Proceedings of the 3rd International Conference on Management Research and Economic Development
DOI: 10.54254/2754-1169/177/2025.22479

Analysis of the WTO Compliance of the European Union's Carbon Border Adjustment Mechanism

Lingyi Lin

Law School, Fujian University of Technology, Fuzhou, China
Sebrinagran@outlook.com

Abstract: The European Union's Carbon Border Adjustment Mechanism (CBAM), as the world's first cross-border carbon tariff regime, aims to balance climate policies and international trade rules through carbon cost equalization. However, its unilateral nature has sparked significant controversy regarding its compatibility with the WTO's multilateral framework. This article focuses on the potential conflicts between CBAM and WTO rules, highlighting that its differentiated carbon pricing mechanism may violate non-discrimination principles, its transitional policies implicitly favor domestic industries, and its stringent data requirements create technical barriers for developing countries. The controversy surrounding CBAM fundamentally reflects the inherent tension between global climate governance and the existing trade system: while unilateral measures might temporarily mitigate carbon leakage risks, they risk exacerbating trade protectionism and undermining multilateral cooperation. To address these challenges, this study proposes a multilateral approach centered on harmonizing international standards, fostering technical capacity-building, and reforming WTO rules. It advocates for inclusive institutional design to reconcile environmental objectives with trade equity, thereby offering a governance framework that balances efficiency and fairness for global low-carbon transitions.

Keywords: European Union's Carbon Border Adjustment Mechanism (CBAM), WTO Compliance, Technical Barriers to Trade (TBT), Climate Governance

1. Introduction

The European Union's Carbon Border Adjustment Mechanism (CBAM), as the world's first cross-border carbon tariff system, seeks to balance climate policy and international trade rules through carbon cost equalization [1]. However, its unilateral nature has sparked widespread debate regarding its compatibility with the WTO's multilateral framework. This article focuses on the potential conflicts between CBAM and WTO rules, revealing that its differentiated carbon pricing mechanism may violate the principle of non-discrimination, its transitional policies implicitly support domestic industries through disguised means, and its stringent data requirements create technical barriers for developing countries. The article argues that the controversy over CBAM fundamentally stems from the deep-seated contradiction between global climate governance and the existing trade system: while unilateral measures may temporarily mitigate carbon leakage risks, they risk exacerbating trade protectionism and undermining the foundation of multilateral cooperation [2]. To address this, the article proposes a multilateral pathway centered on harmonizing international standards, jointly build technical capacities, and reforming WTO rules. It advocates for inclusive institutional design to

DOI: 10.54254/2754-1169/177/2025.22479

reconcile conflicts between environmental objectives and trade fairness, thereby providing a governance solution that balances efficiency and justice for global low-carbon transitions.

2. The potential conflicts between CBAM and the WTO framework

2.1. The conflict between CBAM and the WTO non-discrimination principle

2.1.1. Most-Favored-Nation Treatment (GATT Article 1)

Under the WTO's Most-Favored-Nation (MFN) principle (GATT Article 1), members must ensure equal tariff and trade conditions for "like products" originating from different countries. CBAM's differentiated tariffs, based on the carbon intensity of imported products or the carbon pricing policies of their producing countries, may violate the principle of "equal treatment for like products" [3]. First, CBAM's carbon tariff imposition criteria depend on the disparity between an exporting country's carbon pricing system and the EU's, leading to varying tariff rates for identical products based on the carbon policies of their origin countries. For instance, if steel products from two countries face different tariffs due to differences in carbon emissions, this could be deemed discriminatory treatment. WTO jurisprudence (e.g., the US – Gasoline case) indicates that distinguishing between like products based on production process differences—such as carbon emission standards—is highly contentious. Second, CBAM unilaterally determines the "equivalence" of third-party carbon pricing mechanisms, with evaluation criteria lacking multilateral consensus. This risks allegations of subjective selectivity, creating de facto trade discrimination. For example, the EU may prioritize recognition of carbon markets in developed countries over developing nations' self-designed mitigation mechanisms, exacerbating "institutional inequity." Furthermore, developing countries, due to insufficient carbon accounting capabilities, may face default application of EU carbon prices to their exports, imposing additional burdens and contravening the WTO's spirit of Special and Differential Treatment (S&D) for developing countries.

2.1.2. National Treatment (GATT Article 3)

The National Treatment principle (GATT Article 3) requires imported goods to receive the same treatment as domestic products in terms of internal taxes and regulatory measures. However, CBAM's implementation may impose higher compliance costs on imports, disrupting this equilibrium [4]. On one hand, EU domestic industries retain free carbon emission allowances (during the transitional phase until 2034), while importers must fully pay carbon tariffs. This creates cost disparities for like products based on origin. For example, EU steel producers can offset carbon costs through free allowances, whereas imported steel must pay CBAM fees based on actual emissions, resulting in a reverse "super-national treatment" against imports. On the other hand, CBAM's carbon accounting scope—covering direct and partial indirect emissions—asymmetrically diverges from the emission reporting standards applicable to EU firms. Imported goods must provide full lifecycle carbon emission data, while EU companies only report production-phase emissions, disproportionately increasing importers' burden of proof and raising market access barriers. Additionally, CBAM's default calculation rules (e.g., applying EU carbon price benchmarks to countries with incomplete data) may systematically overestimate the carbon costs of exports from developing countries, constituting covert discrimination against imported products [5]. Such discriminatory regulatory design fundamentally violates the National Treatment principle's core tenet: "not imposing stricter obligations on imports than domestic products."

