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Understanding and assessing CBAM: vulnerability and impacts in the EU

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Disclaimer

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Abstract

The European Union (EU) has made significant progress in reducing CO₂ emissions in recent decades, partly due to the implementation of the EU Emissions Trading System (EU ETS). However, the decline in emissions has not been matched by an equally substantial reduction in the continent's carbon footprint. In addition, some European companies, in order not to be subject to EU climate regulation, could have relocated production abroad, thus confirming the risk of the so-called carbon leakage.

To remedy this problem, the EU has proposed a Carbon Border Adjustment Mechanism (CBAM), through which a carbon quasi-tariff, determined based on the embodied emissions of the good and priced according to EU ETS criteria, would be imposed on imports of non-EU products from specific sectors. The measure, scheduled to enter into force in 2026, is expected to be compatible with WTO regulation. It should limit carbon leakage effectively, indirectly support European competitiveness, and stimulate other jurisdictions to implement their own carbon markets. At the same time, it poses some critical issues regarding adherence to the Common But Differentiated Responsibilities and Respective Capabilities (CBDR-RC) principle.

Also, it has a possible negative socio-economic impact on vulnerable countries inside and outside the EU. At the European level, the 2021 European Commission's impact assessment and subsequent CBAM-covered goods trade data do not show a relevant CBAM negative effect on the European economy. However, the mechanism may hit the Mediterranean Member States and some in Eastern Europe the hardest. Considering this, the new Commission proposed to amend the CBAM with some revisions during the European Clean Industrial Deal presentation in February 2025. The revisions aim to support the European small, medium and large enterprises most exposed to CBAM, with the hope that this will not translate into a reduction in continental climate ambitions..

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1. Introduction

The European Union's Carbon Border Adjustment Mechanism (CBAM) aims to prevent carbon leakage by adjusting the costs of certain imports according to their carbon intensity. This approach ensures that the EU's climate policies, such as those outlined in the Green Deal, are not compromised by more carbon-intensive production outside of Europe.

This mechanism became operational on October 1, 2023, with a transitional phase lasting until January 31, 2024. In practice, CBAM levies a carbon tax on imports from six sectors (iron and steel, aluminium, cement, fertilisers, electricity and hydrogen) based on their embedded carbon emissions. It aims to avoid the risk of carbon leakage by ensuring that specific imported goods meet emissions standards similar to those produced within the EU. The decision to focus on these sectors was prompted by the observation that leakage is more common in energy-intensive (EITE) businesses due to their low innovation level, as well as their limited capacity to pass on environmental costs to customers.

Starting on January 1, 2026, the permanent system will require annual declarations of imported goods and their embedded emissions, with corresponding CBAM certificates priced based on EU ETS allowances. The CBAM will coincide with the gradual phasing-out of free allocation under the EU ETS from 2026 to 2034. A review during the transitional phase will precede the definitive system's entry into force, and the scope may expand to include additional sectors by 2030 (EC, 2025a).

The mechanism may be effective, but it has broader implications for EU climate policies and industrial sectors. CBAM, which has relevant international and geopolitical implications, also implies EU domestic impacts. On one hand, by imposing carbon costs on imports from countries with lax environmental regulations, CBAM might foster sustainable development and attract investments in low-carbon technologies in Europe, aligning with the EU's climate goals. On the other hand, the mechanism might increase import costs, affecting the competitiveness of carbon-intensive sectors, such as steel and cement. It may also strain trade relationships with non-EU countries, conflicting with the But Differentiated Responsibilities and Respective Capabilities (CBDR-RC) principle.

Furthermore, although compatible with international trade rules, the EU's border mechanism could impact middle- and low-income countries for which the EU is an important export market (Beaufils et al., 2023).

This working paper analyses the functioning of CBAM, its pros and cons, and the current state in light of the proposed revisions, with particular attention to the potential impact of this mechanism on the economies of European countries.

Section 2 explores the issue of carbon leakage in Europe and evaluates the role of CBAM as a potential solution. Section 3 delves into the technical aspects, exploring CBAM design and implementation phases, while Section 4 presents its potential benefits and challenges. Section 5 assesses the anticipated impacts of CBAM in Europe, looking at its effects on the EU's trade and its broader socio-economic consequences. Section 6 discusses the policy implications of CBAM, offering recommendations for potential revisions and future considerations in addressing carbon leakage and promoting climate ambitions. Section 7 is the conclusive part of the working paper.

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