EU's. Therefore, as of now, most third countries will be able to redirect only a portion of their firms' resources from the EU's budget to their own.[165] This could also act as an incentive for some third countries to increase their carbon prices.[166]

[162] *See* CBAM Regulation, *supra* note 7, recital 71.

[163] *See Securing our future. Europe's 2040 climate target and path to climate neutrality by 2050 building a sustainable, just and prosperous society*, at 5, COM (2024) 63 final (Feb. 6, 2024). *See also* EU Commission, https://climate.ec.europa.eu/eu-action/eu-emissions-trading-system-eu-ets/international-carbon-pricing-and-markets-diplomacy_en (last visited Feb. 28, 2025).

[164] *See* CBAM Regulation, *supra* note 7, art. 2(12).

[165] It is worth noting that some countries have multiple carbon pricing systems in force. Using the prices included in Figure 4, an EU ETS allowance would cost USD 61,3, an UK ETS allowance USD 45,06, and the UK Carbon Price Support (CPS) would correspond to a tax of USD 22,61 per tonne of CO_2. In hypothesis, for imports of electricity (assuming no rebates) from the UK no CBAM certificates would be surrendered, as the carbon price paid by the producer would be higher than the EU's. Conversely, when the CPS does not apply EU CBAM certificates would need to be surrendered.

[166] *See* Michael A. Mehling et al., *supra* note 155, at 10.

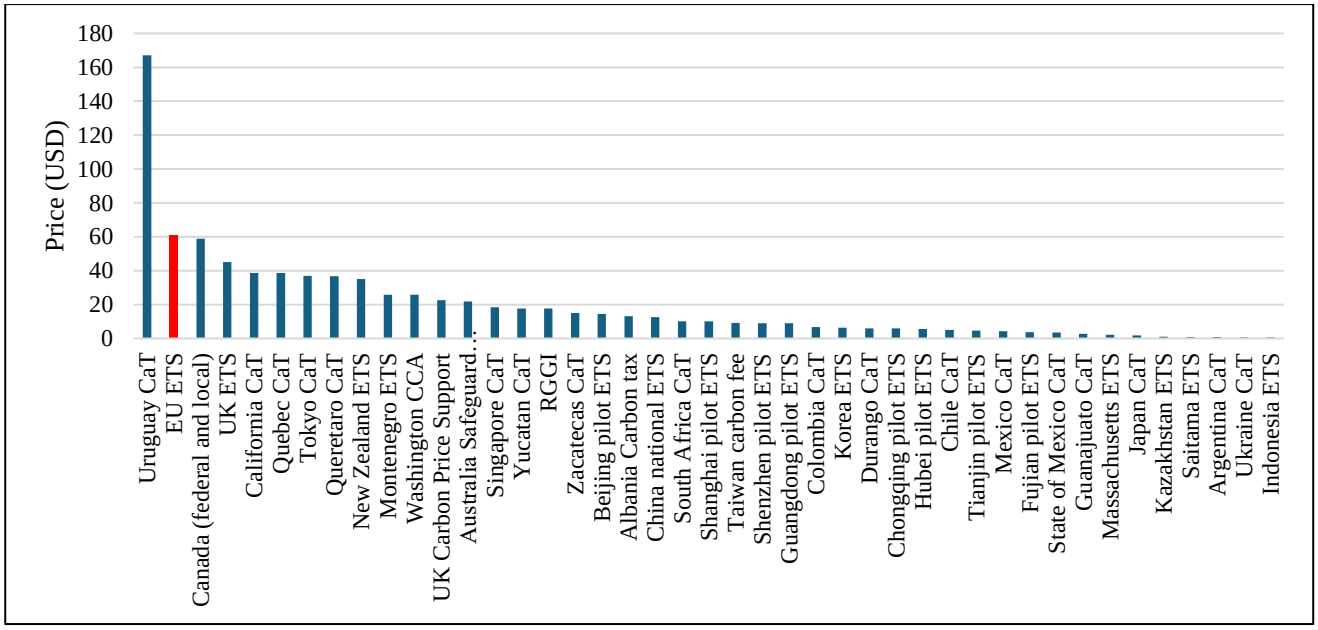

Figure 4: National and subnational carbon prices as of April 1, 2024.[167] The figure includes the EU ETS (in red) and excludes the schemes and taxes of EU and EFTA countries.

The increase of the carbon price up to the EU level would not be achievable by many countries, especially low- and middle-income ones. Of course this is not the objective of the CBAM, nor a goal to be pursued, as it would be more efficient for different international actors to adopt different carbon prices, based on their contribution to global emissions, climate ambition, and economic development.[168] Nonetheless, even if with the implementation or strengthening of carbon price systems third countries could keep only a portion of the revenues that would otherwise be directed to the EU budget, the impact on Paris' climate goals would be positive:

> "[w]hile not all carbon pricing developments in recent years may be causally related to the CBAM, [it] will only cover between 0.15% and 0.6% of global emissions through the imported goods it applies to […], whereas the potential coverage of emerging carbon pricing systems in Brazil, India, Indonesia, Türkiye and Vietnam as well as an extension of the existing carbon pricing system in China to industrial emissions could expand carbon pricing to a further 12.5% of global emissions, an order of magnitude higher than the CBAM alone".[169]

[167] Author's elaboration based on data from the World Bank Group. WBG, https://carbonpricingdashboard.worldbank.org/compliance/price (last visited Feb. 28, 2025).