DOI: 10.54254/2754-1169/177/2025.22479

2.2. Conflict Between CBAM and the Subsidies and Countervailing Measures Agreement (SCM Agreement)

The conflict between the EU Carbon Border Adjustment Mechanism (CBAM) and the WTO's Agreement on Subsidies and Countervailing Measures (SCM Agreement centers on its potential distortion of fair international competition through implicit subsidies. Under the SCM Agreement, determining the existence of a subsidy requires two legal elements: (1) whether a financial contribution exists and (2) whether a benefit is conferred [6]. CBAM's phase-out of free allowances and carbon cost accounting rules may indirectly constitute disguised support for EU domestic industries. On one hand, during the transitional period, EU industries continue to receive free carbon emission allowances, which are equivalent to government-granted emission permits with significant economic value. These allowances reduce compliance costs for domestic firms, while imported goods must fully bear carbon tariffs, creating competitive imbalances between like products based on origin. This aligns with the SCM Agreement's definition of subsidies as “financial contributions conferring benefits to specific enterprises.” If third countries demonstrate that free allowances are limited to specific sectors (e.g., steel, cement) and cause “serious prejudice” to imports, they may invoke countervailing measures. On the other hand, CBAM's carbon cost calculation methodology—such as mandating the use of EU carbon price benchmarks for countries with incomplete data—may systematically overestimate the embedded carbon costs of imports. Meanwhile, EU industries benefit from lower actual costs through free allowances and carbon leakage protections. This disparity reinforces domestic industries' cost advantages, constituting de facto “specific subsidies.” Although the EU claims CBAM aims to address carbon leakage rather than provide subsidies, its policy effects objectively create indirect protection for domestic industries. This contravenes the SCM Agreement's prohibition on public measures that confer trade advantages, potentially triggering international disputes and challenging the interpretive boundaries of the multilateral rule-based system [7].

2.3. Conflict Between CBAM and the Technical Barriers to Trade Agreement (TBT Agreement)

The clash between CBAM and the Technical Barriers to Trade (TBT) Agreement lies in the “necessity” and “non-discrimination” thresholds of its carbon accounting rules and data requirements [8]. Under TBT Article 2.2, technical trade measures must be limited to achieving legitimate objectives (e.g., environmental protection) and avoid unnecessary obstacles to trade. However, CBAM's mandate for importers to provide full lifecycle carbon emission data (particularly embedded emissions) and its use of EU default values for countries lacking verifiable data may exceed “necessary” limits. First, developing countries, due to inadequate carbon monitoring capacities, struggle to meet complex data traceability requirements and are forced to bear higher carbon costs, effectively constituting disguised discrimination against technologically disadvantaged nations. Second, CBAM's unilaterally defined carbon accounting standards (e.g., emission boundary scoping, emission factor selection) lack alignment with internationally recognized methodologies (e.g., ISO 14067) and fail to acknowledge the equivalence of exporting countries' own carbon measurement systems, violating TBT Article 2.4's obligation to “base measures on international standards.” Additionally, CBAM imposes asymmetric carbon disclosure obligations on EU firms and importers. For instance, domestic companies need only report direct production-phase emissions, while imported goods must account for indirect emissions (e.g., electricity consumption). This double standard contravenes TBT Article 2.1's National Treatment principle, which prohibits subjecting imports to less favorable treatment than like domestic products. Although the EU asserts that carbon data requirements are necessary for climate goals, CBAM's design inadequately considers developing countries' implementation capacities and

DOI: 10.54254/2754-1169/177/2025.22479

fails to promote mutual recognition of carbon accounting rules through international cooperation. Consequently, CBAM risks becoming a technical barrier with restrictive trade effects in practice.

3. Recommendations for CBAM-Related Systems Under Global Carbon Emission Regulation

3.1. Necessity and Challenges of Carbon Emission Regulation

Global climate governance is accelerating its transition toward a "carbon-constrained" paradigm, necessitating progressive strengthening of carbon pricing and border adjustment measures to address carbon leakage risks. As a pioneer, the EU CBAM bridges the gap between unilateral climate policies and international trade rules by integrating imported goods into carbon cost accounting systems. Its benefits are twofold: (1) compelling high-carbon industries to upgrade and driving the decarbonization of global supply chains, and (2) alleviating competitive disadvantages for EU industries through "carbon cost equalization" to prevent production relocation. However, unilateral carbon tariffs risk triggering trade conflicts, highlighting the absence of multilateral coordination [9]. Moving forward, the Paris Agreement should serve as the foundation for reforming WTO rules to establish a multilateral trade system compatible with carbon pricing. Measures such as mutual recognition of international carbon accounting standards and differentiated transitional arrangements could balance environmental goals with developmental equity, avoiding green barriers that fragment global markets [10].

