

Carbon Border Mechanism Adjustment (CBAM): a new carbon-related regulation with geopolitical implications

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Geopolitics for Business
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Index

INTRODUCTION.....	3
EXECUTIVE SUMMARY	3
BACKGROUND.....	3
CBAM GLOBAL EFFECTS.....	5
CBAM IMPACT ON EXPORTS	6
CASE STUDIES.....	7
China.....	7
<i>European Union and China</i>	8
<i>Geopolitical Concerns</i>	9
<i>China’s responses and potential repercussions</i>	10
Mozambique.....	11
<i>Mozambique’s Economy and Trade Analysis</i>	11
<i>Exposure to EU27</i>	12
<i>Fairness Concerns for Developing Countries</i>	13
Conclusion.....	14

INTRODUCTION

EXECUTIVE SUMMARY

In the evolving landscape of global climate policy, the European Union's Carbon Border Adjustment Mechanism (CBAM) marks a critical step towards aligning economic activities with environmental objectives. This report explores the geopolitical implications of CBAM, a pioneering effort under the European Green Deal aimed at reducing carbon leakage and promoting sustainable trade practices. By imposing a carbon tax on imports of certain goods from outside the EU, CBAM seeks to level the playing field between European producers and their global counterparts, who may not be subject to equivalent environmental regulations.

The mechanism is part of the EU's broader strategy to become the world's first climate-neutral continent by 2050, and it represents a significant shift in international trade dynamics. The report delves into the disparate impacts of CBAM on different global economies, with a specific focus on the contrasting situations of China and Mozambique. China, with its robust economy and significant global trading presence, provides a lens through which to view the mechanism's impact on developed nations. Conversely, Mozambique, with its reliance on a limited range of exports and more vulnerable economic structure, exemplifies the challenges faced by developing countries under the new regulation.

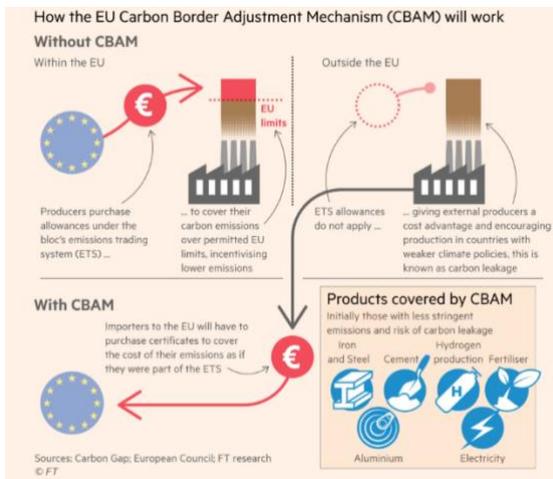
Through these case studies, the report addresses broader themes of climate justice and economic equity, highlighting the complexities and potential unintended consequences of CBAM. By integrating detailed analyses of policy frameworks, economic data, and geopolitical contexts, the document aims to provide a comprehensive understanding of how CBAM could reshape global economic and environmental landscapes. It also offers insights into the necessary policy adjustments and international collaborations required to ensure that CBAM supports global climate goals without disproportionately disadvantaging less developed nations.

BACKGROUND

The European Green Deal aims to decarbonize the EU's economy, positioning Europe as the world's first climate-neutral continent by 2050. Viewed as a long-term economic growth strategy for the Union, the deal encompasses a broad array of transformative policies, initiatives, and dimensions targeting the decarbonization of various sectors. From its initial announcement in December 2019, the European Commission has emphasized the necessity for heightened global ambitions in setting targets and political commitments to fight climate change and significantly cut global emissions. The Commission has identified carbon leakage as a potential unintended consequence of the EU's decarbonization efforts, particularly if the international commitment to emission reduction remains subdued. Carbon leakage is defined as the production shift to countries with looser emissions restrictions, triggered by rising production costs within the EU due to stringent climate policies. This shift, while reducing emissions within a specific area, could paradoxically increase global emissions.

WHAT IS CBAM?

The Commission's December 2019 communication declared the intention to introduce a Carbon Border Adjustment Mechanism (CBAM) for selected sectors to diminish the risk of carbon leakage, namely Emission Intensive Trade Exposed Industries (EITEs). Since that declaration, the CBAM has been progressively refined and established as a crucial measure to prevent carbon leakage and assist the EU in achieving its climate objectives.



Structured as a border tax, the CBAM is poised to significantly influence the economies of various nations. It is critical to assess the vulnerabilities of the EU's trade partners, especially those in developing and least developed countries, to this new policy. The potential for CBAM to produce adverse externalities for these nations also prompts discussions on climate justice. Analyzing these impacts from a political economy perspective can illuminate how these affected nations might develop policies to lessen the negative effects of CBAM on their export markets, competitiveness, and overall welfare. This perspective can also suggest ways for the EU to

enhance the design of CBAM to better support these necessary adjustments.

