

# **CBAM: trade implications and opportunities of EU climate neutrality goals**

Deliverable D3.7: Discussion papers on the impact on the EU's main partners dealing with the respective dimensions (Paper 1)

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## Abbreviations

BCA	Border Carbon Adjustment
BiH	Bosnia and Herzegovina
CAP	Common Agricultural Policy
CBAM	Carbon Border Adjustment Mechanism
CBDR	Common but differentiated responsibilities
CCS	Carbon Capture and Storage
CO <sub>2</sub>	Carbon dioxide
EAFRD	European Agricultural Fund for Rural Development
EC	European Commission
ERDF	European Regional Development Fund
EEA	European Economic Area
EP	European Parliament
ETS	Emissions Trading System

EU	European Union
EUA	EU Allowance
GDP	Gross Domestic Product
GHG	Greenhouse gas
IPA	Instrument for Pre-Accession Assistance
LDC	Least Developed Country
MFF	Multiannual Financial Framework
MRV	Monitoring, reporting, and verification
NDC	Nationally Determined Contribution
NDICI	Neighbourhood, Development, and International Cooperation Instrument
UK	United Kingdom
UNCTAD	United Nations Conference on Trade and Development
WTO	World Trade Organisation

## 1. Introduction

Set up in 2005, the European Union's (EU) Emissions Trading System (ETS) became the world's first international market mechanism for carbon pricing, with the goal of reducing the EU's greenhouse gas (GHG) emissions in various sectors. The EU ETS covers 40% of EU GHG emissions. The sectors covered have reduced their emissions by almost 37% between 2005 and 2021 (European Environment Agency, 2023).

Since the inception of the EU ETS, a primary concern among European policymakers and industry has been the possibility of carbon leakage – the relocation of economic activity to jurisdictions where climate policy is less stringent, resulting in lower operating costs due to a lack of carbon pricing. In order to counteract the possibility of carbon leakage, sectors most at risk of leakage due to their high energy intensity and trade exposure, predominantly the industrial and chemical sectors (European Commission, 2023a), were allocated free allowances to offset the additional cost of compliance. However, given the increasing urgency of the climate crisis and the fear that free allocation does not effectively incentivise the necessary investments to significantly reduce GHG emissions, the EU ETS will gradually phase out free allocation in favour of auctioning off allowances to covered sectors (Council of the European Union & European Parliament, 2022).

To prevent carbon leakage, given not only the newly imposed costs on businesses but also the historically high carbon price, in July 2021 the European Commission proposed introducing the Carbon Border Adjustment Mechanism (CBAM) (Council of the European Union & European Parliament, 2021) as part of a broader package of measures aimed at reducing emissions by at least 55% by 2030. A compromise on the respective regulation was reached between the Council of Ministers and European Parliament in December 2022. It covers iron and steel, fertilisers, aluminium, electricity, cement and hydrogen (Council of the European Union & European Parliament, 2022).

The CBAM envisages a carbon price at the EU border for products belonging to these sectors to compensate for the emissions embedded in their production, thereby disincentivising the relocation of factories for the purposes of evading more stringent EU climate regulations and exporting the products back to the EU. Free allowances for these sectors will gradually be phased out from 2026 to 2034, with a corresponding increase in the proportion of the carbon contents of their products subject to the carbon price for which emissions allowances must be submitted.

The EU ETS, and the CBAM by extension, inextricably links EU climate policies to trade. On the one hand, representatives of EU industry worry about the additional costs higher carbon prices would have on production in the EU. The concern lies in the consequences higher carbon prices would have on their global competitiveness vis-à-vis countries with less stringent climate policy, particularly with regards to their ability to export externally, as such countries could source products cheaper from jurisdictions without a set carbon price. On the other hand, countries with high exposure to the EU market, particularly those belonging to the least developed countries

(LDCs) group, have fewer resources to finance a transition away from energy intensive methods of production, resulting in a substantial impact to economic welfare as they lose EU market share.

Crucially, however, the EU's greater ambition in tackling climate change is seemingly at odds with the principle of Common but Differentiated Responsibilities (CBDR) which is a key principle of international climate governance that recognises that developed and developing countries have different responsibilities and capabilities in addressing climate change. Under this principle, developed countries, which have historically been the largest emitters of greenhouse gases, are expected to take the lead in reducing emissions and provide support to developing countries in their efforts to address climate change. The CBAM has been criticised by some developing countries as potentially unfair and discriminatory. They argue that the CBAM could be used as a way for developed countries to shift the burden of reducing emissions onto developing countries, rather than taking responsibility for their own historical emissions.

Despite its hostile reception by several trading partners (Pauw et al., 2022), the CBAM presents a unique opportunity for the EU to accelerate climate action abroad. Countries within the immediate EU neighbourhood have announced their intention to implement an ETS of their own (Birpinar, 2022, Zuvela, 2020), allowing them to capture the revenue generated from auctioning emission allowances within their borders and use it to fund their own energy transitions. For those countries further afield that lack either the technical capacity to implement an ETS or only have a single sector with increased exposure to the CBAM, the EU could ringfence CBAM revenues to aid in the energy transition of LDCs.

This discussion paper is structured as follows: Section 1 presents trade-related issues of more ambitious EU climate policy in the form of the CBAM. Section 2 provides a background on the technical aspects of the CBAM, describing the policy, its justification, impact on third countries, and its relation to the Paris Agreement. Section 3 delves into the policy gaps presented by the CBAM, examining remedies to its lack of financing possibilities for decarbonisation in third countries while imposing a unilateral trade barrier, and Section 4 concludes the paper.

## 2. CBAM background

### 2.1 Description

The EU CBAM is to be phased in gradually in order to give the various stakeholders – importers, exporting countries, and domestic industries about to be exposed to a reduction in free allocation – time to prepare and adjust. The first phase will begin in October 2023 with reporting obligations, whereby importers will solely submit information on the carbon content of CBAM-covered products imported into the EU. Starting with 2026 emissions, importers will need to surrender CBAM certificates the following year to match the carbon content of the prior year's covered imports.