[168] *See* Ian Parry et al., *Proposal for an International Carbon Price Floor Among Large Emitters* 7 (IMF, Staff Climate Notes No. 001, 2021).

[169] *See* Mehling et al., *supra* note 155, at 10.

2. Linking ETSs

If a third country already had or adopted an ETS, a further cooperative option could be linking it to the EU's, with the result that "the emissions certificates of one scheme can be traded and used for compliance in the other scheme and vice versa".[170] This was mentioned above with the linkage between the Swiss and the EU ETS,[171] which is the ground for the exemption of Switzerland from the CBAM, since the linking avoids carbon leakage between the two parties.[172-173]

When a linkage agreement is adopted, the prices for the ETSs permits of the two parties tend to converge reaching "some intermediate level between the respective pre-link levels".[174] Thus, the prices for EU and Swiss permits converge at a similar and relatively high price because they were already similar before the linking, as Figure 5 shows.[175]

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[170] MATTHIAS MACHINEK, LINKING OF EMISSIONS TRADING SCHEMES. CONDITIONS FOR SOLID INTERNATIONAL COOPERATION TO MITIGATE EMISSIONS 1-2 (2022).

[171] See EU-Switzerland ETS Agreement, *supra* note 29.

[172] *See* Kateryna Holzer, *The Pending EU CBAM: Quo Vadis Switzerland?*, 16 GLOB. TRADE & CUSTOMS J. 633, 635-36 (2021).

[173] This exception does not mean that there will not be obligations for CBAM declarants over any import from Switzerland. In fact, the EU does not consider as originating in Switzerland goods that are imported in Switzerland to be processed but not substantially transformed. Therefore, EU importers will have to acquire data over the embedded emissions from Swiss exporters and surrender the required CBAM certifications. *See* SWISS FEDERAL COUNCIL, *Conséquences pour la Suisse des Mécanismes d'Ajustement Carbone aux Frontières. Rapport du Conseil fédéral en réponse au postulat 20.3933* 34 (June 16, 2023), https://www.seco.admin.ch/dam/seco/fr/dokumente/Wirtschaft/Wirtschaftspolitik/Wachstum/bericht_postulat-20-3933-apk-n16juni2023.pdf.

[174] *See* BARAN DODA, ETS ALIGNMENT: A PRICE COLLAR PROPOSAL FOR CARBON MARKET INTEGRATION. REPORT FOR THE CARBON MARKET POLICY DIALOGUE 8, 12 (2022).

[175] The linking of ETSs may be efficient under some conditions. See Malte Björn Johannes Winkler et al., *Gains associated with linking the EU and Chinese ETS under different assumptions on restrictions, allowance endowments, and international trade*, 104 ENERGY ECON. 1, 11 (2021). Nonetheless this does not mean that environmental benefits can always be achieved. *See* STEFANO VERDE ET AL., EMISSIONS TRADING SYSTEMS WITH DIFFERENT LEVELS OF ENVIRONMENTAL AMBITION: IMPLICATIONS FOR LINKING. REPORT FOR THE CARBON MARKET POLICY DIALOGUE 5-7 (2020).