The Carbon Border Adjustment Mechanism (CBAM) was launched as a component of the broader "Fit for 55" initiative, which targets a 55% reduction in EU emissions by 2030 relative to 1990 levels. The primary motivation behind CBAM is to discourage EU businesses from relocating their operations to avoid high production costs driven by stringent EU climate policies, although it is also projected to help reduce EU emissions by approximately 55 million tons by 2030 compared to a baseline scenario.

Initially, the mechanism focused on five emissions-intensive trade-exposed (EITE) industries—cement, fertilizers, iron and steel, aluminum, and electricity—identified as high-risk for carbon leakage. The scope of CBAM has since expanded to include hydrogen and indirect emissions under certain conditions, which increases the complexity and pressure for countries with limited capabilities to monitor and report emissions associated with products. Looking ahead, it is likely that CBAM will broaden its coverage to additional carbon-emitting sectors. Structured similarly to the EU's Emissions Trading System (ETS), which caps emissions but permits trading of emission rights, CBAM operates on a certificate-based system.

Importers into the EU must purchase certificates correlating to the carbon emissions produced during the manufacturing of imported goods. The price of these certificates will reflect that of the ETS, ensuring compliance with World Trade Organization (WTO) regulations. After having been ratified by the European Parliament on April 18, 2023, CBAM entered a transitional phase beginning in October 2023, during which importers were required to report emissions, with the actual border taxation slated to commence in 2026. Originally conceived as a tool to mitigate the adverse effects of the EU's climate policies like the ETS and to protect EU industries by ensuring fair competition, CBAM also aims to spur EU's international partners towards stronger climate action. This aspect underscores CBAM's role not only in addressing internal EU concerns but also in fostering a global alignment with the EU's ambitious climate goals, thereby influencing international climate policies and encouraging external economic adjustments.

CBAM GLOBAL EFFECTS

Analyzing the global effects of the CBAM, a policy still in its preparatory stages, presents significant challenges due to uncertainties concerning its design and breadth. It is anticipated that the scope of CBAM will expand to include additional emissions-intensive trade-exposed (EITE) goods, which could substantially alter its impact on the EU's trading partners. Furthermore, the incorporation of indirect emissions adds another layer of complexity as their calculation implies various stakeholders. However, a comprehensive impact analysis should extend beyond just examining CBAM's effects on trade flows and the financial burdens placed on businesses. It should also delve into the domestic conditions of third countries, focusing on their long-term climate strategies, the carbon intensity of industries targeted by CBAM, and how the mechanism affects their global competitiveness.

This broader approach will provide a more nuanced understanding of CBAM's international implications and the vulnerabilities of third-world countries to this evolving policy. In light of the ongoing geopolitical tensions resulting from Russia's invasion of Ukraine, the EU's implementation of the Carbon Border Adjustment Mechanism (CBAM) requires careful consideration of its broader global impacts, particularly given the current strains in relations between Western countries and the developing world. Many developing nations have shown limited support for the West's stance against Russia, often refraining from openly condemning Vladimir Putin or joining sanctions against Moscow. This hesitance stems from perceived double standards, highlighted by contrasting the significant aid provided to Ukraine with the relatively modest support given to African nations facing similar adversities. This sentiment is underscored by comments from Paul Taylor and Youssef Travaly, senior fellows at Friends of Europe, who note the disparity in treatment and resources allocated between Ukraine and African countries. Furthermore, Comfort Ero, president of the International Crisis Group, emphasized a broader global dissatisfaction with how Western powers have exercised their influence over recent decades.

Elizabeth Sidiropoulos of the South African Institute of International Affairs also points out that Europe is often perceived as giving with one hand while taking more with the other. Given these perspectives, the implementation of CBAM should be evaluated within this delicate geopolitical context. Simply rolling out CBAM without addressing these concerns and without adjusting global climate finance frameworks could deepen existing global divisions. Therefore, it's crucial to reform CBAM to focus more on its global and developmental impacts. Such an approach would not only adhere to climate justice principles but also respond to the broader geopolitical shifts highlighted by the Ukraine conflict, urging the EU to rethink its engagement with the developing world.

Examining the negative repercussions of CBAM on third countries reveals significant shortcomings in the policy, especially when assessed against climate justice and other recognized international principles. The impacts of this policy are not evenly distributed, illustrating a clear contradiction with the EU's principle of "Do no harm." Moreover, by adversely affecting exports from developing and least developed countries (LDCs), and exacerbating their socioeconomic challenges, CBAM seems to infringe upon the right to development. Aligning CBAM with the principle of common but differentiated responsibilities, as well as the broader concept of climate justice, poses additional challenges. Historically, the countries most impacted by CBAM have contributed minimally to global warming and have benefited less from industrialization and related emissions than EU member states.

Consequently, these developing countries and LDCs are less capable than European nations of bearing the costs associated with climate change.

CBAM IMPACT ON EXPORTS

The introduction of the Carbon Border Adjustment Mechanism (CBAM) by the European Union represents a pivotal change in the landscape of international trade, particularly affecting countries that export carbon-intensive goods to the EU. This mechanism, which aims to align non-EU producers with the EU's ambitious climate policies, imposes a carbon tax on imports based on their embedded carbon emissions. The diversity in the impact of CBAM across different countries is significant, influenced by factors such as their carbon intensity and the structure of their industries.