The price of these CBAM certificates shall be equivalent to the average closing price of EU ETS certificates for the last week in which auctions have taken place, ensuring that CBAM declarants are paying a carbon price equivalent to that paid by ETS-covered producers inside the EU, thereby keeping the measure in line with World Trade Organization (WTO) rules on non-discrimination between domestic and imported products.

The number of CBAM certificates due for submission will be reduced by the carbon price a declarant has already paid in another jurisdiction. For example, should the price of the United Kingdom (UK) and EU emissions allowances differ to such a degree that the UK carbon price is significantly lower, importers of CBAM goods from the UK must still submit CBAM certificates for compliance purposes. However, the total number of certificates to be surrendered shall be reduced to reflect the carbon price already paid in the UK. For jurisdictions that are already party to the EU ETS, or those whose ETS is linked to that of the EU, no carbon price will be levied upon import.

The major implication of the regulation beyond equalising the carbon prices between covered domestic and imported goods is the administrative burden that will be placed on importers and exporting countries in the form of monitoring, reporting, and verification (MRV). Independent verifiers will need to be accredited by the EU before beginning the process of verifying the carbon content of industries producing covered goods. For those countries and businesses that do not possess the necessary capacities to engage in MRV processes for GHG emissions, or those for whom such processes would prove expensive, the EU plans to use default averages calculated for each exporting region and industry (Council of the European Union & European Parliament, 2022).

The revenues from each purchased certificate are then funnelled into the EU budget.

### 2.2 Carbon leakage

The impact of unilateral climate action on the competitiveness of domestic industries in a global trade context has been at the forefront EU concerns with regards to the implementation of the



ETS. Carbon leakage, or the shift in GHG emissions from a jurisdiction with stringent climate policies in the form of a carbon price or emissions cap to those without one, would not only negatively impact EU employment and welfare, but also render the EU ETS ineffective as local high-carbon production shifts abroad instead of investing in low-carbon production methods, resulting in imports with higher carbon content.

The EU's efforts at mitigating carbon leakage have focused primarily on key sectors identified as being in particular risk of relocation to jurisdictions with lax climate policies. These sectors were identified by multiplying a sector's intensity of trade with third countries by the sector's emissions intensity. As a result, the EU identified the production of chemicals, cement, metallurgy, mining, and others as sectors with a high risk of carbon leakage (European Commission, 2019).

Thus far, the EU has been tackling carbon leakage through the free allocation of emission allowances to sectors it deems vulnerable. Less vulnerable sectors have been granted fewer free allowances, starting at 80% of total emissions at the beginning of the programme, and decreasing annually to about 30% in 2020. Despite a proportion of the allowances being allocated for free, EU firms still have an incentive to implement low-carbon technologies in their production processes, as any form of abatement would result in excess allowances that can be used in future compliance periods or sold to other firms who require them to comply with the ETS (Jakob, 2021). Free allocation prevents leakage by equalising the playing field for European firms internationally; by subsidising the cost of compliance in the form of free allowances, domestic manufacturers no longer face additional carbon price costs not faced by foreign firms (Ambec, 2022).

With the implementation of the CBAM, however, the EU intends to end the free allocation of allowances to the sectors at risk of carbon leakage. The imposition of a carbon border levy discourages the relocation of production abroad to (and import substitution from) jurisdictions without carbon pricing. Unlike the free allocation of allowances, the CBAM does not equalise the competitive playing field internationally, but rather domestically. Firms operating in the EU will start to pay the full carbon price through the ETS once free allocation ends, and CBAM-covered EU imports will likewise pay the same price. Internationally, however, European exporters under the scope of the EU ETS will be at a competitive disadvantage with producers in countries without a carbon price – regarded as a potential cause of carbon leakage – unless the EU implements some form of export rebate, which would likely be challenged before the WTO (Bellora & Fontagné, 2022; Sartor et al., 2022a), despite being the most effective way to prevent leakage (Ambec et al., 2023; Mörsdorf, 2022).

While carbon leakage has received much political and academic scrutiny for its potential to undermine both European climate policy objectives and economic competitiveness, the evidence for carbon leakage has been mixed, with studies either indicating that none has taken place since the inception of the ETS or that where it does take place, its impact has been minor. Venmans, (2012), for example, finds in his literature review of ex-post studies of the first phase of the EU ETS that trade-driven carbon leakage was not observed. This was further confirmed by Joltreau and Sommerfeld (2019), and Verde (2020) in their studies of the first two phases of the EU ETS,

who find very few competitiveness effects from the introduction of the ETS on EU firms, with some firms even experiencing windfall profits as a result of passing costs through to consumers, a finding likewise corroborated for European manufacturing by Naegele and Zaklan (2019). Further, Branger et al. (2017) also find no short-run evidence of carbon leakage in the energy intensive steel and cement sectors, with local and foreign demand being more robust determinants of trade flows than the carbon price.

In fact, most studies establishing a significant carbon leakage threat to the EU are conducted ex-ante (Paroussos et al., 2015). However, it is important to contextualise the lack of carbon leakage against the backdrop of low emissions allowance prices during the 2010s, as shown on Figure 1. Further ex-ante studies predicted carbon leakage rates up to 25% for the iron and steel sector (Demailly and Quirion, 2008) and between 40% and 70% for the cement sector (Ponsard and Walker, 2008) for EU Allowance (EUA) prices of EUR 20 per tonne of carbon dioxide (CO<sub>2</sub>), a price that did not materialise until late 2018. This, coupled with widespread free allocation had a dampening effect on carbon leakage.