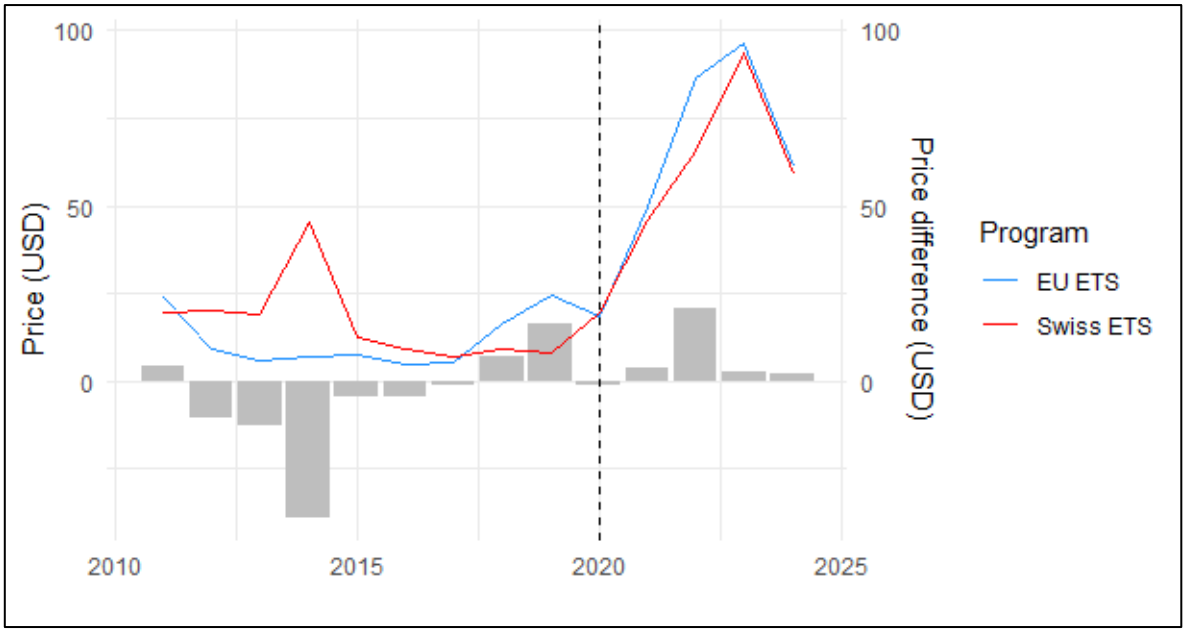

Figure 5: Evolution of the allowances price in the EU and Swiss carbon markets (2011-2024) (values on April 1 of each year).[176] The bars represent the difference in price between the two markets. The dashed line highlights the year 2020.

The EU ETS Directive allows for the conclusion of linkage agreements with countries or subnational entities that implemented "compatible" ETSs.[177] The Directive does not define what a compatible ETS is, but the EU-Switzerland agreement gives some hints since it requires that the two carbon markets have a similar coverage and design.[178] Additionally, the carbon price would likely be taken into consideration, since concluding an agreement with a party that has a lower carbon price would endanger the whole architecture of the CBAM, which tries to indirectly impose the same carbon price applied in the EU ETS. Moreover, the convergence of carbon prices might entail a reduction of the EU ETS carbon price, which may not be enough to achieve the EU climate goals.

These parameters vastly limit the linkage options, but the EU-Switzerland agreement sets even further restrictions on both parties over the negotiations of linkage agreements with third parties. In fact, each party has the right to terminate the EU-Switzerland agreement if the other decides to link its ETS with a third country's one.[179] This, in turn, makes it even more difficult

[176] Author's elaboration based on data from the World Bank Group. WBG, https://carbonpricingdashboard.worldbank.org/compliance/price (last visited Feb. 28, 2025).

[177] *See* ETS Directive, *supra* note 23, art. 25(1a).

[178] *See* EU-Switzerland ETS Agreement, *supra* note 29, annex I.

[179] *See* EU-Switzerland ETS Agreement, *supra* note 29, art. 15(1)(b), 18.

for the EU to negotiate an agreement with a third party because – assuming that it wants to safeguard the current linkage agreement – Switzerland has almost a veto power.[180] Thus, to conclude such an agreement, it is required that also Switzerland adopt a cooperative approach towards the third country.

For these reasons the development of ETSs in third countries would almost never lead the EU to agree to link its ETS with others. Such an option would be open only to a handful of countries that apply an ETS with a carbon price and sectoral coverage similar to the EU ETS. An option that could be realized in the medium term is the linking between the EU and the UK ETS, already foreseen in the Trade and Cooperation Agreement concluded as part of the withdrawal of the UK from the EU.[181] Even if doubts have been raised over the discrepancy in the coverage and on the price of the allowances, negotiation should be able to sort out these issues,[182] and after years spent without dialogue[183] it seems discussions may be opened as part of the "reset" wanted by the new British government with the EU.[184] The result of an eventual linkage would be that, as it is the case with Switzerland, goods produced in the UK would be exempted from the EU CBAM, while goods produced in the EU would be exempted from the planned UK CBAM.[185]

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[180] In case the new linkage agreement was concluded between the EU or Switzerland (party A) and a third country (party B), and was accepted by, respectively, Switzerland or the EU (party C), the latter would not be directly affected since it would not recognize the allowances of party B. However – subject to market conditions – the new linkage might affect the conditions of the carbon market of party A, for example by increasing or decreasing the price of its allowances. This effect might be in turn transmitted to the carbon market of party C due to the strict connection between the carbon markets of parties A and C, causing the carbon prices of all the three parties to converge. *See* RALF SCHÜLE & WOLFGANG STERK, OPTIONS AND IMPLICATIONS OF LINKING THE EU ETS WITH OTHER EMISSIONS TRADING SCHEMES 17 (2008), https://www.europarl.europa.eu/RegData/etudes/etudes/join/2008/401011/IPOL-CLIM_ET(2008)401011_EN.pdf. This is economic reason why each party has been given the right to terminate the EU-Switzerland agreement when the other decides to join a new linkage agreement.

[181] Trade and Cooperation Agreement, EU-U.K., art. 392(6), Dec. 30, 2020, 2021 O.J. (L 149).

[182] Ignacio García Bercero, *A trade policy framework for the European Union-United Kingdom reset* 9 (Bruegel, Policy Brief No. 30, 2024).

[183] James Low & Sam Lowe, *UK and EU Emissions Trading Schemes - drifting in different directions?*, UK IN A CHANGING EUROPE (Sep. 11, 2023), https://ukandeu.ac.uk/uk-and-eu-emissions-trading-schemes-drifting-in-different-directions.

[184] George Parker et al., *Keir Starmer looks to link UK and EU emission trading schemes*, FINANCIAL TIMES (Jan. 28, 2025), https://www.ft.com/content/f03d0e82-4527-4a2e-8df8-e744f6238952.

[185] *See* discussion *infra* section IV.C.1.