From 2015 to 2019, the extent to which exports to the EU were covered by CBAM varied greatly among the top ten exporting countries. For example, nearly 17% of Russia's exports to the EU were subject to CBAM, compared to just 3% for the United States. Notably, countries that participate in the EU's Emissions Trading System (ETS), such as Norway and Switzerland, are exempt from

TABLE 1: THE TEN COUNTRIES WITH THE GREATEST SHARES OF CBAM EXPORTS TO THE EU, ANNUAL AVERAGE 2015–2019

Country	CBAM Exports to the EU as a Share of Total Exports to the EU
Russia	16,7%
China	10,1%
United Kingdom	8,5%
Norway	7,3%
Türkiye	6,8%
Switzerland	5,5%
Ukraine	5,2%
India	4,2%
South Korea	4,1%
United States	3,0%

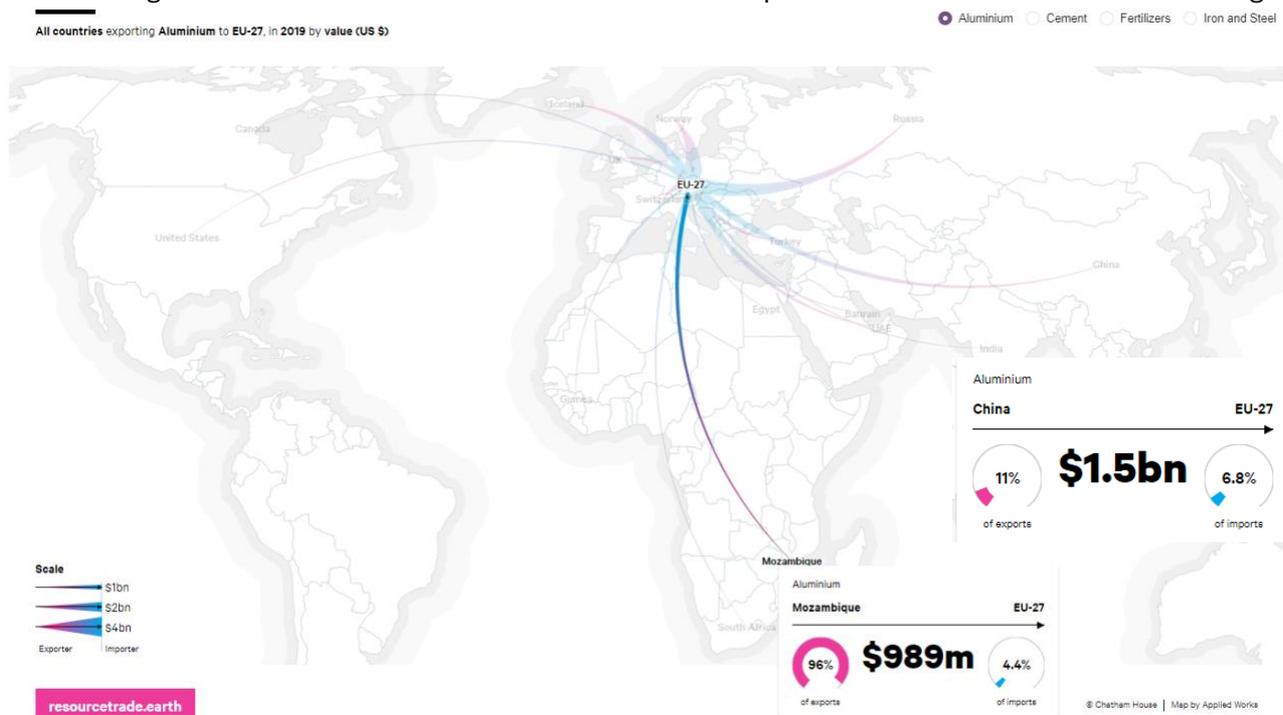
Source: Chris Kardish, Mattia Mäder, Mary Hellmich, and Maia Hall, "Which Countries Are Most Exposed to the EU's Proposed Carbon Tariffs?," resourcetrade.earth, Chatham House, August 20, 2021.

CBAM, highlighting the policy's uneven application across different regions. This exemption is crucial as it directly affects the competitive landscape by alleviating potential tax burdens for these countries' exports.

The 2022 study conducted by Indra Overland and Rahat Sabyrbekov provides further insight into this issue. It plotted the CBAM sector exports to the EU as a share of total exports against their carbon intensity for each country. The results showed that countries with the most carbon-intensive economies in 2019, such as Ukraine, Iran, Kazakhstan, Bosnia and Herzegovina, and Vietnam, were among those most affected by CBAM. Furthermore, Ukraine, Serbia, and Bahrain not only exhibited high carbon intensities but also demonstrated a high dependency on their exports to the EU, thus compounding their vulnerability under CBAM. The economic implications of these findings are profound, particularly for the steel industry, as analyzed in a 2020 study by the Boston Consulting Group. The study highlighted the stark differences in carbon footprints among steel producers, which vary based on the technologies they employ. Traditional steel-producing countries like China and Ukraine, which rely heavily on blast furnaces and basic oxygen furnaces, emit approximately 2 metric tons of CO₂ per metric ton of steel produced—twice as much as countries like India, Türkiye, and the United States, which utilize electric arc furnaces. This technological disparity places producers using older methods at a significant competitive disadvantage under CBAM.