Figure 1. EUA price development from 2012



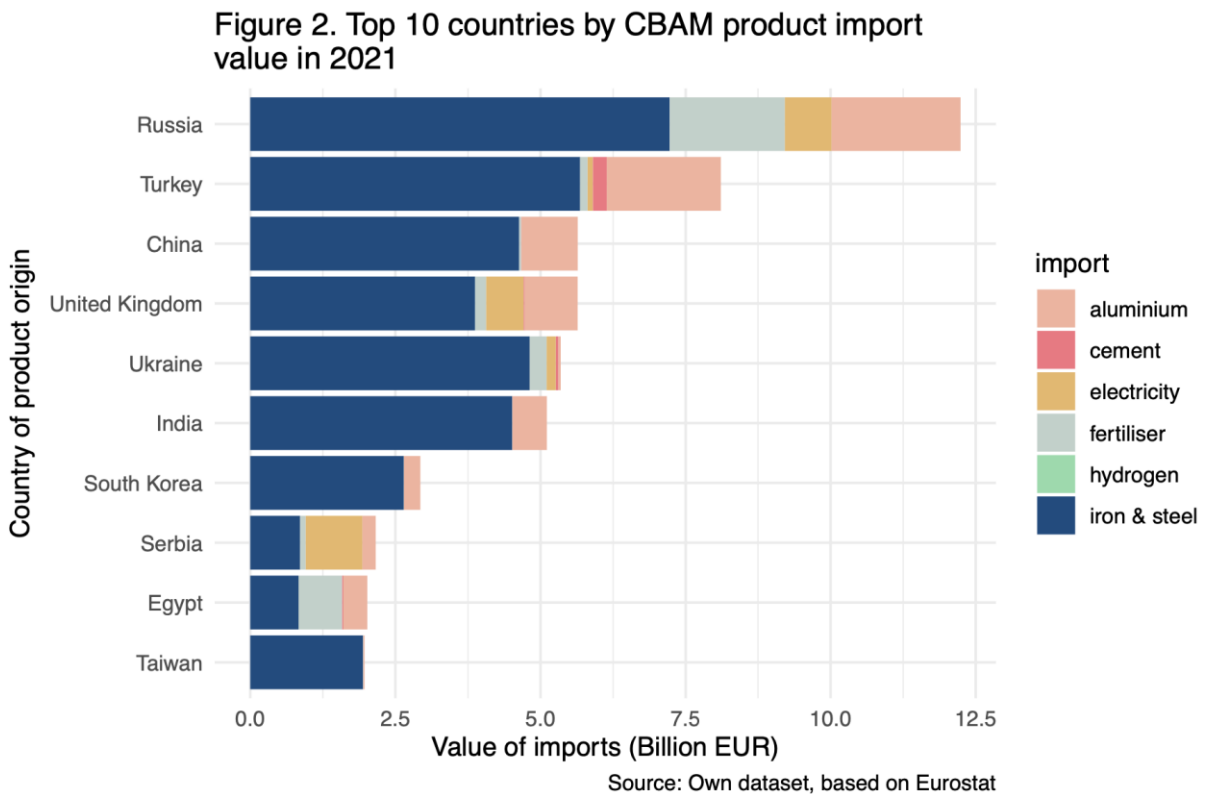
Source: European Energy Exchange

Nevertheless, that is not to say that carbon leakage has never been observed. Viskovic et al. (2017) examine the potential leakage in the South-East Europe Regional Electricity Market, determining that between 6.3% and 40.5% of the emissions reductions therein are subject to carbon leakage to neighbouring states not party to the EU ETS, the vast majority of which lie in the Western Balkans. Regardless, given the recent highs in EUA prices, which in February 2023 exceeded EUR 100 for the first time and are expected to reach EUR 105 on average in 2024

(Burnett, 2023; Climate Market Now, 2023), there are fears of increased leakage rates in the immediate future, particularly in light of discontinuing free allocation.

### 2.3 Impacted countries at a glance

Establishing which countries would be most impacted by the CBAM requires a multi-faceted approach. On the one hand, the strong negative reactions to the CBAM by some of the EU’s largest trading partners gives a clear indication their energy intensive industries will be disadvantaged by what they deem ‘green protectionism’ (Marcu et al., 2020). To determine which countries will be most impacted, we analysed 2021 Eurostat import data for the EU and mapped the relevant CBAM categories onto the value of imports<sup>1</sup>. Figure 2<sup>2</sup> shows the cumulative value of CBAM-covered imports in 2021 grouped by exporting country and disaggregated by product type. Notably, non-EU countries that form part of the European Economic Area (EEA) and Switzerland have been excluded as they either participate in the EU ETS or have linked systems, absolving them of CBAM charges (European Commission, 2021).



1 The CN codes for CBAM-covered imports were obtained from the 14.07.2021 European Commission proposal for a regulation establishing a carbon border adjustment mechanism (European Commission, 2021a), with the hydrogen CN code added into the dataset manually.

2 Figures 4 – 9 showing the top ten impacted countries by CBAM export value for each individual product can be found in Annex A.