3. Climate Clubs

Climate clubs are an idea popularized by Nordhaus to overcome free riding in international climate policy, generated by the fact that governments prefer not to agree to strong and binding emissions reductions plans.[186] Since each party to (say) the Paris Agreement may decide not to respect its NDCs, and the other parties could not retaliate against such behavior, every party, given the chance, would defy.[187] This highlights the non-cooperative nature of international climate policy, which can be framed as a repeated prisoner's dilemma.[188]

In economics a club is "a voluntary group deriving mutual benefits from sharing the costs of producing an activity that has public-good characteristics".[189] Each member of a club has duties to respect, but the benefits arising from the membership are higher than the costs, and non-members "can be excluded or penalized at relatively low cost to members".[190] Consequently, a climate club – in Nordhaus' view – can be envisioned as a cooperative arrangement where the parties agree to impose a minimum domestic carbon price while penalizing the countries that are not parties to the club, for example through a carbon tariff.[191] Under this model a rational actor would be incentivized to join the climate club if the cost to implement or enhance a carbon pricing mechanism was lower than the impact on its exports.[192]

In a climate club based on Nordhaus' model the members "share a common internal price of carbon and […] a border adjustment vis-à-vis non-members".[193] If based on the CBAM, the membership would be very limited since third countries would need to adopt the same carbon

[186] *See generally* William Nordhaus, *Climate Clubs: Overcoming Free-riding in International Climate Policy*, 105 AM. ECON. REV. 1339 (2015).

[187] SCOTT BARRETT, ENVIRONMENT AND STATECRAFT: THE STRATEGY OF ENVIRONMENTAL TREATY-MAKING 269 (2005).

[188] *See* Nordhaus, *supra* note 187, at 1343.

[189] *Id*. at 1340.

[190] *Id*.

[191] *See id*. at 1341.

[192] *See id*. at 1354.

[193] Alessia Campolmi et al., *Designing Effective Carbon Border Adjustment with Minimal Information Requirements. Theory and Empirics* 5 (CEPR Discussion Paper No. 18645, 2024).

price as the EU's.[194] In addition to the issues that it would raise with WTO law,[195] the CBDR-RC,[196] as well as with "the spirit of the Paris Agreement", which supports the implementation of clubs only when the accession is voluntary.[197]

While this approach would be cooperative towards some countries with ambitious climate goals, it could raise tensions with non-members of the club, which may adopt reciprocal measures to punish the members. However, Nordhaus' model is not the only climate club possible,[198] and the recitals of the CBAM Regulation stress that climate clubs should be voluntary and act as a mean to promote "ambitious climate policies [and] a global carbon pricing framework".[199] This corresponds to a bargaining climate club in the categorization made by Falkner, et al., while Nordhaus' model corresponds to a transformational climate club.[200] The recitals do not forbit the EU to join a transformative climate club, in fact between 2021 and 2023 it was negotiating with the US a Global Arrangement on Sustainable Steel and Aluminum,[201] an agreement supposed to "tackl[e] global non-market excess capacity in the steel and aluminium sectors, and reduc[e] their carbon intensity",[202] which would have been open for other parties to join while penalizing non-participants.[203] However, the EU

[194] The membership could be broader than the case of the ETS linkage, since the club could include countries that adopt carbon pricing systems other than ETSs.

[195] *Cf*. Giulia Claudia Leonelli, *Carbon Border Measures, Environmental Effectiveness and WTO Law Compatibility: Is There a Way Forward for the Steel and Aluminium Climate Club?*, 21 WORLD TRADE REV. 619, 626-27 (2022) (on the likely WTO-inconsistence of the proposed Global Arrangement on Sustainable Steel and Aluminum between the EU and the U.S.). The Global Arrangement on Sustainable Steel and Aluminum is considered a transformational climate club, a category that includes Nordhaus' model. *See* Robert Falkner et al., *Climate clubs: politically feasible and desirable?*, 22 CLIMATE POL'Y 480, 484 (2022).

[196] *See* Catherine Hall, *Towards minilateral climate governance? Analysing climate club design options through the lens of common but differentiated responsibilities and respective capabilities*, 33 R. EUR. COMPAR. & INT'L ENV'T L. 604, 614-15 (2024).

[197] Alice Pirlot, *Climate Clubs: An International Tax Law Perspective*, 52 INTERTAX 104, 115-16 (2024).

[198] *See generally* Falkner et al., *supra* note 196.

[199] CBAM Regulation, *supra* note 7, recital 72.

[200] *See* Falkner et al., *supra* note 196, at 481-83.

[201] *See supra* note 196.

[202] *See* Leonelli, *supra* note 196, at 621.

[203] U.S.–EU JOINT STATEMENT ON STEEL AND ALUMINUM 1-2 (Oct. 31, 2021), https://ustr.gov/sites/default/files/files/Statements/US-EU%20Joint%20Deal%20Statement.pdf.

