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Border carbon adjustment compliance and the WTO: the interactional evolution of law

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ABSTRACT

International law and its understanding can evolve outside of treaties, but little is known about the elements that can explain these changes. This paper looks at the debate on border carbon adjustment (BCA) compatibility with the World Trade Organization (WTO) and argues that international law depends on the actors' perceptions, which can change over time. It applies an interactional international law framework to explain how a policy that was once deemed incompatible with WTO rules is now considered 'WTO-compliant' by the European Union. A discourse network analysis is conducted based on debates from the WTO and the literature over 24 years. Results show that since 2012, the legal literature has increasingly been more confident that BCA could be WTO-compatible, despite the absence of significant changes in WTO case law during the same period. This increase in support was sustained by an expanded practice of legality and a perceived lack of legality of applicable WTO rules. This research offers new insights into the dynamics of international law. It provides new methodological avenues for scholars seeking to trace the evolution of law and legal understanding through formal and informal processes.

INTRODUCTION

International law can evolve outside of treaties through interpretations made by international courts or arbitration bodies or with customary law. These mechanisms reflect that international law is not a static set of rules. International norms and rules can reflect changes in the international community's perceptions, interpretations, understandings, and practices. One example of that evolution is how states talk about climate change, especially in the trading system. While that concern was almost absent from discussions 20 years ago, climate change is now an important topic for most states. Many international forums, including the World Trade Organization (WTO), reflect this.

This research aims to better understand how international law can evolve outside of formal judicial processes by building on the interactional international law framework. To illustrate this

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theoretical framework, this research examines the debate on border carbon adjustment (BCA) compatibility with the WTO. The debate on BCA compatibility with the WTO is a good example of the evolution in the perception and understanding of international law. Indeed, BCAs have been discussed for many years, but doubts about their compatibility with the WTO were often expressed as the main limits to implementing these types of measures.[1] For example, in 2006, former European Union (EU) Trade Commissioner, Peter Mandelson, said that implementing a BCA was 'highly problematic under current WTO rules and almost impossible to implement in practice'. Yet, in 2021, current EU Trade Commissioner, Valdis Dombrovskis, said that the EU will implement 'a WTO-compliant Carbon Border Adjustment Mechanism (CBAM)'.[2] Hence, this project hopes to explain how perceptions of the compatibility of BCA to the WTO have evolved since 1995. This question is topical, especially in the context of the provisional application of the EU CBAM since October 2023.[3] Given the likelihood that this regulation will be challenged in the trade regime, understanding the perception of the international legal community towards BCA is particularly important.

Based on the interactional international law framework, this research argues that actors' perceptions can shape international law and evolve over time. In addition, when law fails to meet certain criteria of legality that promote its legitimacy, it can jeopardize its adherence. This framework defines adherence to international law as 'an internalized commitment and not as an externally imposed duty matched with a sanction for nonperformance'. Thus, it requires legitimacy to promote adherence to law, and this legitimacy is upheld when the law is in line with actors' *shared understandings*, it respects the *criteria of legality*, and it is anchored in a *practice of legality*. This is referred to as the 'legality' of international law. When there is a discrepancy between these elements and international law, it can promote a change in the law.

Section 'BCA and the evolution of law' of this article presents BCA and the theoretical framework employed. The section 'Understanding the evolution' presents the methodology and section 'Analyzing BCAs under interactional international law' offers an empirical analysis of the theoretical framework. The empirical analysis is based on two methods. First, discourse network analysis (DNA) is used to track the evolution of the debate and to map discursive interactions between WTO representatives, WTO members, and legal actors since 1995. Second, an analysis of the legal literature is conducted to assess the criteria of legality. WTO case laws are not directly analysed, but they are considered when referred to in the legal literature analysed. Specific mechanisms of carbon-pricing policies are studied to assess the practice of legality. Results show that the European Commission is not alone in thinking that BCA could now be WTO-compatible as this idea gained support over the years. This increase in support mainly came from the legal literature and does not seem to be linked to the evolution in interpretation made by WTO panels or the Appellate Body. On the contrary, this increase in support from the literature seems to be reinforced by a practice of legality supporting policies similar to BCA as well as the perceived lack of legality of applicable WTO rules based on the criteria of legality.

This research is of interest to scholars looking at the evolution of international legal norms. By looking at how actors' understandings of international law can evolve to reflect and adapt to changing global issues such as climate change, this research is important for current policy, legal, and societal debates. Additionally, this paper hopes to bridge two methods from two disciplines

[1] See for example Alice Pirlot, *Environmental Border Tax Adjustments and International Trade Law: Fostering Environmental Protection* (Edward Elgar Publishing, Northampton, MA 2017); Aaron Cosbey and others, 'Developing Guidance for Implementing Border Carbon Adjustments: Lessons, Cautions, and Research Needs from the Literature' (2019) 1 Review of Environmental Economics and Policy 13, 3.

[2] European Parliament, 'Texts Adopted—A WTO-Compatible EU Carbon Border Adjustment Mechanism—Wednesday, 10 March 2021' (10 March 2021) <https://www.europarl.europa.eu/doceo/document/TA-9-2021-0071_EN.html> accessed 16 November 2021.

[3] Directorate-General for Taxation and Customs Union, 'Carbon Border Adjustment Mechanism' <https://taxation-customs.ec.europa.eu/carbon-border-adjustment-mechanism_en> accessed 17 June 2023>.

that have the potential to be mutually beneficial and complementary in international law: DNA and an analysis of the legal literature.

BCA AND THE EVOLUTION OF LAW

The idea to apply a border adjustment to carbon-pricing measures first emerged in the economic literature.[4] Since international trade rationale is based on the concept of 'comparative advantage', an important set of economic literature saw the implementation of a BCA as one of the main ways to make sure that the state that applies a price on carbon emissions would not lose comparative advantage when involved in international trade.[5] A border adjustment aims to 'level the playing field between taxed domestic industries and untaxed foreign competition by ensuring that internal taxes on products are trade neutral'.[6] To do so, a border adjustment should reflect the burden imposed on domestic industries. Consequently, BCA could have as many shapes and scopes as there are carbon pricing initiatives. For example, if the domestic measure is a carbon tax, the adjustment could be a similar tax imposed at the border. On the other hand, if a state applies an emission trading system (ETS)[7] on its domestic industries, it could require importers to participate in the ETS for the imported goods. Another alternative could be to impose a tax on imports equivalent to the price set by the ETS.[8]

Some scholars argue that a 'complete' border adjustment also provides an exclusion or rebate for taxed domestic products that are exported.[9] Indeed, it is common for a state that imposes a price on carbon to give some kind of exemption for exported goods, such as free allowances in an ETS.[10] These measures also aim to level the playing field for exported products and help them compete with untaxed goods on international markets.

The compatibility of BCAs with international trade rules has also been discussed on many occasions in the multilateral trading regime. For example, in 1970, the General Agreement on Tariffs and Trade (GATT) Secretariat published a report from the Working Group on Border Adjustment. This report addresses the compatibility of different types of border adjustments, such as value added tax adjustments and excise taxes, with GATT provisions. The 1970 report did not mention the possibility of adjusting for environmental taxes. However, it noted that taxes on energy could be considered as 'taxes occultes' and there 'was a divergence of views with regard to the eligibility for adjustment' for this category of tax.[11] Thus, the question was left unresolved. In 2009, the WTO published a report in collaboration with the United Nations Environment Program (UNEP) named *Trade and Climate Change*.[12] Among other things, this report reviewed WTO provisions applying specifically to BCAs. It also touched on the debate on differentiating products based on their process and production method (PPM). As discussed

[4] Onno Kuik and Marjan Hofkes, 'Border Adjustment for European Emissions Trading: Competitiveness and Carbon Leakage' (2010), 38 Energy Policy at 1741; Carolyn Fischer and Alan K Fox, 'Comparing policies to combat emissions leakage: Border carbon adjustments versus rebates' (2012) 64 Journal of Environmental Economics and Management 199; William Nordhaus, 'Climate Clubs: Overcoming Free-riding in International Climate Policy' (2015) 105 American Economic Review 1339; Christoph Böhringer, Jared Carbone and Thomas Rutherford, 'The Strategic Value of Carbon Tariffs' (2016) 8 American Economic Journal Economic Policy 28.