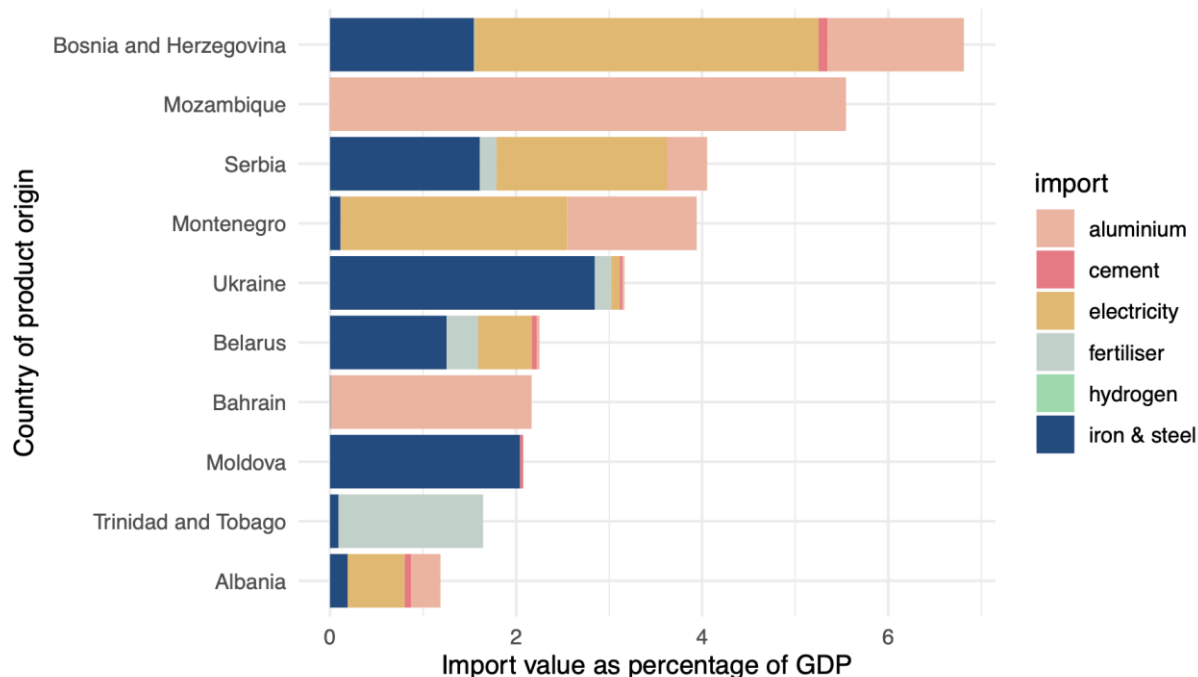
The graph depicts a varied distribution of countries that are primarily affected by the CBAM regulation, effectively divided between those in the immediate EU neighbourhood and those further afield. Disaggregating these data by end-product categories (aluminium, cement, electricity, fertilisers, hydrogen, and iron and steel) reveals a stark dichotomy. Cement, electricity, and hydrogen are primarily sourced from countries directly bordering the EU, whereas the remaining products under the scope of the CBAM are more diverse in terms of geographic origin.

However, aggregating the import value of products falling under the CBAM iron and steel, aluminium, and fertiliser categories to the country level risks conflating the size of the exporting country's economy with the countries that would be most impacted by CBAM. While China, the UK, India, and South Korea may be negatively impacted by the CBAM in terms of volume of trade, especially with regards to the absolute value of exported products, they are not necessarily at great socioeconomic risk due to their more diversified industrial and export base. Eicke et al. (2021), utilising notions of exposure and vulnerability to the CBAM, or the importance of a country's exports to the EU and ability to adapt to the CBAM by decarbonising or shifting trade flows, respectively, determine that some countries in the Global South and non-EU European countries are most at risk from the CBAM. This is due to the large percentage of their GDPs that CBAM exports comprise, as well as their inability to effectively adapt to the CBAM due to limited financial and administrative capacities. Leveraging their definition of exposure, we calculated the proportion of exporting countries' 2021 GDP comprised of CBAM-covered products. Figure 3<sup>3</sup> details the top ten most impacted countries by the value of their CBAM-covered exports (disaggregated by product) to the EU as a percentage of their GDP, painting a starkly different picture to Figure 2.

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<sup>3</sup> Figures 10 – 15 showing the top ten impacted countries by CBAM export value as a percentage of national GDP for each individual product can be found in Annex A.

Figure 3. Top 10 countries by CBAM product import value as fraction of 2021 GDP



Source: Own dataset, based on Eurostat

Calculating the value of CBAM-covered exports to the EU as a percentage of their GDP exposes the relative vulnerability of countries to more stringent EU climate regulation, with larger economies being significantly less exposed than smaller economies, particularly those in the immediate vicinity of the EU, largely in line with research by Magacho et al. (2022). Of the top ten countries impacted in terms of absolute value of EU imports covered by CBAM, only two remain in the list of the top ten most impacted by value of EU imports covered by CBAM as a percentage of their GDP. Notably, larger economies, such as Russia (EUR 12 billion in CBAM exports to the EU) and Turkey (EUR 8 billion in CBAM exports to the EU), and others completely disappear off the list, to be replaced by smaller economies to which the export of CBAM-covered products represents a relatively larger portion of their GDP, such as Bosnia and Herzegovina (hereinafter: BiH; CBAM exports represent 7% of GDP) and Mozambique (CBAM exports represent 6% of GDP). These smaller economies would also have to devote a relatively larger sum of resources to effectively engage in sectoral mitigation efforts. Of those within the EU neighbourhood, electricity and iron and steel stand out as the primary impacted products covered by CBAM, with minor presence of aluminium and cement. Of the countries further afield, aluminium and fertiliser are most impacted.

Importantly, the figures above are only indicative of the financial impact of the CBAM on relevant exporting countries and industries. Not only do the various sectors encompassed emit differing amounts of GHG per unit sold, with individual countries having decarbonised the production process to different degrees, but depending on the inclusion of indirect emissions in the final CBAM text, the energy mix of the power market in exporting countries would also significantly

impact the number of CBAM certificates importers would have to submit. This is particularly true for countries exporting large quantities of energy intensive materials to the EU. In 2020, Mozambique produced 84% of its electricity from renewable energy sources, which comprised just 23% of the BiH power sector energy mix in the same year, with the remainder consisting of unabated fossil fuels. BiH would therefore have to pay significantly more per unit of aluminium exported to the EU than Mozambique if indirect emissions were to be considered.

Finally, the snapshot of international trade has changed drastically since the year the latest data have been made available, primarily due to the impact of the Russian invasion of Ukraine and the resultant sanctions regime implemented by the EU on Russian individuals and companies. Russia (for absolute value) and Ukraine (for value relative to GDP) both feature in our top ten impacted country lists.