A 2021 report by the United Nations Conference on Trade and Development (UNCTAD) further analyzed the potential trade shifts due to CBAM. The report posited that with a carbon price of \$88 per metric ton, developed countries would likely see an increase in their exports to the EU in sectors covered by CBAM, except for electricity. In contrast, developing countries, including those from regions like Russia, Serbia, Bosnia and Herzegovina, Ukraine, Central Asia, Egypt, and South Africa, would likely see a significant decline in their exports. This shift could potentially lead to economic downturns in these regions, with the UNCTAD report suggesting that Africa's exports to the EU could decrease by up to 5.7%, reducing the continent's GDP by approximately 0.91%, equivalent to a \$16 billion reduction at 2021 levels. The administrative and institutional capacities of countries to measure and report carbon emissions are also crucial factors that will influence the amount of taxes they are going to pay and therefore how CBAM impacts their competitiveness.

According to a 2021 study by the Institute for Advanced Sustainability Studies (IASS), countries with lower capabilities in these areas face significant challenges. The ability to provide accurate data on carbon emissions is not merely a technical requirement but a critical component that determines the tax burden under CBAM. Countries with poor data infrastructure and low statistical capacity may find their exports priced higher due to perceived higher emissions, regardless of the actual carbon output, exacerbating the competitive disadvantage.



CASE STUDIES

China

China is probably going to be among the nations most impacted by the CBAM because it is the biggest emitter of greenhouse gases in the world and a significant exporter of products high in carbon, such as steel, cement, and aluminum. The CBAM poses serious geopolitical issues that could have a

considerable impact on global trade cooperation and climate action, in addition to its immediate economic impact on China.

European Union and China

The carbon leakage legislation (CBAM) implemented by the EU may have a significant effect on China's exports. In fact, China is one of the EU's main allies when it comes to carbon-intensive goods: China is the biggest source of carbon emissions associated with EU import trade, as well as one of the EU's main trading partners. There has been a significant shift in the EU's commerce with China since 2022, with a greater proportion of exports than imports. EU exports to China fell by just 1.5% between January 2022 and December 2023, but EU purchases from China fell by 19%. Refer to Figure 1. Telecom equipment is the biggest traded category of products between China and the EU. In terms of steel imports, the UE's principal partner is China. The EU's implementation of CBAM starting from 2026 is anticipated to significantly impact Chinese steel and aluminum producers, according to Goldman Sachs. The steel tariff for China is estimated to start at 6% in 2026 and increase to 21% by 2032, while the levy for aluminum exporters could begin at 3% and rise to 7% by 2032. This move is part of the EU's strategy to achieve zero carbon emissions by 2050, aiming to level the playing field for carbon-intensive goods producers as free emission allowances under the EU ETS are phased out. China, facing the highest potential turnover covered by CBAM, is expected to be the most affected, with \$20.5 billion worth of carbon-intensive goods subject to CBAM in 2022. This interdependence creates a complex situation. While the CBAM may hurt Chinese exports, retaliatory measures could also harm Chinese industries reliant on EU imports.

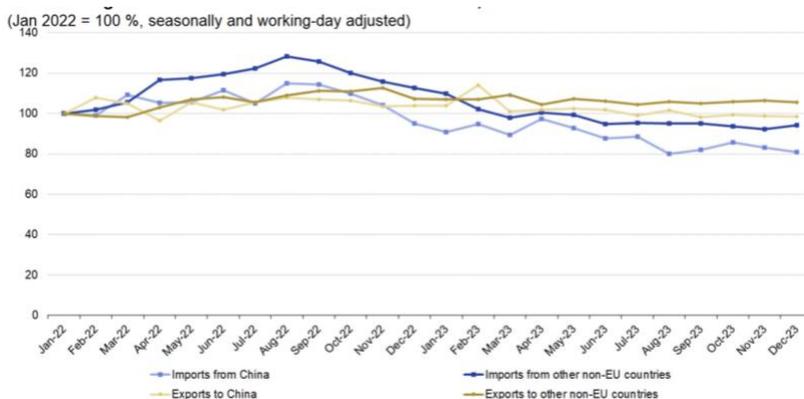


Figure 1. EU trade in goods with China and other non-EU countries, 2022-2023. Source: Eurostat