[5] See Pirlot (n 1) 49.

[6] WTO and others, *Trade and Climate Change*, Rapport établi par l'OMC et le PNUE (2009), xix.

[7] An ETS (sometimes also referred to as a cap-and-trade system) is a type of climate policy where targeted industries need to purchase emissions allowances (sometimes also referred to as emissions quotas) to cover the greenhouse gas they emit for their economic activity. Similar to carbon tax, these mechanisms aim to provide an economic incentive to reduce greenhouse gas emissions. The price of the emissions allowances can be fixed or can vary depending on supply and demands of the allowance.

[8] See Cosbey and others (n 1).

[9] Samuel Kortum and David Weisbach, 'The Design of Border Adjustments for Carbon Prices (Forum: Carbon Tax Border Adjustment)' (2017) 70 National Tax Journal 421; See Pirlot (n 2); See Cosbey and others (n 2).

[10] According to an OECD report, almost all ETS provided free allowances to certain sectors. See, OECD, *Effective Carbon Rates 2023: Pricing Greenhouse Gas Emissions through Taxes and Emissions Trading* (OECD 2023).

[11] GATT, *Report by the Working Party on Border Tax Adjustments* (1970), L/3464, 4.

[12] See WTO and others (n 6).

further, this report became contentious among WTO members who disagreed on its relevance and conclusions.

In the EU, implementing an import BCA has been discussed on many occasions since the establishment of the EU ETS in 2005. For example, in 2006, French Prime Minister, Dominique de Villepin, suggested implementing a carbon border tax.[13] At that time, EU Industry Commissioner, Günter Verheugen, supported the idea, but Trade Commissioner, Peter Mandelson, expressed concerns that it would not be compliant with WTO provisions.[14] A few years later, the European Commission adopted a BCA-like directive that provided that all flights that landed or took off in the EU, regardless of their origin or destination, would be subject to the EU ETS.[15] However, some EU economic partners expressed dissatisfaction with the directive and filed a legal action based on the international civil aviation framework.[16] The EU then changed its regulation to cover only flights within the European Economic Area, arguing that it would allow to 'support the development of a global measure by the International Civil Aviation Organization'.[17]

More than a decade later, in December 2019, the idea of implementing a BCA reappeared in the EU. The European Commission presented the *European Green Deal*, including a 'proposal for a carbon border adjustment mechanism (CBAM) for selected sectors'.[18] In March 2021, the European Parliament adopted a resolution 'towards a WTO-compatible EU border carbon adjustment mechanism'.[19] The EU CBAM is in gradual application since October 2023. It will start to function in January 2026, when importers of selected products will have to purchase CBAM certificates to cover their embedded greenhouse gas.[20] Other governments, such as Canada and Australia, are also currently considering the application of a BCA.[21] International trade rules are still at the centre of government concerns. But this time, the European Commission and the current Trade Commissioner are confident that the CBAM regulation is WTO-compatible.[22]

The current debate around BCA compatibility with trade rules is mostly related to BCA on imports, which, prior to the European CBAM, had never been implemented before. In addition, the compatibility of BCA on imports with international trade law has been much more debated in the legal literature, as detailed in 'Shared understandings'. Therefore, while this research looks at the two types of BCAs, more attention is given to BCA on imports. This paper uses the

[13] Euractiv, 'Mandelson rejects CO2 border tax' (18 December 2006) <www.euractiv.com> <https://www.euractiv.com/section/sustainable-dev/news/mandelson-rejects-co2-border-tax/> accessed 11 March 2023.

[14] See 'EU ministers shun French carbon tariff proposal' AFP 2009/07/24; 'EU presidency opposes carbon tax threat' AFP, 2009/10/21.

[15] M Wu and J Salzman, 'The Next Generation of Trade and Environment Conflicts: The Rise of Green Industrial Policy' (2014) 108 Northwestern University Law Review 401.

[16] L Bartels, 'The WTO Legality of the Application of the EU's Emission Trading System * to Aviation' (2012) 23 European Journal of International Law 429.

[17] European Commission, 'Reducing emissions from aviation' (23 November 2016), *Climate Action—European Commission* <https://ec.europa.eu/clima/policies/transport/aviation_en> accessed 27 April 2021.

[18] European Commission, *Communication from the commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions- The European Green Deal* (2019).

[19] See Resolution 2020/2043(INI) of the European Parliament adopted on 10 March 2021.

[20] When fully in application, 'importers will need to declare each year the quantity of goods imported into the EU in the preceding year and their embedded GHG. They will then surrender the corresponding number of CBAM certificates. The price of the certificates will be calculated depending on the weekly average auction price of EU ETS allowances expressed in €/tonne of CO2 emitted.' Details of the specific mechanism still need to be developed. See Directorate-General for Taxation and Customs Union (n 3).

[21] Department of Finance Canada, 'Consultation on Border Carbon Adjustments' (5 August 2021) <https://www.canada.ca/en/department-finance/programs/consultations/2021/border-carbon-adjustments.html> accessed 13 July 2023; Australian Government- Department of Climate Change, Energy, the Environment and Water, 'Australia's Carbon Leakage Review—Department of Climate Change, Energy, the Environment and Water' (2023) <https://www.dcceew.gov.au/climate-change/emissions-reduction/review-carbon-leakage> accessed 24 November 2023.

[22] Joost Pauwelyn, 'Trade Related Aspects of a Carbon Border Adjustment Mechanism. A Legal Assessment', Briefing requested by the INTA commitee (2020), 18; See European Parliament (n 2).

acronym 'BCA' to refer to the general measure, while the acronym 'CBAM' is employed to specifically refer to the EU regulation.

This new interest in BCAs and the evolution of the EU Commission's position on BCA compatibility is puzzling. While WTO agreements did not evolve in themselves, changes in interpretation have been made through the dispute settlement mechanism since 1995.[23] However, as detailed in section 'Criteria of legality', most of the relevant case law referred to in the legal literature was adopted before 2012.[24] This paper argues that the understanding of international legal norms is also a matter of the perception of the actors. This means that the evolution of a legal norm can also happen before it is assessed by a tribunal, panel, or court. In order to better understand factors that can promote evolution in the interpretation of international law, this paper turns to the interactional international law framework.

The evolution of international norms—a great debate

How—and why—international norms can evolve are probably among the most important debates for both international law and international relations scholars. For legal positivists, the evolution of law can only come from states and the institutional bodies that are responsible for the application and interpretation of treaties.[25] Then, to modify a treaty, a government has to follow specific legal and institutional steps. The other way a norm can evolve is through a formal judicial process. In the WTO, panel and Appellate Body reports can provide for a contextual interpretation of WTO rules, in line with Article 31 (general rule of interpretation) of the Vienna Convention on the Law of Treaties.[26] Despite official rules guiding the interpretation, the process can still be questioned. For example, Marceau argues that a treaty interpreter could also consider changes in political, social, legal, and linguistic context that have occurred since the conclusion of a treaty in order to make a more legitimate 'evolutive' or 'evolutionary' interpretation of the rule of law.[27] Yet, it is argued that a purely positivist account of international law fails to fully consider the variety of factors that can prompt the evolution of norms.

This research turns to another explanation: international law can evolve with changes in shared understandings. This paper builds on Jutta Brunnée and Stephen J. Toope's international framework to explain the emergence of norms as well as the reasons and the processes of norm evolution. The interactional international law framework builds on constructivist and other international relation theories to explain how 'shared norms emerge and shape social interaction'.[28] The interactional international law framework is based on three elements that 'are crucial to generating distinctive legal legitimacy and a sense of commitment among

[23] Even if DSU is famously known to have no reference to make legal clarification adopted by Appellate Body reports legally biding for the next ones (ie *stare decisis*), there is still a 'tempered type of precedent' that is applied in the WTO dispute settlement (Marceau 2015:49; Van Damme 2009: 23)

[24] For example, the Appellate Body in United States—Import Prohibition of Certain Shrimp and Shrimp Products interpreted the term 'natural resources' of GATT art XXg as applying to living and non-living 'natural resources'. This interpretation was made in light of the 'acknowledgment by the international community of the importance of concerted bilateral or multilateral action to protect living natural resources' (US—Shrimp (DS58), 1998, paras 130–31). According to the legal literature reviewed in Section III. B, other interpretations made by WTO Panels and Appellate Body reports were relevant to understand WTO rules applicable to BCA. The most relevant WTO case law to analyse BCA legality are US—Gasoline (DS2), US—Shrimp (DS58), EC—Asbestos (DS135), EC—Tariff Preferences (DS246), Brazil—Retreaded Tyres (DS332), US—Tuna II (Mexico) (DS381) and EC—Seal Products (DS401). Therefore, if the evolution in the legal literature was only explained by a new outcome in the WTO case law, it would mean that US—Tuna II (Mexico) and EC—Seal Products have been game changer in the interpretation of BCA compatibility. Indeed, the report of the Appellate Body for US—Tuna II (Mexico) was adopted on 13 June 2012 and the one for EC—Seal Products was adopted on 18 June 2014. Otherwise, the other reports were all adopted prior to 2012.