## 2.4 Impacted countries and common but differentiated responsibilities

The proposed CBAM regulation has been heavily scrutinised from the perspective of its compatibility with both the WTO rules and the principle of common but differentiated responsibility. Despite the EU taking additional steps to bring the CBAM in line with WTO rules, such as ruling out the possibility of export rebates to EU ETS covered goods destined for foreign markets (Sartor et al., 2022b), the measure nevertheless received complaints from India, a large trading partner (Suneja, 2023), and has long been a target of disdain from Russia (Morgan, 2020), the EU's largest trading partner in CBAM-covered goods. Whether or not the CBAM runs afoul of WTO rules is likely to be tested, but research indicates that the emerging economies most likely to oppose the CBAM before the WTO are also likely to suffer minimal economic impacts (Heli, 2021).

However, the potential incompatibility with the principle of CBDR has likewise received closer inspection. Climate change as a global issue requires a global solution that can only be achieved with a joint effort. However, the impacts are not the same for every country, and neither is the share of responsibility for global emission levels. In the preamble of the treaty of the United Nations Framework Convention on Climate Change, it is stated that "the global nature of climate change calls for the widest possible cooperation by all countries and their participation in an effective and appropriate international response, in accordance with their common but differentiated responsibilities and respective capabilities and their social and economic conditions" (United Nations, 1992). This principle has become a cornerstone for the negotiations and subsequent agreements concerning climate change. Especially, it has been referred to in Article 2 of the Paris Agreement (United Nations, 2015).

Since the idea of establishing a border adjustment mechanism originated, several studies have contributed to the debate. Some have defined the mechanism as disadvantageous for developing countries as it would negatively affect market competitiveness and, thus, economies. Zhong and

Pei (2022), for example, demonstrate how a border adjustment mechanism with a price of USD 100 per tonne of CO<sub>2</sub> – very similar to today's prices – would not only result in an 0.1% output drop outside the EU, but would simultaneously increase EU output by 0.38%. But beyond increasing EU competitiveness, through the implementation of the CBAM, the EU is shifting the economic burden of climate action not just to developed, non-abating countries, but to developing countries as well through implicit changes in international prices (Böhringer et al., 2012). Further, a study by the United Nations Conference on Trade and Development (UNCTAD) indicates that covered exports from developing countries could decrease by 2.4% at an EUA price of USD 88 per tonne of embedded CO<sub>2</sub>, a figure likely to be higher given today's emission allowance prices in the EU (United Nations Conference on Trade and Development, 2021). The lack of equity in such an arrangement is further complicated by the minimal ecological benefits the measure might produce: the environmental efficacy of the CBAM as an anti-leakage measure is potentially dwarfed by its efficacy as an economic measure protecting European competitiveness globally (Kuik and Hofkes, 2010), particularly given there is no indication CBAM revenues will contribute to supporting third countries in their decarbonisation efforts. This effectively creates a wealth transfer to Europe. As a result, several countries have raised concerns about implementing the CBAM as they consider it goes against the principle of CBDR enshrined in the Paris Agreement (South African Government, 2021).

Others are more optimistic and consider that the mechanism, once implemented, would bring positive outcomes for both the EU and third countries involved. During a summit with the EU, Canadian delegates committed to cooperating on carbon pricing and carbon border adjustments (European Union and Canadian Government, 2021). Notably, the lack of antagonism to the CBAM has mostly been expressed by predominantly large economies and those bordering the EU (Pauw et al., 2022a), with lower income countries disagreeing with the mechanism, the economic burden it entails, and its implications on development opportunities. This must be accompanied by additional conditions or supporting measures for sustainable and more ambitious industrialisation.

In that vein, researchers have attempted to quantify the global welfare impact of border carbon adjustments (BCA) accompanied by a variety of complementary measures. Fischer and Fox (2012), for example, advocate for the use of revenue recycling to combat distortionary taxes on labour, indicating that welfare gains inside the BCA jurisdiction will increase as a result. Welfare gains are similarly experienced by exporting countries when CBAM revenues generated from their products are repatriated. Perdana and Vielle (2022) corroborate this finding, while extending their analysis to include multiple flavours of CBAM revenue use to conclude that the CBAM as a standalone measure will reduce welfare in LDCs. However, when coupled with investments in renewable energy and energy efficiency drives in LDCs, the CBAM not only realises welfare gains abroad, but also leads to a significant decrease in GHG emissions, at 79 and 90 MtCO<sub>2</sub> by 2040 respectively.

Complementary measures to help in the energy transition of trade partners, as well as continued dialogue during implementation, are therefore key to securing international buy-in for the CBAM (Lehne and Sartor, 2020; Pauw et al., 2022). More importantly, this form of assistance highlights



the necessity to reconcile what LDCs view as a dissonance between the CBDR principle and the EU's decarbonisation efforts, especially considering the EU is expected to raise considerable revenue from the measure. However, closer analysis of CBAM-covered trade flows to the EU reveals that the financial impact of the CBAM regulation is not concentrated among LDCs.

Of the countries most impacted by the CBAM in GDP terms indicated in Figure 3 above, only Mozambique belongs to the LDC group of countries. Of the remainder, Belarus, Russia, the UK, Turkey, and Ukraine belong to the Annex I group of countries. The share of CBAM exports to the EU by value across all countries reveals approximately similar levels of trade activity between Annex I and non-Annex I countries: in 2021, Annex I non-EEA countries exported 48% of CBAM-covered goods to the EU, with non-Annex I countries comprising the other 52%. However, Annex I exporters are comprised of a total of 13 countries, whereas the remainder consists of 153, meaning the average CBAM-covered exports to the EU by any non-Annex I country is only 9% of the Annex I average, further reduced to 6% once large emerging economies such as China and India are taken out. This difference becomes even more stark when the comparison is made between the values of CBAM exports of LDCs are compared to all other jurisdictions: LDCs comprised just over 1% of all CBAM exports to the EU in 2021. Of these, 99% came solely from Mozambique in the form of aluminium exports valued at EUR 739 million, while the remainder came from a variety of other states.