Considering the major role played by China on the EU imports, President Xi showed some reserves on the new European Green Deal. During the Leaders' summit on climate

in April 2021 (organized by Joe Biden's administration), President Xi called on developed countries to refrain from creating green trade barriers. *“Developed countries need to increase climate ambition and action. At the same time, they need to make concrete efforts to help developing countries (...) and refrain from creating green trade barriers, so as to help developing countries accelerate the transition to green and low-carbon development.”*. Among Chinese experts, the decision of CBAM is often criticized as it goes against the Paris agreements. Indeed, mitigation ambitions among countries should be decided and determined among countries themselves. (source: Adelphi Study, PolicyPaperCBAM, 2021). Furthermore, some experts in China argue that the EU's Carbon CBAM could discourage EU enterprises from funding research and development for low-carbon technologies, potentially harming

international cooperation on climate change. They believe that this approach may not effectively reduce carbon leakage and could result in only marginal global emissions reductions. On the other hand, the chair of BaoWu Steel Group's board of directors suggests that the EU's CBAM could raise standards for China's steel exports, potentially prompting Chinese companies to accelerate their efforts towards low-carbon initiatives, such as research and development of zero-carbon technologies, to bolster the global competitiveness of their products

A small number of carbon-intensive industries are the focus of the CBAM's current design, including steel, cement, aluminum, fertilizers, and energy. There are worries, though, that this narrow focus can have unforeseen effects. One way to encourage the import of scrap for reusing within the EU would be to tax completed steel products but not aluminum scrap. This might move the environmental responsibility to another place. The CBAM's effectiveness will depend on its ability to cover more industries and goods, but doing so may make implementation more difficult and cause administrative difficulties to arise. Determining the carbon footprint of imported goods accurately presents a major challenge. The establishment of a strong MRV system to guarantee equitable and transparent implementation is critical to the CBAM's efficacy. Dependence on exporting countries' self-declared carbon footprints could be manipulated, jeopardizing the CBAM's environmental integrity. Furthermore, it is difficult to make reliable comparisons because different nations have different sophisticated emissions accounting methods. The adoption of comparable carbon pricing schemes by other significant economies is a prerequisite for the CBAM's efficacy in cutting global emissions. Companies may simply transfer their manufacturing to avoid the CBAM if other nations fail to enact comparable rules, which would have a negative impact on the competitiveness of EU businesses while only yielding modest environmental gains. For instance, if the US does not enact a carbon border tax, businesses may choose to locate there to avoid the CBAM, which could result in an increase in US emissions.

Geopolitical Concerns

China and other nations may contest the legitimacy of the CBAM at the World Trade Organization (WTO) on the grounds that it resembles a type of green protectionism. China may contend that the CBAM unjustly discriminates against its exports, which might lead to a drawn-out trade dispute in the WTO and jeopardize international efforts to tackle climate change. In fact, the Chinese government is hesitant to implement this new policy, given that it violates both the WTO and the Paris Agreements. China's Ministry of Commerce spokesman He Yadong stated, "Many WTO members have doubts about the CBAM mechanism that the European Union has proposed." China asked the EU to make sure CBAM abides by its WTO commitments. In addition, trade conflicts and protectionist backlash could follow if the CBAM is thought to be unjust or detrimental to the economy. China might react by imposing countervailing duties on imports from the EU, which would heighten tensions and put the already precarious global economic recovery in jeopardy. One could argue that CBAM would lessen Chinese imports even if it was primarily designed to oppose Chinese imports, which are typically perceived as carbon-intensive and polluting. The impacts for China, one of the main aims of the CBAM, vary from "slightly negative" to "slightly positive," similar to what the EU experiences. Although China's exports of CBAM-covered products are significantly reduced due to high ad valorem duty rates, the overall effects are mitigated because non-CBAM product exports are stimulated by the depreciation of

the real exchange rate. The region of sub-Saharan Africa is most negatively affected, as high ad valorem rates on exports have a major impact on terms of trade and exacerbate the North-South divide.

Developed nations that have carbon pricing mechanisms in place might be less affected by the CBAM than developing nations that still rely mostly on fossil fuels. In contrast to the steel industries of industrialized nations such as the United States, which produce around 2 tons of CO₂ per ton, and Japan, which produce about 1.5 tons, the CBAM is predicted to have a much larger effect on China, which produces an estimated 1.8 tons of CO₂ per ton of steel. This has the potential to worsen already-existing disparities between developed and developing countries, impeding global collaboration on climate change initiatives. Moreover, developing countries argue that they have historically contributed less to greenhouse gas emissions than developed countries and have benefited less from industrialization. They lack the substantial financial resources necessary for a rapid transition to clean energy sources. As a result, developing countries are concerned that the CBAM will place an unfair burden on them and could hinder their economic development. Furthermore, developing nations contend that they have historically profited less from modernization and have contributed less to greenhouse gas emissions than industrialized nations. They also don't have the significant financial means required for a quick switch to sustainable energy sources. Consequently, emerging nations fear that the CBAM will unfairly burden them and impede their ability to grow economically.