[25] Hans Kelsen, *Pure Theory of Law* (Lawbook Exchange 1967).

[26] See for example, DS2 US—Gasoline and DS8 Japan—Alcoholic Beverages II.

[27] Gabrielle Marceau, 'Evolutive Interpretation by the WTO Adjudicator' (2018) 21 Journal of International Economic Law 791, 791.

[28] Jutta Brunnée and Stephen J Toope, 'Interactional international law: an introduction' (2011) 3 International Theory 307, 308.

those to whom law is addressed': shared understandings, criteria of legality, and a practice of legality.[29]

Shared understandings are seen as arising in the context of social norms.[30] This concept is based on the work of international relations constructivists such as Emanuel Adler who developed the theory of communities of practice building on the work of Jean Lave and Etienne Wenger.[31] Brunnée and Toope argue that 'law is rooted in social practice' that may be reinforced by social interactions and that 'shared understanding' can emerge from this process.[32] Contrary to a more legal positivist perception, law does not have a single point of origin. Therefore, 'the evolution of shared understandings and social norms is not a unidirectional process'.[33] Indeed, according to Brunnée and Toope, the 'conclusion of a treaty is often just the beginning of a long law-building process - the document alone ensures neither stability nor change in law'.[34]

The second element of their frameworks is based on the eight criteria of legality developed by Lon Fuller. These criteria of legality 'apply to both individual rules and systems of rule-making'. They are generality of rules, promulgation, limiting cases of retroactivity, clarity, avoidance of contradiction, not asking the impossible, constancy over time, and congruence of official action with underlying rules.[35] Thus, these criteria are not entirely procedural in nature as they would be with a positivist approach. They are tests for 'the internal morality of the law', which is important to help legitimate law and promote its adherence. When not met, this can hinder commitment to law, which can impact shared understandings and the practice of legality, thus undermining legal norms themselves.

The third element is the practice of legality. Once social practices become law (based on a shared understanding and the criteria of legality), these laws must be practiced to stay legitimate. In fact, it is only through sustained practice that these laws can be maintained and reinforced.[36] The idea of the practice of legality is very close to another central concept in international law: customary law. Brunnée and Toope argue that

> the idea of continuous practice will hardly be novel to international lawyers. It is central to the concept of customary law and also plays a significant role in the evolution of treaties. What is added through our account of legal legitimacy is the idea that a very particular kind of practice is required to make and sustain international legal norms: inclusive practice that adheres to the criteria of legality.[37]

By looking at shared understandings and practice of legality, social interactions are at the heart of Brunnée and Toope's framework. Indeed, through their interactions, actors learn and create a common understanding of legal rules. It is also through these interactions that actors developed a shared understanding and practice of legality:

> In constructivist terms, through patterns of interaction, actors 'learn' to read the social background against which any legal norm must be postulated and interpreted. Rules are persuasive and legal systems are perceived as legitimate when they are rooted in 'thick' acceptance by

[29] ibid 308.
[30] Jutta Brunnée and Stephen J Toope, 'International Law and the Practice of Legality: Stability and Change' (2018) 49 Victoria University of Wellington Law Review 429.
[31] Jutta Brunnée and Stephen J Toope, *Legitimacy and Legality in International Law an Interactional Account* (CUP, Cambridge 2010) 64.
[32] ibid 33.
[33] See Brunnée and Toope (n 30) 432.
[34] ibid 433.
[35] Jutta Brunnée and SJ Toope, 'International Law and Constructivism: Elements of an Interactional Theory of International Law' (2000) 39 Part 1 The Columbia Journal of Transnational Law at 19, at 54.
[36] See Brunnée and Toope (n 32) 55.
[37] ibid 54.

the citizenry, an acceptance 'vitalized by an appreciation of the reasons why these rules are necessary'.[38]

Applied to the WTO, the 'learning' and the patterns of interactions between actors can occur in different ways. WTO rules can evolve 'internally'—through the dispute settlement mechanism and the trade policy review mechanism, as well as 'externally' through their embeddedness in international law.[39] Indeed, WTO institutions also foster learning and socialization among parties by providing for a 'continuous process of social interaction in which the parties adjust their expectations of each other'.[40]

Even if the interactional framework 'embraces the embeddedness of law in social norms and social practices', legal interactions are still distinct from global politics.[41] Still, they assert that 'law's rationality is present in a range of sites throughout systems of interaction and is certainly not defined by or limited to judicial reasoning'.[42]

In line with the interactional international law framework, this paper looks at the interactions of various actors in the WTO framework. This includes representatives of WTO members, international organizations, the WTO, and scholars. It is assumed that these actors had some access to each others discourse. This is a fair assumption since legal scholars and WTO actors have many occasions to interact among them. First, many panelists, Appellate Body Members, or legal officers are or have been in academia before, during, or after their appointment to the WTO.[43] Second, some WTO representatives have also published articles in academic journals.[44] Third, different events also provide interaction opportunities among these actors, such as WTO public forums where academics often participate. Because they can access each others discourses and declarations, it is presumed that they can learn from each other.

To explain the new interest in BCA on imports and the evolving perception of the European Commission towards compliance, we can expect three factors. First, a **shared understanding** supporting the idea that BCAs are compatible with the WTO emerged. Second, **criteria of legality** were not strongly present in the WTO framework relevant to BCA. Third, a **practice of legality** surrounding BCA-type of policies emerged. Therefore, these elements supported a change in the overall perception of the compatibility of BCA with the WTO.

UNDERSTANDING THE EVOLUTION

A BCA is a good example of a policy tool that has been debated for a long time. Indeed, few policy tools have attracted as much scholarly attention and debates. Therefore, this policy offers plenty of material to trace the evolution of the debate over a long period of time. While BCAs are an interesting case study, they might not be a typical case. Hence, the results of this research should be read in close attention to the specific context of the BCA debate.

The period for the analysis is from 1995 to 2019 inclusively to capture the beginning of the WTO and allow for changes in the interpretation of the WTO law made since the creation of

[38] See Brunnée and Toope, above n 36, at 51.
[39] AM Altamimi, 'An Interactional World Trade Law' (2016) 18 International Community Law Review 317.
[40] Robert Wolfe, 'See You in Geneva? Legal (Mis)Representations of the Trading System' (2005) 11 European Journal of International Relations 339.
[41] Jutta Brunnée and Stephen J Toope, 'The Sovereignty of International Law?' (2017) 67 University of Toronto Law Journal 496, 496, 498.
[42] See Brunnée and Toope (n 35) 66.
[43] This is the case, for example of Professors Tania Voon, Gabrielle Marceau, Joost Pauwelyn, Peter Van den Bossche, Valerie Hughes, Nicolas Lamp, Geraldo Vidigal, Antony Taubman, James Munro, Werner Zdouc, Jan Bohanes, and Debra Steger.
[44] See for example, see Ludivine Tamiotti, Work in the WTO and in some academic journals: Tamiotti, Ludivine, 'The Legal Interface between Carbon Border Measures and Trade Rules' (2011) 11 Climate Policy 1202.

the Dispute Settlement Body to be considered.[45] The selected period ends in 2019 to reflect the moment when the EU presented its intention to implement a 'WTO-compatible BCA'. Ending the analysis in 2019 allows an understanding of how the perception of BCA compatibility evolved until the European Commission publicly endorsed it.