3.2. Recommendations

To enhance CBAM's alignment with WTO rules, this study proposes the following measures:

First, harmonize international carbon accounting standards by developing lifecycle emission measurement guidelines through organizations like ISO, reducing compliance costs for developing countries [9]. Second, establish a multilateral carbon pricing dialogue platform under the WTO to negotiate rules for recognizing the "equivalence" of carbon tariffs, preventing discriminatory unilateral decisions. Third, provide technical and financial assistance to developing nations to strengthen carbon monitoring capacities, operationalizing the principle of "Common but Differentiated Responsibilities (CBDR)." Fourth, reform WTO subsidy and National Treatment provisions to clarify the legal boundaries of carbon cost adjustment measures, incorporating climate exceptions into dispute settlement mechanisms. Through multilateral cooperation, climate justice and trade fairness can be synergistically achieved.

4. Conclusion

The EU CBAM, as the world's first cross-border carbon tariff mechanism, aims to address the issue of carbon leakage and maintain the effectiveness of climate policies; however, its unilateral design faces multiple challenges regarding compatibility with WTO rules. This article analyzes the potential compliance risks of CBAM from three aspects: the principle of non-discrimination, subsidy rules, and technical barriers. Firstly, the differentiated tax rates based on the carbon policies of producing countries may violate the principles of most-favored-nation and national treatment under GATT, particularly creating a cost gap between domestic and foreign enterprises during the transition period of free quotas. Secondly, the exit mechanism for free quotas under CBAM may constitute implicit subsidies under the SCM Agreement, distorting market competition. Lastly, its carbon accounting standards and data requirements exceed the necessity limits of the TBT Agreement, resulting in technical discrimination against developing countries.

DOI: 10.54254/2754-1169/177/2025.22479

In fact, the controversial nature of CBAM reflects the deep-seated contradictions between global climate governance and the multilateral trading system. The current WTO rules were born in the era of "decarbonization" and struggle to adapt to new trade measures under carbon neutrality goals. Adhering to traditional rules may hinder climate action, while allowing unilateral measures could exacerbate trade protectionism. Therefore, it is urgent to construct an inclusive multilateral framework: on one hand, clarify the exceptions for carbon tariffs through WTO reform, such as detailing "necessity" and "non-discrimination" standards in Article 20 of GATT (environmental exceptions); on the other hand, strengthen international climate cooperation to promote the synergy between carbon pricing mechanisms and trade rules, such as establishing a global carbon market linkage mechanism or a regional carbon tariff alliance.

For developing countries, CBAM presents both challenges and opportunities. They need to secure policy space through capacity building and international negotiations, such as requesting the EU to recognize the equivalence of autonomous emission reduction mechanisms or striving for an extended transition period. In the long run, only by embedding climate objectives within the multilateral trading system can a balance between environmental and economic benefits be achieved. Future research may further explore the distribution of carbon tariff revenues, dispute resolution cases related to carbon border measures, and the application of digital technology in carbon accounting, providing more operational solutions for global climate governance.

References

[1] *Mou W.(2014)The Analysis of Carbon Tariff Propositions and Their International Governance Model, Chinese Journal of Population Resources and Environment,24(04),6-10.*

[2] *Shengxiang W.(2024)Response of the EU Carbon Border Adjustment Mechanism from the Perspective of Climate Governance and Coordination of International Trade, Journal of Shanghai University (Social Science Edition), 41(05),98-112.*

[3] *Quan Y.(2024), The EU Carbon Border Adjustment Mechanism: Legitimacy Disputes and China's Response, Social Sciences in Nanjing, 12,109-122.*

[4] *Yong L.(2023).Conflicts and Coordination between Climate Governance and Trade Regulation — Reflections Triggered by the Carbon Border Adjustment Mechanism, Studies In Law and Business, 40(02),46-59.*

[5] *Junjie W.(2025)Climate Governance and Trade Freedom: The Legitimacy Debate of the EU Carbon Border Adjustment Mechanism and China's Response, Contemporary Law Review, 2025,39(01),136-148.*

[6] *Xingwen Z.(2022)Identification of Specific Subsidy—Taking the Australian Bar-ley Case as an Example.Dispute Settlement, 8(2), 267-273.*

[7] *Yong L.(2016)The legal nature of the government's free allocation of carbon emission quotas and China's countermeasures - An analysis based on the components of subsidies in the Agreement on Subsidies and Countervailing Measures, Studies In Law and Business,33(02):172-182.*

[8] *Xiaoxu W.(2023)The Legitimacy of the EU Carbon Border Adjustment Mechanism and Research on China's Response, North China Electric Power University, 2023.*

[9] *Shuyuan K.(2023)The Legitimacy of the EU Carbon Border Adjustment Mechanism from the WTO Perspective, Shanghai University of Finance and Economics, 2023.*

[10] *Hui C.(2021)Legitimacy disputes and their implications, Chinese Journal of European Studies,39(06),75-94+7.*