China's responses and potential repercussions

China has launched its own nationwide Emissions Trading System (ETS) covering the power sector. However, the system is still in its early stages and faces several challenges. Indeed, currently, the Chinese ETS only covers the power sector, a fraction of the total emissions. Expanding the system to other sectors like steel and cement would be crucial for its effectiveness. More, as mentioned earlier, the current carbon price in China is significantly lower than in the EU. This reduces the incentive for companies to reduce emissions and weakens the overall impact of the system. Effectively monitoring and enforcing emissions reductions across various industries remains a challenge for China's ETS. As a large emitter and another important trading partner, China is likewise keeping a careful eye on the US. Another level of complexity is the possibility of a border tax and a US carbon pricing regime. China would experience a double whammy if the US and the EU both enact carbon border limits, possibly resulting in export limitations to both significant markets. Because of this, a concerted effort by the world's leading economies may encourage China to expedite changes to its own carbon pricing scheme in order to maintain its competitiveness in the international market.

China has been an outspoken opponent of the CBAM, seeing it as an example of green protectionism meant to keep European businesses from competing with other countries. This impression is the result of multiple causes. First, although China has its own system for pricing carbon, it is far less expensive than the implicit cost found in the EU ETS. Chinese exporters are put at a competitive disadvantage as a result, as their production costs are increased due to carbon emissions. Furthermore, China worries that the CBAM would skew international trade patterns. They worry that rather than actually reducing emissions, European businesses may just shift production to nations beyond the purview of the CBAM. China has developed clean technology and renewable energy sources in recent years, with notable progress. On the other hand, if the CBAM makes it more difficult to obtain necessary resources or deters foreign investment in clean technology, it may impede China's green

transition. In order to reduce its reliance on the EU, China may pursue self-sufficiency in important areas, which could impede international collaboration on climate innovation.

The two economic behemoths' relations may be further strained if China retaliates by imposing taxes on EU products, for example. In fact, China has a track record of enacting protectionist policies in response to trade disputes. The following are some possible responses to the CBAM: countervailing tariffs: In order to lessen the perceived economic impact of the CBAM, China may put countervailing duties on imports from the EU. This could lead to a trade war and increase trade tensions; non-tariff barriers: To make it harder for EU businesses to enter the Chinese market, China may use non-tariff barriers like tighter import laws or drawn-out customs processes.); and strategic investments: In order to become less dependent on EU imports, China could raise its investments in clean technologies and renewable energy.

In summary, the effectiveness of the CBAM will be greatly influenced by China's attitude to it. Trade conflicts are a serious issue, but China may be able to move more quickly toward a cleaner, more sustainable economy as a result of the CBAM. China's actions will be influenced by how carbon pricing regulations evolve globally, especially by the response from the US and Japan. Regarding China, the EU is not the only trading partner. China has a diverse economy and a large number of trading partners. We observed that China's unique economic circumstances may result in minimal CBAM impacts. As a result, examining a more specialized economy like Mozambique may reveal various effects of CBAM on the trading partners of the EU. In fact, the economy of Mozambique is increasingly dependent on raw exports.

Mozambique

As the European Union (EU) steers ahead with the implementation of the Carbon Border Adjustment Mechanism (CBAM), Mozambique finds itself in an uncomfortable position. Mozambique's economic landscape could be significantly reshaped under the CBAM framework. Mozambique, primarily known for its aluminum exports to the EU, which significantly contribute to its economy, faces new challenges under the CBAM framework. In 2022, nearly 20% of Mozambique's total exports, predominantly aluminum, were to the EU, underscoring a deep economic interdependence vulnerable to Europe's shifting regulatory landscape.

Mozambique's Economy and Trade Analysis

The introduction of CBAM could recalibrate Mozambique's relationship with the EU, potentially increasing the cost of aluminum exports to the EU and at the same time shifting its international trades. This economic pressure comes at a time when Mozambique is striving to enhance its industrial sector and maintain economic growth among various internal and external challenges. It is worth underlying that, while CBAM poses immediate economic challenges, it also offers Mozambique an opportunity to transform its industrial base towards more sustainable practices, potentially fostering a more resilient economic structure in the long run.

According to IMF, as of 2022, Mozambique has seen a gradual increase in its population, reaching approximately 33 million, up from 29 million in 2018. This growth coincides with fluctuations in the nation's economic performance, where the Gross Domestic Product (GDP) showed resilience and growth from €12 billion in 2020 to €17 billion in 2022. The GDP per capita also reflected this

recovery, improving from €398 in 2020 to €517 in 2022. This economic growth indicates a recovering economy, albeit one that still faces significant challenges including a high inflation rate that peaked at 9.8% in 2022.