Each of the three elements that create legal legitimacy and can induce evolution in norms (shared understandings, criteria of legality, and practice of legality) is assessed separately. To do so, two different methods are used to study legal debates on BCA: DNA and an analysis of the legal literature.

DNA is used to focus on discursive interaction between actors and track the evolution of **shared understandings**.[46] DNA is 'a combination of qualitative content analysis and social network analysis, which provides an intertemporal measurement of advocacy coalition realignment at the level of policy beliefs in a subsystem'.[47] DNA is useful to visualize which actors share similar claims. To do so, each document is analysed to identify relevant statements. A statement can be any public declaration, either in written or oral form. For each of the relevant statements that are selected, information about the author, its organization, the date of the statement, and binary information about the overall support or opposition (agreement or disagreement) to the idea are coded using Discourse Network Analyzer, an open-source software.[48] The software allows uploading text data and then the relevant statements of actors are manually coded.[49]

For the analysis, two sets of documents are identified. First, using Google Scholar, Kluwer Law International, and triangulation, all the legal literature published in French, Spanish, and English (WTO official languages) pertaining to BCA compatibility with the WTO since 1995 are selected (see Annex 2). No discrimination is done regarding the specialization of the journal. Relevant books and book chapters are also retained. However, research notes and other types of dissertations not published in a journal are excluded. Second, all the minutes of the WTO Committee for Trade and Environment (CTE) and relevant submissions to the WTO members and international organizations are selected. Overall, 154 documents were identified and coded with Discourse Network Analyzer (59 academic articles, 67 minutes of the CTE meetings, and 28 communications or reports tabled in the WTO by members or international institutions). These sources present a great variety of statements from various actors involved in the legal community and in the WTO framework. From these documents, 764 statements from 120 actors (WTO members, international organizations, or scholars) are coded.

The positions expressed in the statements are categorized into general claims about the author's position on BCA. For example, in the CTE, the representative of Norway said 'Further work should address border tax adjustment of eco-taxes and the use of other economic instruments' while discussing the WTO legal framework applicable to this measure. This statement was coded with the claim 'BCA rules should be clarified'. The list of coded claims has been established based on the literature and inductively based on the empirical cases to reflect the most important elements around BCA legality (see Annex 1—List of Claims). A codebook also provides specific definitions of each claim. The full dataset contains 38 claims related to the broad debate on BCA and the WTO rules. For example, some claims coded relate to the debate on PPM and the compatibility of international environmental law with the WTO. These claims are used to assess the 'shared understandings' of BCA compatibility and to create a network that shows how actors are connected based on the claims they support or oppose.

[45] Even if DSU is famously known to have no reference to make legal clarification adopted by Appellate Body reports legally biding for the next ones (ie *stare decisis*), there is still a 'tempered type of precedent' that is applied in the WTO dispute settlement (Marceau 2015:49; Van Damme 2009: 23).

[46] See Brunnée and Toope (n 31) 24.

[47] Philip Leifeld, 'Reconceptualizing Major Policy Change in the Advocacy Coalition Framework: A Discourse Network Analysis of German Pension Politics' (2013) 41 Policy Studies Journal 169.

[48] Philip Leifeld, 'Releases · Leifeld/DNA' (2019) <GitHub/leifeld/dna/releases> accessed 16 May 2021.

[49] See Leifeld (n 47) 173.

An analysis of the legal literature is conducted to assess the **criteria of legality**, as it allows an in-depth examination of legal arguments. The criteria of legality are important in the theoretical framework because, if respected, they can promote a sense of fidelity toward international law.[50] On the contrary, if the criteria of legality are not met, then adherence to international law can erode, which can prompt changes in understanding. According to Brunnée and Toope's framework, the idea is not to assess these criteria as a simple checklist but to be able to observe them with a broad and flexible approach.[51] After reviewing the legal debate in the literature over BCA compatibility, the criteria of legality are evaluated to determine if the current legal understanding is coherent with these criteria. This allows for a micro-level analysis of the legal literature and a specific understanding of their interactions with the criteria of legality.[52]

The third and last element of the framework is the **practice of legality**. Similar policy proposals are reviewed to acknowledge the practice of legality of BCA. Policies are deemed similar if they are also related to carbon pricing initiatives and aim at leveling the playing field between taxed domestic products and untaxed imported products. If similar policies are implemented and not contested in the WTO, it supports the idea of a certain practice of legality for BCAs. Conversely, if similar policies are implemented, challenged, and found to be WTO non-compatible, it is marked as proof of the absence of a practice of legality. According to Brunnée and Toope's framework, the practice of legality can influence law because if a certain practice is sustained over time, despite violating international law, this can jeopardize law adherence and, thus, weaken it. This is why the absence of challenge toward certain policies can be proof of a practice of legality. This is also in line with Marceau, Walker, and Koumadoraki, who pointed out the role of silence in the WTO. They argue that 'under specific circumstances, silence may express a state's recognition of the existence of a customary rule' or signal the acceptance of a modification of a rule.[53]

ANALYSING BCAS UNDER INTERACTIONAL INTERNATIONAL LAW

Shared understandings

To visualize changes in shared understandings, the overall period was divided into three periods of around 8 years. These periods reflect changes in the international legal context. For example, the first period (1995–2002 inclusively) presents the debate of the first years of the WTO until the launch of the Doha Round.[54] The second period (2003–11 inclusively) presents the debates covering the first commitment period of the Kyoto Protocol.[55] The last period (2012–19 inclusively) includes the negotiation of the Paris Agreement and its implementation.

For each period, a two-mode network is presented. In these types of networks, nodes are both actors (represented in circles) and claims expressed by actors (represented in black squares). Actors that expressed support for a claim are linked to it with a green link, and actors that expressed disagreement with a claim are linked to it with a red link. Node size reflects frequency, ie the number of statements coded for each actor or claim. For nodes representing claims, the bigger the node area, the more debated it was. For nodes representing actors, the bigger the node area, the more vocal the actor was in the debate. WTO members are represented in blue circles, scholars in red circles, international institutions in green circles, and the WTO in yellow.

[50] See Brunnée and Toope (n 31) 21.

[51] Jean-Michel Marcoux, 'International Investment Law and the Evolving Codification of Foreign Investors' Responsibilities by Intergovernmental Organizations' (available at [University of Victoria], [Victoria, British Columbia], 2017); See Brunnée and Toope (n 31).

[52] See Marcoux ibid.

[53] Gabrielle Marceau, Rebecca Walker and Niki Koumadoraki, 'Silence in WTO' (2022) 56 Journal of World Trade at <https://kluwerlawonline.com/api/Product/CitationPDFURL?file=Journals\TRAD\TRAD2022008.pdf>, 191.

[54] 'WTO| The Doha Round' <https://www.wto.org/english/tratop_e/dda_e/dda_e.htm> accessed 7 September 2022.

[55] UNFCCC, 'What is the Kyoto Protocol? | UNFCCC' (2022) <https://unfccc.int/kyoto_protocol> accessed 7 September 2022.

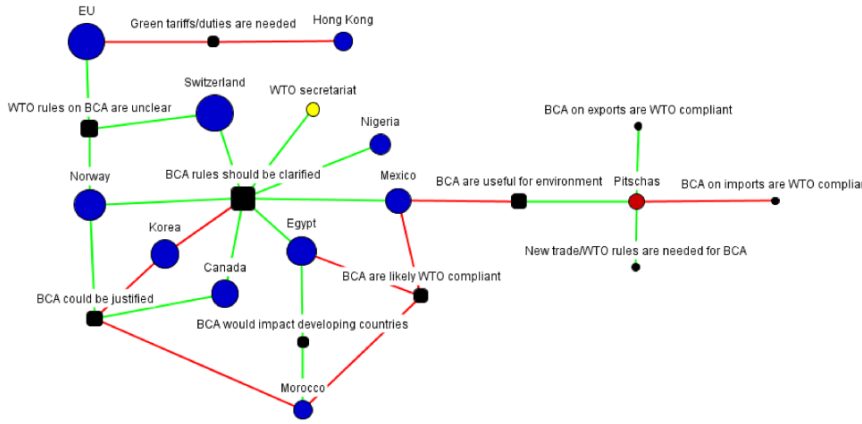

Figure 1. Two-mode network 1995–2002.