Hence, while the principle of common but differentiated responsibility acknowledges that developed countries should take the lead and greater action to decarbonise, the impact of the CBAM is significantly less concentrated in developing countries with economies that depend on the exports it covers, with only Mozambique strongly impacted in GDP terms from the LDCs. Ultimately, whether the CBAM conflicts with the principle of CBDR depends on a variety of factors beyond the share of imports covered by CBAM that come from LDCs.

Eicke et al. (2021) demonstrate these additional vulnerabilities to which lower- and middle-income countries are exposed. Mozambique, for example, has missed several UNFCCC deadlines for report submission, indicating a need to build capacity for measurement reporting and verification of emission. In this particular instance, the administrative burden of proving the emissions levels of its energy intensive industries is potentially lower than the default levels set by the EU is high and could result in a higher CBAM burden unless rectified. Morocco also experiences these difficulties with MRV processes. Conversely, countries bordering the EU have very low levels of trade diversification (as their progress towards EU membership further locks them into deeper trade ties with their largest export partner) and would need to rapidly decarbonise in response to the CBAM.



### 3. Discussion

Article 54b of the draft text of the CBAM regulation agreed by the European Parliament (EP), European Commission (EC), and EU Council states that “it is desirable that the Union continues to provide financial support through the Union budget to support climate mitigation and adaptation in least developed countries, including their efforts towards the de-carbonization and transformation of their manufacturing industries” (Council of the European Union and European Parliament, 2022). However, it does not specify the manner, timing, value, or other substantive quality of this support. Notably, the revenues generated by CBAM will be credited to the EU budget as general income, without being earmarked towards specific decarbonisation efforts abroad, or to aid impacted countries in adapting to the regulation. Rather, the creation of this own source of revenue for the EU is envisaged to help the bloc administer the CBAM levy, further aid in the decarbonisation of its industry, and finally to help compensate the massive spending the bloc has undertaken in the wake of the coronavirus pandemic to bolster its member states’ economies, a move supported by both the European Council and the Commission (Pirlot, 2022).

The main concern is that the CBAM could result in an unfair burden on developing countries’ economies and trade flows. Developing countries argue that the EU CBAM, which is designed to mitigate the risk of carbon leakage, would create a new barrier to their exports to the EU, adding costs and reducing competitiveness. Additionally, many countries may not have the resources or capacity to adapt to the new requirements of the CBAM or to transition to low-carbon industries (Benson et al., 2023). This is particularly true of lower- and lower-middle-income economies, particularly highlighted in the case of Mozambique, which currently lacks the institutional capacity to measure industrial emissions in its aluminium sector (Eicke et al., 2021).

As a result, during its vote on the CBAM regulation draft text on 22 June 2022, the EP and civil society groups such as Oxfam and the German Development Institute have called for the recycling of CBAM revenues to aid in decarbonisation initiatives in third countries (Brandi, 2021; Oxfam International, 2022). Perdana and Vielle’s (2022) analysis demonstrates not only the welfare gains that are possible through the use of CBAM revenues for renewable energy and energy efficiency projects in third countries, but also the substantial additional mitigation potential of such a policy. Others reinforce this concept, arguing that revenue recycling to third countries constitute a credible commitment to the carbon leakage prevention and climate neutrality goals of the CBAM, rather than a protectionist policy (Böhringer et al., 2022; Cosbey et al., 2019).

The subsequent three sections summarise the current domestic and international climate financing mechanisms of the EU and investigate how the resources generated through CBAM may be used to facilitate emissions reductions in countries affected by it.

## 3.1 Existing EU funding mechanisms for decarbonisation

Existing EU funding mechanisms for decarbonisation can broadly be divided into two distinct categories: those that are agreed as part of the EU's Multiannual Financial Framework (MFF), representing budgetary line items ringfenced and capped for specific purposes; and those that are dependent on the functioning of the EU ETS, and whose final envelope is determined by the ETS market price.

### 3.1.1 Financing mechanisms under the Multiannual Financial Framework

The EU mobilises its annual budget to finance both domestic and foreign climate initiatives. Both are advanced through multiple sources, with domestic climate action predominantly financed through the following funds and programmes:

1. The European Regional Development Fund (ERDF), which provides support for regional development and territorial cohesion across the EU, with a focus on promoting sustainable and smart growth. A significant portion of the funding is dedicated to investments in low-carbon and climate-resilient infrastructure, including renewable energy, energy efficiency, sustainable transport, and climate adaptation measures (European Commission, 2023c).
2. The Cohesion Fund, which provides support for infrastructure investments in EU member states with lower GDP per capita, with a particular focus on transport and environment projects. A significant portion of the funding is dedicated to investments in climate mitigation and adaptation, including renewable energy, energy efficiency, sustainable transport, and climate resilience measures (European Commission, 2023b).
3. The European Social Fund Plus, which provides support for social and employment policies across the EU, with a focus on promoting inclusive and sustainable growth. A portion of the funding is dedicated to investments in green skills and jobs, as well as climate adaptation measures (European Commission, 2023d).
4. The Just Transition Fund, which provides support for the transition to a climate-neutral economy in regions that are heavily dependent on fossil fuels or energy-intensive industries. The fund aims to support the development of new economic activities and job creation in these regions, while ensuring a fair and socially just transition (European Commission, 2023h).
5. The Horizon Europe programme, which supports innovative research and breakthrough technologies critical to tackling the climate crisis (European Commission, 2023g).