Commission stressed that any such agreement should be WTO-compliant.[204] Therefore, it is likely that the EU would direct its attention toward bargaining climate clubs rather than transformational ones. An example is the G7 Climate Club, shaped as an intergovernmental forum, and comprising forty-three countries and the EU.[205] As a bargaining climate club, it is open to new ambitious members and aims at advancing climate change mitigation policies while countering carbon leakage, without imposing any penalty on non-members.[206] In particular, its activities have focused on the elaboration of definition and methodologies for the measurement of emissions, and on the provision of technical and financial assistance for the decarbonization of its members' industry.[207] This kind of climate club does not pose problems with WTO law nor the CBDR-RC,[208] however it does not seem a platform more suitable than others to discuss the implications of the CBAM on international trade and climate policy.

C. *Implementation of Border Carbon Adjustments in Third Countries*

The CBAM might incentivize foreign producers to allocate low-carbon products to the EU while redirecting carbon-intensive goods to "unregulated markets",[209] a circumstance known as trade reshuffling.[210] Additionally, foreign producers might redirect energy from cleaner sources to implants that produce products covered by CBAM, while allocating the rest of the energy to other needs, without changes in the national energy mix.[211] It is clear how these

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[204] *See* Andy Bounds, *Tariff test for EU as Trump prepares to squeeze trade partners*, FINANCIAL TIMES (Nov. 12, 2024), https://www.ft.com/content/fbe717e1-d5ea-4de3-8db8-1bf264dd332a. *See also* David Lawder & Philip Blenkinsop, *Exclusive: EU, US 'green steel' plan to box out China stalls ahead of October deadline*, REUTERS (Sep. 7, 2023), https://www.reuters.com/markets/commodities/eu-us-green-steel-plan-box-out-china-stalls-ahead-october-deadline-2023-09-07.

[205] CLIMATE CLUB INTERIM SECRETARIAT, https://climate-club.org (last access Feb. 1, 2025).

[206] G7 STATEMENT ON CLIMATE CLUB 1-2 (June 28, 2022), https://www.g7germany.de/resource/blob/974430/2057926/2a7cd9f10213a481924492942dd660a1/2022-06-28-g7-climate-club-data.pdf.

[207] CLIMATE CLUB, *2024 Annual Report* 6-7 (2025), https://climate-club.org/wp-content/uploads/2025/01/2024-Annual-report-Final-31.01-docx.pdf.

[208] *See* Hall, *supra* note 197, at 612.

[209] Jiarui Zhong & Jiansuo Pei, *Carbon border adjustment mechanism: a systematic literature review of the latest developments*, 24 CLIMATE POL'Y 228, 235 (2023). *See also* Alessia Campolmi et al., *supra* note 194, at 3.

[210] Christoph Böhringer et al., *The Strategic Value of Carbon Tariffs*, 8 AM. ECON. J.: ECON. POL'Y 28, 30 (2016).

[211] *See* Clausing et al., *supra* note 154, at 5.

consequences may defy the EU's goal of "creating incentives for the reduction of emissions by operators in third countries".[212] However, the fact that a part of the carbon-intensive goods would be redirected from the EU to countries with similar climate policy goals would in turn incentivize them to adopt Border Carbon Adjustments (BCAs) to protect themselves from the increased inflow of carbon-intensive goods.[213]

This is likely one of the main reasons why in the last few years a number of countries – including Australia,[214] Canada,[215] and the UK[216] – investigated the opportunity of adopting BCAs. On the basis of this growing interest the International Chamber of Commerce (ICC) even developed its "Global Principles for Effective Border Carbon Adjustments", which include, among the others, the development of international carbon accounting methodologies, the interoperability between BCAs, the application of minimum thresholds for the levies, and the compliance with WTO's and Paris Agreement's obligations.[217]

This sub-section will present the approaches of three countries with high climate ambitions over the possibility of adopting a BCA. The decisions taken are different: one has decided not to adopt any BCA (for the moment), one has decided to adopt the EU CBAM, and one has decided to adopt its national BCA.

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[212] CBAM Regulation, *supra* note 7, art. 1.

[213] Sam Lowe, *CBAM Dominoes*, MOST FAVOURED NATION (Dec. 16, 2022), https://mostfavourednation.substack.com/p/most-favoured-nation-cbam-dominoes.

[214] *See* DCCEEW, *Carbon Leakage Review. Consultation Paper 2* 71 (Nov. 2024), https://storage.googleapis.com/files-au-climate/climate-au/p/prj2f030fe5577e16a3ffbb9/page/Carbon_Leakage_Review_Consultation_Paper_2_November_2024.pdf

[215] *See* DEPARTMENT OF FINANCE, *Exploring Border Carbon Adjustments for Canada* (June 2, 2023), https://www.canada.ca/en/department-finance/programs/consultations/2021/border-carbon-adjustments/exploring-border-carbon-adjustments-canada.html.

[216] *See* HM GOVERNMENT, *Introduction of a UK Carbon Border Adjustment Mechanism from January 2027: Government response to the policy design consultation* 4 (Oct. 30, 2024), https://assets.publishing.service.gov.uk/media/679cb194a9ee53687470a2fa/Introduction_of_a_UK_Carbon_Border_Adjustment_Mechanism_from_January_2027_-_Government_response_to_the_policy_design_consultation.pdf.

[217] *See generally* ICC, *Global Principles for Effective Border Carbon Adjustments* (2024), https://iccwbo.org/wp-content/uploads/sites/3/2024/10/2024_ICC-Global-Principles-for-An-Effective-Border-Carbon-Adjustments.pdf.