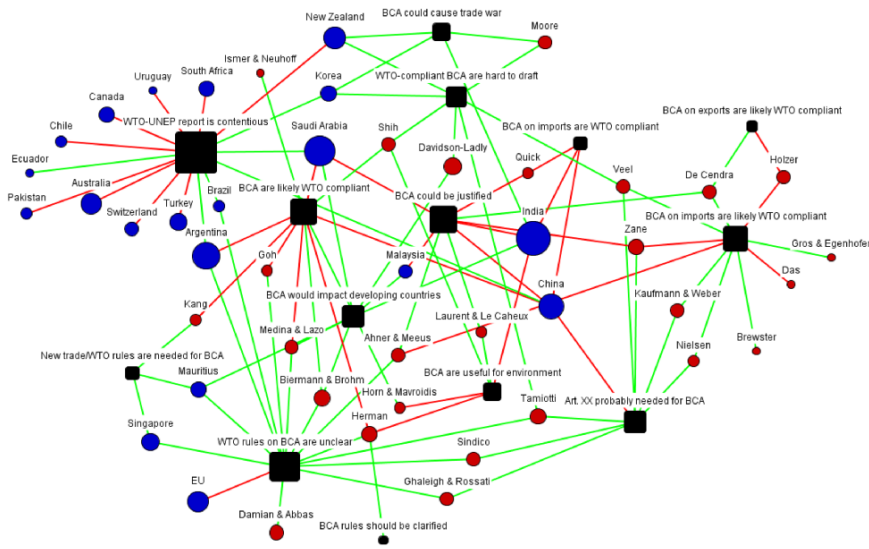

Figure 2. Two-mode network 2003–11.

From the full dataset containing claims related to the broader debate on BCA (such as PPMs and climate in general), only specific claims directly related to BCA were retained in the networks presented below to enhance clarity.

Figure 1 shows that BCAs were discussed by members in the first years of the CTE (between 1995 and 2002, inclusively). During that period, the compatibility of BCA was not much debated, and the claims that WTO rules governing BCA are unclear and should be clarified had a lot of support from a variety of WTO members.

Figure 2 reveals different elements. First, BCAs were discussed more between 2003 and 2011. This was also when scholars became more vocal, as the number of red nodes suggests. Among the most debated claims was the contentiousness of the WTO-UNEP report on BCA and whether BCA could be justified or compliant with the WTO. Saudi Arabia and India were vocal in expressing their opposition to the WTO–UNEP report as well as the justifiability of BCA. A mix

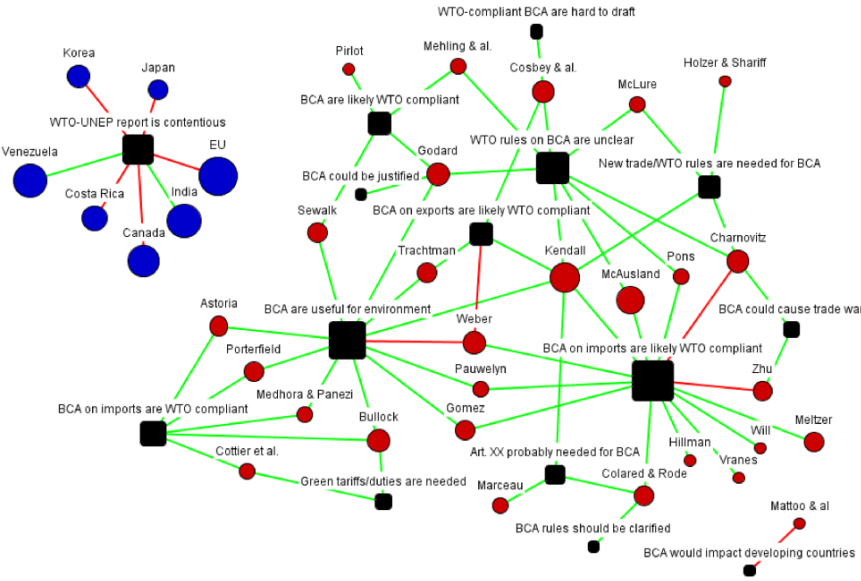

Figure 3. Two-mode network 2012–19.

of states and scholars believed BCA in general—and BCA on imports in particular—were likely incompatible with the WTO. The idea that WTO rules on BCA are unclear was still discussed and supported.

The last period studied (Fig 3) shows something quite surprising: the debate on BCA exited discussions in the CTE. Only a few states still discussed the sensitivity of the WTO–UNEP report. On the other hand, the debate about BCA compatibility with the WTO in the literature was very active. Many scholars expressed support for BCA's compatibility with the WTO. The claim that BCA on imports *would likely* be WTO-compatible and their usefulness to achieve environmental objectives had a lot of support. In addition, some scholars supported the claim that BCA on imports *are* WTO-compliant.

The data presented in the three networks above suggest that the perception of BCA compatibility with the WTO did increase over the years, mostly supported by the debate in the literature. One of the reasons explaining the few statements on BCA coded in the CTE between 2012 and 2019 are the deadlock in WTO negotiations during the same period. Indeed, the full dataset shows that many statements of WTO members were discussing the possibility (or impossibility) of addressing climate matters in the WTO. This suggests that discussing specific climate change measures in the WTO framework became too contentious.

To focus on the evolution of the debate on imports BCA compatibility to the WTO in the literature, Fig. 4 presents the position of each article coded. Indeed, each article related to the compliance of imports BCA was coded regarding the overall position of the author (from 'not compliant' to 'compliant'). While no scholars said designing a WTO-compliant BCA was impossible, some doubted the idea. Yet, Fig. 4 shows that recent scholarship tends to support the possibility of drafting a WTO-compatible BCA on imports.

These results suggest that a shared understanding supporting the idea that BCA (especially BCA on imports) would likely be WTO-compatible emerged over the years. While this was controversial between 2003 and 2011, it has become much more accepted in the academic literature since 2012.

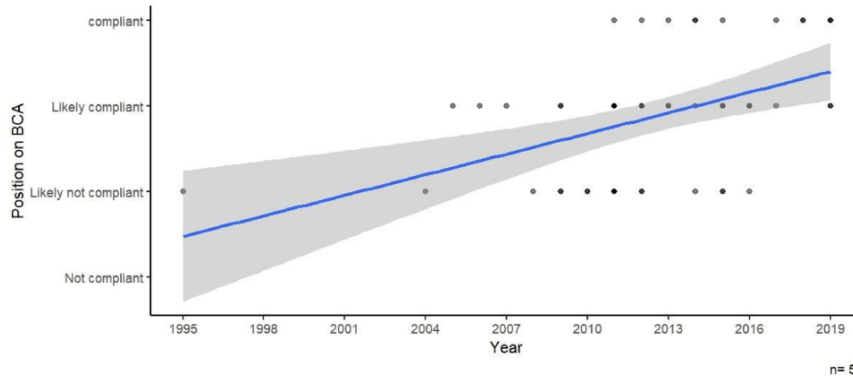

Figure 4. Evolution of the debate on imports BCA compliance with the WTO in the literature.

Criteria of legality

This section evaluates the criteria of legality as perceived and described in the legal literature. Thus, it reviews the literature analysis, including the case law assessed in these analyses. In line with a constructivist approach, criteria of legality are not assessed with a legal positivist analysis but are assessed through the perspective of the legal community. Hence, the idea is not to build another legal analysis of the current WTO rules regarding BCA but to present how current WTO rules have been read, presented, and interpreted in the legal literature. By doing so, it is possible to evaluate the criteria of legality as described by Lon Fuller. As noted above, these criteria should not be approached as a simple checklist but should be observed with a broad and flexible approach.[56] The analysis below presumes that BCA's rationale is only to adjust the internal carbon pricing mechanism and not to give domestic products an advantage or limit trade.

Export BCA

Border adjustment for carbon pricing on exported products has been far less debated in the legal literature. However, their compatibility with WTO rules is also contentious.[57] The only consensus in the literature seems to be that a close analysis of the Agreement on Subsidies and Countervailing Measures (ASCM) is needed.