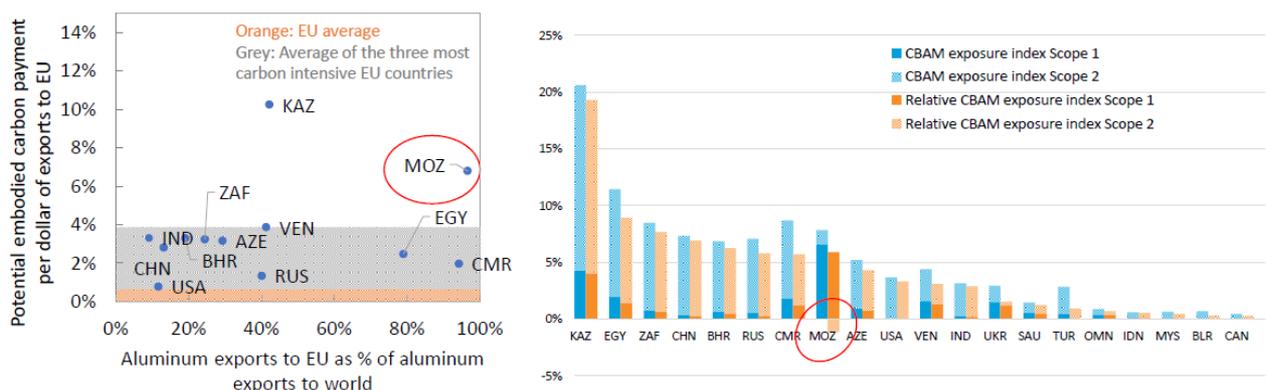
Mozambique's trade dynamics reveal a complex picture of dependency and diversification. The total goods trade with the world has shown a significant upward trajectory in imports, which grew from €5.7 billion in 2018 to €9.3 billion in 2022, and exports, which increased from €4.4 billion to €7.0 billion over the same period.

Trade with the EU specifically underscores Mozambique's economic reliance, facilitated by preferential trade agreements such as the Everything But Arms (EBA) arrangement. In 2022, Mozambique imported goods worth €2.9 billion from the EU, accounting for 31% of total imports. On the other hand, exported goods worth €0.9 billion to the EU, accounting for 13% of the total, indicate a trade imbalance and the EU's importance as a trade partner. This dependency is critical, as the EU not only serves as a major market for Mozambican exports but also as a significant source of imported goods. Furthermore, also Foreign Direct Investment is relevant, considering EU27 FDI Stocks with Mozambique amounting to € 4.9 billion in 2021. Considering Mozambique's economic reliance on the EU, making any changes in EU trade policy, such as the introduction of CBAM, potentially impactful on Mozambique's economy.

The introduction of the CBAM by the EU is poised to have a significant impact on Mozambique due to the carbon intensity of its primary exports, particularly aluminum. Aluminum production is notoriously energy-intensive and carbon-heavy, which places Mozambique's exports at risk of incurring higher costs under the CBAM regime. This could potentially make Mozambique's exports less competitive in the EU market unless there are significant investments in cleaner, more sustainable production technologies.

Exposure to EU27

The introduction of the Carbon Border Adjustment Mechanism (CBAM) by the EU is expected to have a significant impact on Mozambique, particularly due to the carbon intensity of its primary exports, such as aluminum. Aluminum production is notorious for being energy-intensive and carbon-heavy, which places Mozambique's exports at risk of incurring higher costs under the CBAM regime. With 96.6% of its aluminum exports directed towards the EU and an emissions intensity of 0.68 kg/\$, according to the World Bank, Mozambique faces considerable exposure to CBAM. To give an indication about developing countries' exposure, the World Bank has calculated the CBAM Exposure Index.



The World Bank CBAM exposure index provides a structured approach to assessing the vulnerability of countries to CBAM's impacts. With a focus on both Scope 1 and Scope 2 emissions, Mozambique's aluminum sector could potentially benefit from domestic reforms or international assistance aimed at reducing carbon emissions from primary aluminum production. This index considers two main elements: the share of a country's exports of CBAM-related products that are destined for the EU and the embodied carbon payment per dollar of export to the EU. The latter element is determined by the carbon emissions intensity of production and the assumed cost of CBAM certificates. By multiplying these two factors, the index offers a simple yet effective means of identifying countries with a high exposure to CBAM. Moreover, World's Bank analysis encompasses both Scope 1 and Scope 2 emissions: Scope 1 emissions cover direct emissions in the industrial processes, and, on the other hand, Scope 2 emissions involve indirect emissions from the generation of electricity consumed by the organization.

In Mozambique's case, its aluminum sector is the most exposed to CBAM in terms of Scope 1 emissions.

Fairness Concerns for Developing Countries

The European Union's Carbon Border Adjustment Mechanism (CBAM) is poised to have significant implications for third countries, particularly developing nations like Mozambique, raising concerns about fairness and equity in its implementation. As highlighted by Sinan Ülgen in his article, "A Political Economy Perspective on the EU's Carbon Border Tax," CBAM is designed to prevent carbon leakage and level the playing field for EU industries, but its impact on third countries, especially those heavily reliant on exports to the EU, cannot be overlooked. Mozambique, primarily known for its aluminum exports to the EU, faces substantial vulnerabilities under the CBAM framework.

CBAM's design, as part of the EU's broader efforts to decarbonize its economy, aims to disincentivize EU businesses from relocating while encouraging international partners to align with the EU's climate goals. However, the implementation of CBAM introduces complexities and challenges for third countries, particularly in assessing their vulnerabilities and devising mitigation strategies. Mozambique, for instance, heavily relies on aluminum exports to the EU, with nearly 20% of its total exports being aluminum products. This reliance exposes Mozambique to significant risks under CBAM, as its aluminum exports could face higher costs due to their carbon intensity.