1. Three perspectives

After the publication of the EU Commission's proposal for the CBAM, Switzerland had begun to consider whether it should adopt a BCA, incorporating the EU CBAM or implementing its own.[218] In the end the government decided not adopt such measure.[219] Among the other reasons, which include potential high costs for public authorities and for producers while the risk of carbon leakage remains low even without a BCA,[220] the State Secretariat for Economic Affairs stressed – in a comment to the legal opinion developed for Federal Office for the Environment[221] – that a potential complain at the WTO against the EU would likely involve Switzerland too, if it implemented a BCA.[222] Nonetheless, the government left the door open to the introduction of a BCA if the EU CBAM demonstrates to work and to be compliant with international law.[223] Lastly, while the risk of trade reshuffling was analyzed in the technical report,[224] it does not appear in the government's decision, underlying that such risk is within a range that is considered acceptable.

This wait-and-see approach was initially adopted also by Norway,[225] which showed mixed feelings over the CBAM's implications for its industries, and with its compliance with

[218] *See* SWISS FEDERAL COUNCIL, *supra* note 174, at 3.

[219] *See id*. at 4-5.

[220] *See id*.

[221] *See generally* Thomas Cottier et al., *Rechtsgutachten zur Einführung eines CO2-Grenzausgleichsmechanismus in der Schweiz* (Nov. 30, 2022), https://www.bafu.admin.ch/dam/bafu/de/dokumente/klima/rechtsgutachten/rechtsgutachten-zur-einfuehrung-eines-co2-grenzausgleichsmechanismus-in-der-schweiz.pdf.

[222] *See* SECO, *Anmerkungen des SECO: Rechtsgutachten zur Einführung eines C02-Grenzausgleichsmechanismus (CBAM) in der Schweiz vom 30. Oktober 2022, erstattet dem Bundesamt für Umwelt BAFU von Prof. Dr. Thomas Cottier, Prof. Dr. llaria Espa und Dr. Kateryna Holzer* 2 (Feb. 9, 2023), https://www.bafu.admin.ch/dam/bafu/de/dokumente/klima/rechtsgutachten/seco-zum-rechtsgutachten-zur-einfuehrung-eines-co2-grenzausgleichsmechanismus-in-der-schweiz.pdf.

[223] *See* SWISS FEDERAL COUNCIL, *supra* note 174, at 5.

[224] See ECOPLAN, Auswirkungen von CO2-Grenzausgleichsmechanismen in der Schweiz: Aktualisierung 37 (May 8, 2023), https://www.seco.admin.ch/dam/seco/de/dokumente/Wirtschaft/Wirtschaftspolitik/Wachstum/ecoplan_aktualisierungcge_cbam_2023_05_08.pdf.

[225] *See* GOVERNMENT OF NORWAY, *Carbon Border Adjustment Mechanism – Norwegian Positions* (March 2, 2022), https://www.regjeringen.no/en/dokumenter/carbon-border-adjustment-mechanism-norwegian-

international law.[226] However, at the end of 2024 the Norwegian government decided that it will adopt the EU CBAM,[227] likely because the phasing-out of the free allowances in the EU carbon market (of which Norway is members) would increase the risk of carbon leakage, and because of the risk that carbon-intensive goods may flood its markets due to the reshuffle. Additionally, adopting the EU CBAM instead of a national BCA reduces the administrative burdens for producers.[228] This decision might even influence Iceland to adopt the CBAM, while an adoption by Liechtenstein might be more problematic given its participation in a custom union with Switzerland.[229] This choice would imply that the EEA-EFTA country(ies) would be part of the EU team in games with third countries, with the potential to gain from cooperative behaviors and lose from potential retaliations.

The last country in this analysis is the UK, which is planning to adopt its national CBAM from 2027 to address carbon leakage concerns in a context in which it sets ambitious GHG emissions reduction goals, whilst also recognizing the risk of trade diversion "created by other jurisdictions introducing similar measures to the UK CBAM".[230] According to the current project – subject to the amendments of government and Parliament – the UK CBAM would cover the same goods covered by the EU CBAM, except for electricity,[231] and would impose to importers to pay a levy that reflects the explicit carbon price paid by UK producers[232] and that would be set on a quarterly basis.[233] There are many similarities and differences with the

positions/id2902803. *See also* GOVERNMENT OF NORWAY, *CBAM* (Nov. 28, 2023), https://www.regjeringen.no/no/sub/eos-notatbasen/notatene/2023/okt/cbam/id2999873.

[226] *See* GOVERNMENT OF NORWAY, Carbon Border Adjustment Mechanism – Preliminary Norwegian Positions (July 2, 2021), https://www.regjeringen.no/en/dokumenter/carbon-border-adjustment-mechanism-preliminary-norwegian-positions/id2865475. *See also* GOVERNMENT OF NORWAY, *Carbon Border Adjustment Mechanism – Norwegian Positions*, *supra* note 226.

[227] *See* GOVERNMENT OF NORWAY, *Regjeringen går inn for å innføre CBAM-forordningen* (Oct. 7, 2024), https://www.regjeringen.no/no/aktuelt/regjeringen-gar-inn-for-a-innfore-cbam-forordningen/id3057882.