ASCM Annex 1 provides an illustrative list of export subsidies that includes 'the exemption or remission, in respect of the production and distribution of exported products, of indirect taxes[58] in excess of those levied in respect of the production and distribution of like products when sold for domestic consumption'. Footnote 58 explicitly expresses that 'for the purpose of this Agreement: (…) The term "indirect taxes" shall mean sales, excise, turnover, value added, franchise, stamp, transfer, inventory and equipment taxes, **border taxes** and all taxes other than direct taxes and import charges (…)' (emphasis added). According to Maruyama, this definition could mean that a carbon tax rebate or free allowance would fall under this category.[58] Therefore, to comply with the WTO and its ASCM, a state must oversee the same amount perceived with the

[56] See Brunnée and Toope (n 31); See Marcoux (n 51).

[57] Javier de Cendra, 'Can Emissions Trading Schemes be Coupled with Border Tax Adjustments? An Analysis vis-à-vis WTO Law' (2006) 15 Review of European Community & International Environmental Law 131; GE Metcalf and D Weisbach, 'The Design of a Carbon Tax' (2009) 33 Harvard Environmental Law Review 499; Kateryna Holzer, 'Proposals on Carbon-related Border Adjustments: Prospects for WTO Compliance' (2010) 4 Carbon & Climate Law Review 51; WH Maruyama, 'Climate Change and the WTO: Cap and Trade Versus Carbon Tax?' (2011) 45 Journal of World Trade 679; R Leal-Arcas, 'Unilateral Trade-related Climate Change Measures' (2012) 13 Journal of World Investment and Trade 875; See Cosbey and others (n1).

[58] See Maruyama ibid.

climate pricing mechanism. According to Trachtman, footnote 58 to the ASCM 'makes clear that (i) direct taxes include only income taxes and taxes on real property and (ii) indirect taxes include all other taxes' so that an export adjustment of 'carbon taxes would not be considered an export subsidy'.[59]

However, if a state adjusts its exports for an ETS rather than for a carbon tax, the answer might be different. Indeed, 'if border adjustment takes the form of a regulation, "rebating" a regulation upon export is not an option (under the ASCM it could even be regarded as a prohibited export subsidy)'.[60] This is why many scholars have claimed that adjusting exported products for an ETS is most likely WTO-non-compatible.[61]

Nevertheless, in case of non-compliance with these provisions, states would unlikely be able to rely on the general exceptions of GATT Article XX as they are not incorporated into the ASCM.[62]

Import BCA

BCAs on imported products call for a close analysis of different WTO provisions, mostly in the GATT. Once again, the question of their design and categorization within the WTO lexicon is important.

GATT Article I (Most-Favored-Nation Treatment) has been identified as potentially problematic for BCA on imported products. Because economic rationale suggests that it would be ineffective to apply a carbon price on imported products that have already been taxed in their country of origin, it would be economically sound to impose an import BCA only on products from countries that do not have an equivalent carbon pricing mechanism.[63] However, there is a strong consensus in the literature that such differentiation between imported products would most likely violate GATT Article I.

GATT Article II:2(a) (Schedules of Concessions) provides that 'Nothing in this Article shall prevent any contracting party from imposing at any time on the importation of any product: (a) a charge equivalent to an internal tax imposed consistently with the provisions of paragraph 2 of Article III* in respect of the like domestic product **or in respect of an article** from which the imported product has been manufactured or produced in whole or in part' (emphasis added). According to Bierman and Brohm, 'the use of the word "article" could indicate that the charge equivalent to the indirect tax shall be construed as restricted to products physically incorporated into the final product (which would exclude energy or carbon taxes)',[64] even if the wording is 'ambiguous'. They noted, as other scholars did, a discrepancy between the English version and the equivalent French version.[65] Indeed, 'the equally valid French text, however, speaks of une marchandise qui a été incorporée dans l'article importé, which would most probably exclude energy'.[66] This discrepancy between the English and French versions exacerbates to the difficulty of interpreting WTO rules regarding BCAs on imports. Despite this, many legal scholars suggest that Article II allows the implementation of BCAs.[67] Nevertheless, in the case of an ETS that

[59] Joel P Trachtman, 'WTO Law Constraints on Carbon Credit Mechanisms and Export Border Tax Adjustments' in *Research Handbook on Climate Change and Trade Law* Edited by Panagiotis Delimatsis (Edward Elgar Publishing 2016), Cheltenham, UK 491.

[60] Joost Pauwelyn, 'Carbon Leakage Measures and Border Tax Adjustments under WTO Law' in *Research Handbook on Environment, Health and the WTO* Edited by Panagiotis Delimatsis (Edward Elgar Publishing, Cheltenham, UK 2013), 495.

[61] See Cosbey and others (n 1) 10; See Holzer (n 58) 64.

[62] See Cosbey ibid 9; See Trachtman, above n 60.

[63] See Cosbey ibid; See Pirlot (n 1); David Bullock, 'Combating Climate Recalcitrance: carbon-related border tax adjustments in a new era of global climate governance' (2018) 27 Washington International Law Journal 609.

[64] Frank Biermann and Rainer Brohm, 'Implementing the Kyoto Protocol without the USA: The Strategic Role of Energy Tax Adjustments at the Border' (2005) 4 Climate Policy 289, 295.

[65] ibid 295; See Cendra, above n 58, at 141.

[66] See Biermann and Brohm (n 64) 295.

[67] See Cosbey and others (n 1); See Pirlot (n 1).

would be 'adjustable at the border', uncertainty remains as to whether this mechanism could be covered by the concept of 'charge equivalent to an internal tax'.[68]

Article III (National Treatment on Internal Taxation and Regulation) provides, among other things, that 'The products of the territory of any contracting party imported into the territory of any other contracting party shall not be subject, directly or indirectly, to internal taxes or other internal charges of any kind in excess of **those applied, directly or indirectly, to like domestic products**' (emphasis added). Part of the debate is whether the WTO allows creating a distinction on 'domestic products' based on carbon intensity, which come back to the much-debated question on PPM. While some scholars argue that the Appellate Body allowed states to differentiate between the PPM of products, some think it is still impossible.[69]

In general, 'WTO provisions on border tax adjustment follow the destination principle for indirect taxes, and the origin principle for direct taxes', as explained by the WTO secretariat in a note from 1997.[70] It follows that 'border tax adjustment is therefore not possible for **direct taxes**, whether levied on imported or on exported products' (emphasis added).[71] Part of the debate revolves around whether carbon-pricing measures are a direct or indirect tax. One of the questions is whether these 'taxes' would target energy or 'pollution'.[72] As mentioned in the 'Introduction' section, according to the 1970 Working Party on Border Adjustment, energy taxes could fall under the category of 'taxes occultes', but the debate regarding 'taxes occultes' was left unresolved due to 'divergence of views with regard to the eligibility for adjustment' of this category of tax.[73] The matter was left unresolved because the Working Party felt that 'this area of taxation was unclear' and not a pressing issue at the time. Some scholars have therefore argued that the 1970 Working Party 'did not provide a clear answer to the eligibility of taxes on CO_2 emissions for adjustment',[74] thus, WTO rules pertaining to border adjustment are not suited to deal with BCA.[75]

If an import BCA imposes a mechanism similar to an ETS for imported products, GATT Article XI (General Elimination of Quantitative Restrictions) could be relevant. However, the question remains if such a mechanism could be seen as a border restriction that limits imports and, therefore, be non-compliant with Article XI.[76]

Of course, one can argue that even if an import BCA is found to be noncompatible with one of the GATT articles mentioned earlier, a state could rely on the general exception (GATT Article XX paragraph (b) or (g)) as a last resort if certain conditions are met.[77] As noted in the literature, over the years, WTO panels and Appellate Body reports offered many clarifications for applying GATT Article XX.[78] However, some legal scholars noted that relying on GATT Article XX might be challenging for an import BCA. To rely on Article XX (b) or (g), a BCA should be justified

[68] R Kruse, 'Climate Change Regulation in Australia: Addressing Leakage and International Competitiveness Consistently with the Law of the WTO' (2011) 28 Environmental and Planning Law Journal 297; See Maruyama (n 57); Donald Feaver and Benedict Sheehy, 'Climate Policy and Border Adjustment Regulation: Designing a Coherent Response' (2012) 13 Melbourne Journal of International Law 792.