Mozambique's vulnerability is exacerbated by factors such as its limited institutional and administrative capacities, as well as its socioeconomic dependence on export industries. The carbon intensity of Mozambique's economy further compounds its challenges, as higher carbon content in exported goods could subject them to heavier taxation under CBAM. As highlighted by Ülgen, countries with less diversified economies and lower technological sophistication, like Mozambique, may struggle to adapt to CBAM's requirements, potentially leading to trade disruptions and economic setbacks. The uneven distribution of CBAM's impacts across countries raises questions about climate justice and international principles. Developing countries, including Mozambique, have historically contributed less to global emissions but are disproportionately affected by CBAM, contradicting principles of common but differentiated responsibilities. The mechanism's negative impact on developing countries' exports and socioeconomic conditions also challenge the EU's commitment to "Do no harm" and the right to development.

Mitigation strategies for developing countries, such as adopting their own carbon pricing schemes, present challenges due to political economy considerations and disparities in carbon pricing levels. While some countries have initiated carbon taxation, the effectiveness of these measures in mitigating CBAM's impacts remains limited, particularly in addressing disparities in carbon pricing levels between exporting and importing countries.

In conclusion, CBAM's implementation raises significant concerns about its impact on third countries, particularly developing nations like Mozambique. Addressing the unfairness of CBAM requires a comprehensive approach that considers the vulnerabilities of third countries, promotes climate justice, and aligns with international principles of fairness and equity. As CBAM evolves and expands its scope, ensuring the inclusivity and sustainability of its implementation will be crucial for mitigating adverse impacts on vulnerable economies and advancing global climate objectives.

Conclusion

The European Union's Carbon Border Adjustment Mechanism (CBAM) represents a significant evolution in the nexus of global trade and climate policy, signaling a transformative shift poised to reconfigure economic relations between the EU and its international trading partners. This report has explored the disparate effects of CBAM, with a particular focus on the asymmetrical impacts on China and Mozambique, which serve as case studies illustrating broader issues of climate justice and economic equity.

China, with its status as a major global exporter and a diversified economy, is relatively well-positioned to navigate the challenges introduced by CBAM. Although initial disruptions in sectors such as steel and aluminum are anticipated, China's substantial economic infrastructure and forward-looking investments in green technologies are likely to mitigate the adverse effects of these regulatory changes. Moreover, China's influential role in global markets and policy settings enables it to more effectively counteract the impacts of CBAM compared to less economically diversified nations.

In stark contrast, Mozambique, which relies heavily on a narrow range of exports and has limited economic resources, faces significant challenges under CBAM. As a nation primarily exporting aluminum to the EU, Mozambique is especially susceptible to economic disturbances stemming from the mechanism's cost implications. These challenges may exacerbate existing vulnerabilities, such as its dependence on a single export commodity and constrained capacity for rapid transition to sustainable technologies. This situation underscores a critical paradox: the countries least responsible for historical global emissions endure disproportionate burdens under policies like CBAM, aimed at climate change mitigation. This inequity is compounded by structural economic disadvantages that inhibit these nations' ability to adapt to new trade realities without considerable international support or investment.

To address these disparities and ensure CBAM contributes positively to global climate goals without disproportionately harming less developed nations, the EU must implement several strategic policies. These include considering exemptions or a phased implementation for vulnerable economies, particularly in sectors critical to their economic stability. The EU should also commit to supporting

affected countries through technology transfers and financial aid, thereby enhancing their capacity to adopt sustainable practices and meet CBAM's requirements.

Additionally, it is vital to establish a robust mechanism for ongoing monitoring and dialogue involving all stakeholders, including affected countries. This will ensure that CBAM's impacts are continuously assessed, and the mechanism adjusted in response to real-world challenges and feedback.

Legally and in terms of policy alignment, CBAM must comply with international trade laws and uphold the principles of the World Trade Organization (WTO). It is crucial to address concerns about discrimination to ensure that the mechanism does not unfairly penalize countries based on their development status. Moreover, the scope of exemptions from CBAM should be broadened. The EU should consider expanding these exemptions beyond countries with robust carbon mitigation policies to include low-income nations and least developed countries (LDCs). This policy adjustment would be consistent with the principle of Common but Differentiated Responsibilities and Respective Capabilities recognized in international climate agreements, and the Special and Differential Treatment provisions of the WTO regime. While exempting these countries could potentially increase carbon leakage, it would significantly aid their economic stability by enabling them to trade without the additional burden of CBAM tariffs.

By adopting a more inclusive and supportive approach, the EU can ensure that CBAM serves as a tool for sustainable development rather than merely an economic barrier for the developing world. This approach not only addresses the geopolitical concerns associated with the mechanism but also reinforces the EU's role as a leader in global climate governance, committed to a just and sustainable transition for all.

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