6. The Common Agricultural Policy (CAP) and the European Agricultural Fund for Rural Development (EAFRD), which aim to support farmers and rural development while ensuring a stable supply of affordable food for consumers. With respect to the climate objectives of the EU, the CAP has undergone significant reform in recent years to promote sustainable farming practices and reduce GHG emissions from the agriculture sector (European Commission, 2023a), while the EAFRD additionally supports sustainable practices in forestry (European Commission, 2023d).

The foreign aspect of EU climate action funding also takes place through various instruments, which are primarily comprised of:

1. The Instrument for Pre-Accession Assistance (IPA), which supports countries in the Western Balkans and Turkey in preparing for EU membership. The IPA provides funding for projects related to environmental protection and climate change, among other areas (European Commission, 2021b).
2. The Neighbourhood, Development, and International Cooperation Instrument (NDICI), which supports development cooperation with countries and regions around the world. The NDICI includes specific funding lines for environment and climate change, supporting projects related to renewable energy, sustainable transport, climate adaptation, and biodiversity conservation (Council of the European Union and European Parliament, 2021).
3. The EU also participates in global climate finance initiatives, such as the Green Climate Fund and the Global Environment Facility (European Commission, 2023h).

Finally, the European Investment Bank (European Investment Bank, 2023) and European Investment Fund (European Investment Fund, 2023) provide financing and investment support for a range of climate-related projects in multiple countries, both within the EU and abroad, including renewable energy, energy efficiency, sustainable transport, and climate adaptation measures.

### 3.1.2 Carbon price-dependent financing mechanisms

The carbon price-dependent financing mechanisms of the EU are primarily comprised of the EU's Innovation Fund and its Modernisation Fund. The former is a successor of the EU's NER 300 programme, which utilised revenues from a specific quantity of auctioned EUAs to finance innovative low-carbon technologies, including carbon capture and storage (CCS) and renewable energy projects (European Commission, 2023i). Similarly, the Innovation Fund will have at its disposal proceeds from auctioning 450 million emissions allowances in the 2021-2030 period, which can be distributed to companies implementing innovative or large flagship decarbonisation projects, helping cover up to 60% of project costs (Cludius and Graichen, 2021).

The Modernisation Fund, on the other hand, relies on the proceeds of auctioning 4.5%, or 620 million of the total number of emissions allowances in the 2021-2030 period. This is made available to EU member states that had a nominal GDP per capita below 60% of the Union's average in 2013, in addition to Greece, Portugal, and Slovenia, which are soon to be included in the expanded fund. This fund is meant to implement decarbonisation projects, predominantly related to renewable energy generation, energy efficiency, and transport (Cludius and Graichen, 2021), especially in Poland, which receives 43% of the entire EU envelope (Modernisation Fund, 2023).

Both funds' financing depends on the carbon market price at the moment when the fund's managing authority sells the allowance on the market. For the sake of understanding the financial order of magnitude, at a price of EUR 100 per tonne of CO<sub>2</sub> equivalent, the Innovation Fund would generate EUR 45 billion in revenue to be invested in its programming period.

## 3.2 Financing decarbonisation abroad

The EU, in the framework of its commitments under the Paris Agreement, contributes to international climate finance. In 2021, its contribution was approximately EUR 23.04 billion in public finance to developing countries. This amount includes cooperation for projects in the areas of adaptation, mitigation and others (European Commission, 2023j). However, even with the contributions of the EU, which is the largest contributor globally, the global pledge of USD 100 billion has not yet been reached (OECD, 2022). Using CBAM revenues to aid in decarbonisation initiatives abroad could not only help bridge the divide between the outsourced nature of climate action the CBAM enforces and the principle of CBDR, but also contribute to wider climate finance promises made by developed nations, while simultaneously plugging what many countries and analysts see to be a crucial policy gap.

While reopening negotiations between the EP and EC with regards to the CBAM regulation is unlikely, and additional climate financing is likely to be set to a predetermined amount which comes directly from the EU budget, a financing mechanism whereby CBAM revenues are earmarked for decarbonisation in third countries is one of the options to facilitate decarbonisation in countries affected by CBAM. This is because it would be subject to the same market forces as EU ETS revenues: an increase in the carbon price may pose additional financial burdens on businesses operating in or exporting to the EU, but they also raise higher revenues for EU member states and contribute more to decarbonisation efforts by augmenting the Innovation and Modernisation funds. Conversely, lower carbon prices may decrease the amount of funding available for decarbonising economies, but they also reduce overall costs for business, while still keeping the decarbonisation incentive intact through a functioning carbon market, albeit the incentive would not be as strong as under a higher carbon price.

These same principles apply to potential financing underpinned by CBAM certificate sales. Higher CBAM certificate costs may increase the cost of imports from third countries, but they would also

result in greater climate financing from the EU should CBAM revenues be used to aid global decarbonisation efforts. Conversely, even if lower CBAM prices reduce climate financing, the resulting reduction in the border levy would help make imports more competitive.

However, such variable financing for climate action abroad also faces difficulties of its own. The predecessor to the Innovation Fund, the NER 300, failed to deliver on several accounts, from both the perspective of the types of programmes it was meant to finance and the amount of financing that was available. With regards to the former, there was a noticeable failure to not only deliver on large-scale biofuel projects, none of which reached a final investment decision, but also on large scale projects altogether, which were put at a disadvantage by the programme's very design (Åhman et al., 2018). With regards to the latter, and perhaps more importantly from the perspective of financing climate action abroad, the NER 300 programme was rendered ineffective by its reliance on emission allowances to raise revenues; as the price of emissions allowances collapsed early in the 2010s, the projected revenues anticipated at the start of the programme could not be reached, and with it the scale and number of projects to be financed were also reduced (Morgan, 2018). Should a future climate finance mechanism likewise be based on the volatile price of emissions allowances, it would run counter to the kind of reliable funding the developing world is calling for.