[69] Some scholars argue that the WTO Appellate Body provided certain recognition of PPMs. See for example Keith Kendall, 'Carbon Taxes and the WTO: A Carbon Charge without Trade Concerns' (2012) 29 Arizona Journal of International and Comparative Law 49; See Pauwelyn (n 60).

[70] WTO, *Taxes and charges for environmental purposes—border tax adjustment: Note by the Secretariat* (1997), at 8.

[71] ibid 7.

[72] See Pirlot (n 2).

[73] See WTO (n 70) 18.

[74] Paul-Erik Veel, 'Carbon Tariffs and the WTO: An Evaluation of Feasible Policies' (2009) 12 Journal of International Economic Law 749, 772.

[75] Kateryna Holzer and Nashina Shariff, 'The Inclusion of Border Carbon Adjustments in Preferential Trade Agreements: Policy Implications' (2012) 3 Carbon & Climate Law Review 6 246, 65.

[76] See Pauwelyn (n 60).

[77] See Cosbey and others (n 1) 8.

[78] For example, US–Gasoline panel recognized that GATT art XXb) could apply to measure aiming to limit air pollution (Gabrielle Marceau, 'The Interface Between the Trade Rules and Climate Change Actions' in *Legal Issues on Climate Change and International Trade Law* (2016) Edited by Deok-Young Park, Switzerland: Springer, 3–39; See Pirlot (n 2)).

in terms of environmental purpose rather than economic protection. Thus, some scholars have highlighted the risk that a panel would find that BCAs are more a 'compensatory mechanism' that aims to address competitiveness issues than an environmental measure, which Article XX would not justify.[79]

General Agreement on Trade in Services provisions

The WTO's General Agreement on Trade in Services (GATS) provisions would be relevant if a BCA targets services sectors. In principle, the GATS could offer more flexibility to states than the GATT since WTO members had the option to include exemptions to Article II (Most Favored Nation Treatment) and make specific commitments with respect to the national treatment obligation. The GATS also contains general exceptions (Article XIV) but adds a specific element relevant in the context of BCA, as noted by Alice Pirlot:

> […] GATS Article XIV […] provides an exception to GATS MFN principle in the hypothesis where a measure leads to a differentiated treatment, which is 'the result of an agreement on the avoidance of double taxation or provisions on the avoidance of double taxation in any other international agreement or arrangement by which the member is bound.[80]

This element is specific to the GATS and has no equivalence in the GATT. According to Pirlot, this could mean that a WTO member who wishes to apply an import BCA only on countries that have not yet adopted a carbon pricing mechanism, GATT Article I would prevent it. However, the GATS could offer more flexibility because of this addition to the General Exceptions.[81]

Assessment of the criteria of legality

The criteria of legality defined by Fuller are as follows: generality of rules (1), promulgation (2), limiting cases of retroactivity (3), clarity (4), avoidance of contradiction (5), not asking the impossible (6), constancy over time (7), and congruence of official action with underlying rules (8). Given the debate presented earlier, it seems possible to conclude that the current WTO rules respect some of the criteria of legality, but not all of them.

Based on the legal literature analysed above, no issue was raised regarding the generality of rules (1), as WTO rules are applied broadly to WTO members. In addition, WTO rules do not apply retroactively (3). Most scholars have also considered WTO rules generally constant over time (7). Even if there have been changes in interpretation through case law, these changes have remained limited. Finally, it is possible to argue that there is a congruence of official action with underlying rules in the case of WTO rules since no official violation has been demonstrated (8). Thus, it is considered for these criteria to be met.

However, one of the challenges in applying the criteria of legality is the lack of clarity in WTO rules related to BCA (4). The fact that many scholars and WTO members expressed this specific concern (as also shown in the DNA earlier) is problematic. In addition, because the WTO and its members failed to specify the legal framework applicable to these types of taxes (as the experience of the 1970 Report by the Working Party on Border Tax Adjustments and the WTO–UNEP Trade and Climate Change Report show), it is possible to argue that the criterion of promulgation is not met (2). After conducting a doctrinal analysis on BCA compatibility, Charnovitz concluded that 'the current WTO law is ambiguous' and, in his view, 'WTO law should not be inscrutable'.[82] Moreover, as presented in more detail earlier, some WTO rules

[79] See Kruse (n 68).
[80] See Pirlot (n 1) 245.
[81] ibid.
[82] Steve Charnovitz, 'Border Tax Equalization' in *The World Trade System: Trends and Challenges* (2016) Edited by Jagdish N. Bhagwati, The MIT Press, Cambridge, Massachusetts 25–53, 45.

could appear contradictory in their application to BCA (5). Given the current legal and political context, the criterion of not asking the impossible (6) might also be hard to respect. As explained earlier, states that wish to apply carbon pricing policy have to face a variety of internal and external tensions. On the one hand, they may want to tax greenhouse gas emissions of every product on their territory, not just domestic products, but on the other hand, taxing imported products based on their greenhouse gas emissions might be challenging with current WTO rules. In addition, GATT Article I requires not to discriminate among imported products, but the Common but differentiated responsibilities principle from the United Nations Framework Convention on Climate Change (UNFCCC) could require otherwise.[83] States might also find that an ETS better fits their needs, but WTO rules might be more suitable to address taxation policies. These internal and external tensions in implementing domestic climate policy could be seen as 'asking the impossible' from governments.

In light of this evaluation of the criteria of legality, it can be concluded that the current legal framework governing BCA is inadequate due to ongoing legal ambiguities and internal/external conflicts. Based on the interactional international law framework, this situation could reflect a decline in the legitimacy of WTO rules applied to carbon pricing policies. Because the criteria of legality are not adequately met, this would suggest that prohibiting BCA would not be legal, as defined by Lon Fuller. This lack of legality of WTO rules in relation to BCA could explain the evolution of shared understandings despite the absence of significant changes to the WTO rules.

C. Practice of legality

The third element that impacts the evolution of international law is the **practice of legality**. As mentioned by Brunnée and Toope, 'interactional law only emerges when shared understandings become fused with a "practice of legality", rooted in Fuller's eight criteria'.[84] Thus, the practice of legality is, to some extent, the application of shared understandings. The practice of legality is assessed by looking for policy tools that share similarities with BCAs.

In 2008, the EU attempted to implement a policy similar to an import BCA on the aviation sector, as discussed in the first section. It is important to note that international trade rules for the aviation sector are not the same as the ones applied to other services or goods.[85] Still, according to some scholars, the application of the EU ETS to international flights was similar to a BCA.[86] However, this directive raised concerns when discussed in 2008. Led by a group of developing countries, more than 20 states opposed the EU directive.[87] A legal action was filed against the EU based on its obligations to the international civil aviation framework.[88] The EU then changed its regulation in 2012 to cover only flights within the European Economic Area, arguing that it would allow to 'support the development of a global measure by the International Civil Aviation Organization'.[89] The example of the failed aviation directive could suggest that shared understandings regarding the application of BCA on imports were insufficient to uphold a practice of legality between 2008 and 2012.

[83] Sarah Davidson Ladly, 'Border carbon adjustments, WTO-law and the principle of common but differentiated responsibilities' (2012) 12 International Environmental Agreements: Politics, Law and Economics 63.

[84] See Brunnée and Toope (n 31) 86.

[85] The aviation sector is a specific area and, in the WTO framework, is mostly covered by *The Agreement on Trade in Civil Aircraft*—a plurilateral WTO agreement that mostly concerns tariffs on the imports and exports of aircraft—and the Annex on Air Transport Services to the GATS. See: <https://www.wto.org/english/tratop_e/civair_e/civair_e.htm> accessed 12 October 2023. It remains unclear whether taxes apply to airline companies would be covered by any of the WTO provisions (Meltzer 2012; Bartels 2012 and Silversmith 2013). However, the civil aviation sector is also ruled by the International Civil Aviation Organization (ICAO) which includes the Chicago Convention (1944). This part of international law is outside of the scope of this research.

[86] See Bartels (n 16); See Pirlot (n 1) 79.

[87] See Wu and Salzman (n 15).

[88] See Bartels (n 16).

[89] See European Commission (n 17).