[228] As with Switzerland, only goods originated in Norway or substantially transformed there are exempt from the CBAM, while for the other goods imported from Norway the obligations remain. *See supra* note 174.

[229] *See* SWISS FEDERAL COUNCIL, *supra* note 174, at 25.

[230] HM GOVERNMENT, *supra* note 217, at 3-5.

[231] *See id*. at 13, 16.

[232] Including the Carbon Price Support (CPS), and excluding the value of free allowances, for which there is no phase-out plan. *See id*. at 23.

[233] *See id*. at 25-26, 36.

EU CBAM,[234] including the risks of violating WTO obligations[235] and the CBDR-RC, and therefore a risk of retaliation similar to that seen for the EU CBAM. However, there is also the chance to collaborate with the EU over the development and the implementation of their CBAMs.

D. *Applications and Implications*

The discussion above shows that third countries have a strong incentive to retaliate against the EU for the implementation of the CBAM, in particular in the current scenario of the paralysis of the AB. Moreover, the approach of the new American administration is raising trade tension, also with the threat of imposing tariffs on EU products, to which the EU responded that it was ready to retaliate.[236] In this scenario the implementation of the CBAM may contribute to the tension, even tough by 2028 the CBAM will require to cover only 10% of the total embedded emissions it could be applied to.[237] Additionally, other third countries might retaliate against the EU for the CBAM, but for the moment nothing signals that they will adopt countermeasures before having opened a complaint at the WTO. However, reputational sanctions over the unfairness of the CBAM will keep coming, especially from low- and medium-income countries over the violation of the CBDR-RC and the impairment of the freedom "enshrined in the Paris

[234] *See id*. at 31. *See also* ALISTAIR DILLON ET AL., CARBON BORDER ADJUSTMENT 20 (March 5, 2024), https://researchbriefings.files.parliament.uk/documents/CBP-9935/CBP-9935.pdf

[235] For example, the default values methodology that would apply to the determination of embedded emissions in case actual data was not available risks violating the MFN obligations. In fact, the default value would result from the "global average of embodied emissions weighted by the production volumes of key UK trading partners". HM GOVERNMENT, *supra* note 217, at 16. However, this creates artificial values that erase the particularities of different countries' industries, which might in turn discriminate between domestic and foreign like products. Additionally, since the levy rate is set quarterly, during the time between updates the prices of the UK ETS allowances may fluctuate considerably, foreign products might be treated less favorably than like domestic products, raising doubts about the compatibility with the National Treatment obligation.

[236] *See* Andrew Gray et al., *EU vows swift, firm response after Trump says tariffs coming on EU imports*, REUTERS (Feb. 26, 2025), https://www.reuters.com/world/europe/eu-vows-react-firmly-after-trump-says-he-will-put-tariffs-eu-imports-2025-02-26. *See also* Camille Gijs et al., *EU to Trump on tariffs: Go ahead, make our day.*, POLITICO EU (Feb. 28, 2025), https://www.politico.eu/article/donald-trump-tariffs-eu-trade-anti-coercion-instrument.

[237] *See supra* section II.

Agreement" for each country to decide about their climate policies without pressure from other parties.[238]

From the analysis undertaken it seems that it is in the context of retaliation that behavioralist instances may emerge the most, as the CBAM may be perceived as unfair and even countries that are not damaged by it may decide to support the arguments of the first WTO members that will file complaints against the measure. Additionally, it cannot be excluded that a country (leader) may decide to take retaliatory measures out of spite.[239] Conversely, no behavioral insights can currently be taken over possible cooperative responses, that seem to be in line with the incentives of the CBAM and of the international system in general.

On the side of cooperation there are many possibilities and both data and the literature suggest that the implementation or the strengthening of carbon pricing systems might be an appealing option for third countries, structuring a path of cooperation in response to the CBAM, even though not entirely voluntary, since it modifies the incentives for third countries and pushes them to adopt climate policies closer to EU's standards.[240] Nonetheless, this highlights the fact that the CBAM might be a turning point for international climate policy, incentivizing a number of countries to apply or strengthen the polluter-pays-principle in their domestic markets.[241] However, there are some caveats. First, the CBAM must withstand the scrutiny of the WTO, and the economic pressure that will likely be exerted by some third countries. Second, the EU needs to reciprocate cooperative behaviors of third countries, going beyond technical assistance to set up carbon pricing systems, by providing also financial assistance, including an express provision that at least a part of the CBAM's revenues would go toward climate finance – in particular to the Adaptation Fund and the Green Climate Fund, that would

[238] William L'Heudé et al., *A Carbon Border Adjustment Mechanism for the European Union* 10 TRÉSOR-ECONOMICS (Mar. 2021), https://www.tresor.economie.gouv.fr/Articles/7c187e98-4da5-4d3c-af6f-ac05c25ec737/files/9b64e347-22a2-4d7d-9cd4-588b9889fb4f.

[239] *Compare* van Aaken, *supra* note 131, at 438-39 (considering spitefulness a feature that may guide the decision of international actors), *with* Guzman, *supra* note 128, at 46 (believing that "a rational state would not take action simply out of spite or anger").