While BCAs on imports have not yet been fully implemented, provisions similar to BCAs on exports are included in different carbon-pricing policies. Indeed, many states that apply a carbon-pricing mechanism also provide some sort of exemption for their exported domestic products.[90] For example, Argentina's carbon tax exempts the use of 'fossil fuels in certain sectors and/or for certain purposes' for competitiveness matters.[91] Most ETS provide free allowances for specific sectors, which can sometimes even account for the majority of shares of the allowances emitted. One rare example of ETS that does not provide for free allowances is the Regional Greenhouse Gas Initiative introduced in 2009 in Connecticut, Delaware, Maine, Massachusetts, Maryland, New Hampshire, New Jersey, New York, Rhode Island, and Vermont.[92] While some of these free allowances are for products that are not exported, one of the main reasons for providing free allowances is to address competitiveness and carbon leakage concerns for emissions-intensive and trade-exposed industries (EITE).[93]

For example, since 2013, the EU has established a 'list of sectors and sub-sectors considered to be at a significant risk of carbon leakage',[94] which have access to free allowances of carbon emission credit.[95] Quebec government, which is part of the *Western Climate Initiative's (WCI) carbon market*, also provides free allowances for 'industrial emitters exposed to national or international competition […] in order to prevent […] "carbon leakage"'.[96] The same mechanism applies in California, where 'industrial facilities receive free allowances to minimize carbon leakage. For nearly all industrial facilities, the amount is determined by […] an assistance factor based on assessment of leakage risk'.[97] New Zealand ETS also provides free allowances only for EITE activities. It specifies that 'an activity is deemed to be trade-exposed if there is transoceanic trade in the good produced'.[98]

This section highlighted that a practice of legality appeared regarding the application of free emissions allowance in ETS. It is worth noting that none of these policies have been challenged in the WTO to date. In addition, upon reviewing the minutes of the WTO's CTE, no objections from members regarding these policies have been found. This is puzzling given that, as explained above, there is uncertainty that these types of measures would be WTO-compliant.[99] This silence and *laisser faire* could signal a tacit acceptance of this practice, which, in the interactional international law framework, can translate into a practice of legality.[100] As for BCA on imports, the only measure applied broadly in place is the new EU CBAM, which has not been fully implemented. Thus, the official reactions of WTO members to the EU CBAM in the coming years will be of great interest.

CONCLUSION

Based on a DNA and an analysis of the legal literature, this paper argues that shared understandings of BCA compatibility with the WTO evolved. While the compatibility of BCA with

[90] See Cendra (n 57); GE Metcalf and D Weisbach (n 57); See Holzer (n 57); Maruyama (n 57); Cosbey and others (n 1).
[91] World Bank, 'Carbon Pricing Dashboard' (2023) <https://carbonpricingdashboard.worldbank.org/map_data> accessed 12 July 2023.
[92] See OECD (n 11) Effective Carbon Rates 2023.
[93] ibid
[94] European Commission, 'EU Emissions Trading System (EU ETS)' (2023) <https://ec.europa.eu/clima/eu-action/eu-emissions-trading-system-eu-ets_en> accessed 16 November 2021.
[95] See Cosbey and others (n 1) 12.
[96] See, for example <https://www.environnement.gouv.qc.ca/changements/carbone/documents-spede/in-brief.pdf> accessed 13 October 2023.
[97] International Carbon Action Partnership, *USA—California Cap-and-Trade Program* (2023) <https://icapcarbonaction.com/en/ets/usa-california-cap-and-trade-program> accessed 11 December 2023.
[98] International Carbon Action Partnership, *New Zealand Emissions Trading Scheme* (2022) <https://icapcarbonaction.com/system/files/ets_pdfs/icap-etsmap-factsheet-48.pdf> accessed 11 December 2023.
[99] See Cosbey and others (n 1) 4; Cendra (n 57) 136–38.
[100] See Marceau, Walker, and Koumadoraki (n 53).

WTO provisions was controversial before 2012 among academics and WTO members, a new scholarship has expressed clear support for the compliance of that policy tool (see Fig. 4).

Building on the interactional international law framework, this paper offers a new understanding of reasons that can explain the evolution of international trade law. It showed that WTO rules applied to BCA failed to sustain a sense of commitment and adherence. Indeed, a review of the legal literature reveals lacunas in the WTO rules applicable to BCAs. This is mostly due to their lack of clarity and the internal and external tensions of the WTO provisions that appear to be asking the impossible from states. Thus, some criteria of legality were not met to justify the non-compatibility of BCAs. This lack of legality and clarity of WTO provisions might have prompted an evolution in the shared understandings among legal scholars. In parallel, states have been applying policies similar to BCAs to protect their energy-intensive and exposed-to-trade industries for many years without facing challenges. This could suggest a certain form of practice of legality towards these policies, which could reinforce the shared understanding that BCAs are both legitimate and WTO-compatible. Nevertheless, it seems unlikely that the only element explaining this change in perception in the legal literature came from recent WTO case law, since most of the case law cited by the legal literature has been adopted before 2012.

However, this paper cannot pretend to have presented every aspect of the debate about BCA compliance with the WTO. It is likely that relevant literature published in languages other than the WTO officials' languages would have added to this analysis. Furthermore, this analysis only presented the 'official' WTO debates, ie those written, published, and publicly available. In addition, this paper focused on the discussion in the WTO forum, while there has also been important discussions happening in other international forums that could have impacted the debate on BCA. Still, looking at all the minutes of the WTO Committee on Trade and Environment provided a good understanding of the ideas, tensions, and trends that appeared in the debate regarding BCA-type of measures since 1995.

By providing a sense of how norms can evolve without formal amendments, the interactional international law framework offers an explanation for the renewed interest in BCA. It can explain why the EU Directorate General for Trade changed its perception of BCA compatibility with the WTO provisions since 2006 and why other states are now considering this policy. Yet, the debate about BCA compliance is especially complex and may not be fully illustrative of other policies. BCA-type of measures can take different forms, they involve different WTO provisions from different WTO agreements and can be technically complex to implement and apprehend. While this research shows an emerging consensus that BCA on imports could be both legitimate and compliant with WTO provisions, the 'devil will be in the details'[101] when it comes to drafting a WTO-compliant policy.

BCA also involves norms and rules from the international climate regime. For example, the application of the most-favored-nation treatment could go against the common but differentiated responsibilities principle. Further research could apply the interactional international law framework to other environmental debates in the WTO to better understand its application in the trade regime and the impact of the interaction with other international regimes on the evolution of norms.

This paper sheds light on a promising methodological tool to analyse international law. By offering software that helps to analyse and code textual sources in a systematic manner, discourse network analysis is of interest to lawyers and interdisciplinary scholars looking to track legal evolution and trends. Moreover, this research showed how discourse network analysis can be applied to study legal and policy developments before they officially happen.

[101] Kasturi Das, 'Can Border Carbon Adjustments Be WTO-Legal' (2011) 8 Manchester Journal of International Economic Law at 65, 97; Pauwelyn (n 60) 506.

ANNEX

Annex 1 List of Claims coded

Theme: General climate–trade relations
- Climate measures should not restrict trade
- Unilateral trade-related measures for the environment are acceptable
- Unilateral trade-related measures for the environment are compliant
- Trade and environment can be inconsistent

Theme: Relations to multilateral environmental agreements (MEA)
- Trade measures can be applied for enviro/implement MEA.
- Trade law needs to be reconciled with environmental law
- CBDP is important to apply

Theme: Clarity of WTO rules
- WTO rules on BCA are unclear
- BCA rules should be clarified
- Article XX should be modified
- WTO law should be interpreted in complementary bodies of international law

Theme: BCA WTO compliance
- BCA would likely be WTO-compliant
- BCA on imports would likely be WTO-compliant
- BCA on exports would likely be WTO-compliant
- WTO-compliant BCAs are hard to draft
- PPM-based measures are likely compliant
- Unilateral trade-related measures for the environment are compliant
- ASCM could limit environmental practice

Theme: Legitimacy
- BCA could be justified
- BCA would impact developing countries
- BCAs are use useful for environment
- Carbon-pricing hurts developing countries
- Environmental domestic standards should not be imposed on other states
- PPM-related criteria are needed
- Energy and product prices need to reflect the environmental cost

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