[240] *See* Gayon, *supra* note 73, at 299.

[241] *See* Indra Overland & Mirza Sadaqat Huda, *Climate clubs and carbon border adjustments: a review*, 17 Environmental Research Letters 1, 2 (2022).

redistribute the revenues in a non-discriminatory way[242] – instead of looking at the shorter-term benefit of earning additional revenues.[243]

While these approaches are multilateral in nature, plurilateral and bilateral options – with their limits – have also been presented. A model that keeps together some of these approaches is the following. If the UK linked its ETS with the EU ETS, or if Switzerland adopted its own BCA, it would be possible to establish a coalition of countries where there is a similar (and theoretically converging) common carbon price, and a coordination of BCAs[244] to minimize the administrative burdens for each other's producers and importers.[245] The adoption of this system – arguably different from a climate club[246] – by the EU and the UK or Switzerland (or both) may be expanded to include other countries with compatible ETSs,[247] or this model could spread to other groups of countries with homogeneous economies and climate ambitions. The positive feature of this simple model in which the BCAs are "linked" but no additional trade benefits are granted, is that the arrangement would face no more legal challenges than the individual countries for the adoption of their BCAs,[248] yet if one of the BCAs was found to by non-WTO-compliant or was withdrawn due to political and economic pressures, all the other members would be affected. However, other systems with common border adjustments do not

[242] *See* Espa et al., *supra* note 62, at 27-28.

[243] See Gregorio Sorgi, Big EU countries push expanded carbon border tax to help repay Covid debt, POLITICO EU (Feb. 26, 2025), https://www.politico.eu/article/big-eu-countries-push-expanded-carbon-border-tax-to-help-repay-covid-debt.

[244] *See* Espa & Holzer, *supra* note 75, at 405-06.

[245] *See* Emily Lydgate & L. Alan Winters, *The UK's Border Carbon Leakage Trilemma*, 198 ENERGY POL'Y 1, 6 (2025). *See also* Bercero, *supra* note 182, at 10.

[246] The additional benefits would only be a reduction of administrative burdens for producers and importers, unlikely to be considered a club good. In this form it also differs from the *de facto* climate club envisioned by Szulecki et al., that considers the CBAM a *de facto* climate club because it comprises also the EEA-EFTA states and Switzerland, giving them "unrestricted access to the EU's internal market" while sanctioning non-members through the border adjustment fee. Additionally, this coordination of BCAs would require the conclusion of international agreements, whilst the *de facto* climate club is based exclusively on the CBAM Regulation. *See* Kacper Szulecki et al., *The European Union's CBAM as a de facto Climate Club: The Governance Challenges*, 4 FRONTIERS IN CLIMATE 1, 3 (2022).

[247] Makane Moïse Mbengue & Elena Cima, *"Clubbing in the Club": Could Climate-Related Trade Arrangements Set the Pace for Future Climate Cooperation?*, 116 AM. J. INT'L L. 219, 222-23 (2022).

[248] *Cf*. Rafael Leal-Arcas et al., *The World Trade Organization and Carbon Market Clubs*, 52 GEO J. INT'L L. 895, 975-76 (2021) (in which it is proposed a climate club based on the harmonization of ETSs, but with additional trade benefits, which would require amendments to WTO law).

appear to be in line with the EU's desires, due to legal constraints and because they would be perceived as a defection from non-members, with the risk of retaliation and of jeopardizing the multilateral efforts.

CONCLUSION

Climate change is a global challenge and must be faced by every member of the international community in line with their international obligations. However, due to international climate policy resembling a prisoner's dilemma, cooperation over the reduction of GHG emission is lacking. The EU's propensity to adopt unilateral policies that may have effects on its trading partners is both a cause and a symptom of this situation. The CBAM is causing a backlash as it is perceived by many third countries to run afoul of international trade law and international environmental law, and to be unfair. Even if at this stage it cannot be said with certainty that the CBAM violates international law, it is expected that some countries will decide to retaliate against the EU. While retaliations through the WTO system could clarify whether the CBAM must be withdrawn or if it can stand, countermeasures adopted outside the WTO framework would be harmful, risking escalating into trade wars and reducing cooperation over climate policy.

Nonetheless cooperation is possible, in particular if reciprocated by the EU. The most promising way is through the adoption or the strengthening of carbon pricing mechanisms by third countries – incentivized to redirect part of their firm's costs from the EU budget to theirs – as this may contribute greatly to the worldwide emissions reduction. However, some third countries might implement such mechanisms and at the same time challenge the CBAM. Therefore, the EU needs to dialogue with third countries and to go beyond technical assistance, for example by redirecting part of the CBAM revenues to climate finance. Other initiatives, such as the linkage of ETS or the coordination of BCAs may be limited to high-income countries, since coverage and carbon prices would need to be compatible.

Overall, while the CBAM is not the most efficient policy tool to reduce global GHG emissions, it works as an incentive to achieve this result. It has also the potential to further fragment international climate policy by discouraging further cooperation with some countries, and by incentivizing the adoption of unilateral measures by others. However, disrupting the current system of international climate policy might be what is needed to make it take a step further towards stronger emissions reduction and, hopefully, more fairness.