Finally, basing climate financing on CBAM revenues also faces difficulties given its timing. Considering that CBAM will be charged proportional to the draw-down of free allocation of emissions allowances in the EU, starting with 2.5% in 2026, much of this funding required to adapt to the CBAM and begin industrial decarbonisation in earnest will be available too late for it to have a meaningful impact given the long investment cycles of many industries. For developing countries exporting to the EU to start decarbonising and developing their MRV processes in earnest, a secure source of funding must be established earlier for effective implementation.

### 3.3 Capacity building

The agreed draft text between the EP and EC gives an air of inevitability to the CBAM, and with many countries announcing an ETS of their own in response, the EU could additionally provide direct capacity building support. The appropriate policy response to the CBAM will be heavily mediated by each country's exposure to trade with the EU. Countries with large trade exposures in terms of the percentage of GDP their CBAM exports comprise will, in addition to building capacity with regards to MRV on both a country- and company-level, likely have to implement carbon pricing mechanisms of their own to ensure they retain the associated revenues, rather than paying into the EU budget through the CBAM. These funds could then be leveraged for domestic decarbonisation purposes.

However, the appropriate carbon pricing mechanism is heavily dependent on the type of trade exposure a country has. Countries with a large exposure in just one of the covered sectors, such as Mozambique, whose primary export to the EU is aluminium, will benefit more from a sectoral

carbon tax than they would from establishing an economy wide ETS. Conversely, countries whose trade exposures cover multiple sectors, and whose trade exposure to the CBAM is likely to increase as the scope of the CBAM is expanded to other ETS-covered sectors in the future, such as those in the immediate EU neighbourhood, would benefit from implementing a wider ETS system, potentially even linking it with the EU's.

In these instances, knowledge sharing and capacity building take on an additional layer of importance, as many of those countries do not have the resources to implement such complicated policy instruments (Eicke et al., 2021). For the Western Balkans, an additional layer of complexity arises due to the intertwined nature of their economies: establishing an ETS system of their own might raise additional revenue and mitigate the impacts of the CBAM, but it would also create additional burdens for cross-border trade should the countries enact these measures piecemeal, and not establish an ETS together as a bloc, or join the EU ETS altogether, as most are aiming for EU membership in any case. Their membership of the Energy Community requires the submission of National Energy and Climate Plans outlining their paths to net zero and the implementation of market decarbonisation mechanisms such as an ETS (Regional Cooperation Council, 2020). Support from the EU in the form of sharing best practices in coordinating implementation efforts, as well as establishing carbon pricing mechanisms, is therefore crucial, and would be additionally helpful should they opt to join the EU ETS, for which the EU already has extensive practical knowledge in coordinating implementation among its member states.

## 4. Conclusions

The decision of the EU to implement a CBAM has received much attention from analysts and member states with regards to the impact it will have on EU competitiveness and carbon leakage but has been little studied from the perspective of its potential impact on third countries, especially developing and least-developed countries. Even then, the main focus has been on the EU's primary trading partners, who, while they have argued such measures are discriminatory, have the most capacity to adapt and decarbonise. From the perspective of LDCs, however, the measure has received accusations of forcing decarbonisation measures on those least responsible for climate change.

As such, analysts delving into the impact of CBAM on LDCs, as well as highly impacted LDC governments, agree that the CBAM should be accompanied by complementary measures to ensure a smooth transition not only from the perspective of providing additional financing in order to help decarbonise economies, but also to ease the administrative burden the CBAM would represent. To this end, the EU should foster greater cooperation on two main fronts: building institutional capacity abroad and diverting additional resources to help developing non-EU states countries decarbonise their industries.

The European External Action Service (EEAS) could play a special role in this regard, helping to ensure effective MRV procedures are established in neighbouring countries with high CBAM trade



exposures and those further afield such as Mozambique that have little institutional capacity to effectively measure their carbon emissions in impacted export sectors. As a potential concrete pilot, the EEAS should task the EU ambassador in Mozambique to work with EU member state ambassadors in Mozambique, the Mozambique Government, its aluminium sector and civil society, to see how best the EU can ensure that the Mozambique aluminium sector becomes a successful story of equitable and effective partnership in CBAM implementation between the EU and a third country.

The EU's Directorate-General for Climate Action (DG CLIMA) should implement a wide-ranging knowledge sharing programme to ensure countries are properly equipped to establish carbon pricing mechanisms of their own, thereby reducing their CBAM burden. This also ensures that third countries can retain these revenues to be used for decarbonisation goals at home – rather than indirectly fund the EU budget – while simultaneously creating further incentives for decarbonisation. Starting with a pilot engagement consisting of the EEAS liaising between interested foreign policymakers and DG CLIMA, policymakers from developing countries heavily impacted by CBAM should be supported in their efforts on carbon pricing systems implementation as a CBAM response and domestic decarbonisation initiative. Consistent engagement with those developing countries implementing such systems is further required to share both technical knowledge and lessons learned from EU ETS implementation.

In the context of the Summer 2023 MFF mid-term review, the EC should propose the creation of 'CBAM windows' inside its most relevant external action funding programmes, at least the Neighbourhood, Development, and International Cooperation Instrument and the Instrument of Pre-Accession Assistance. This should lead the EU to create an additional budget line in the EU Annual Budget as soon as 2024, to fund support for third countries as soon as possible (2024-2027). For the next programming period (e.g. 2028-2034), the EU will use those windows as a way to track the amount of EU budget that is invested, in a stable and predictable manner, in third countries for CBAM-related measures. During every mid-term review, the European Commission DG Budget should publish a report to check that the amount of money the EU budget allocates to those CBAM windows are similar to the medium-term CBAM revenues. Furthermore, the European Court of Auditors should be tasked with publishing a regular report on the use of CBAM revenues, at least every three years, with such reporting being open to inputs and comments from the most concerned third countries, as a way to build trust with EU partners that CBAM is indeed designed to be a tool that supports the decarbonisation of heavy industry all over the world.

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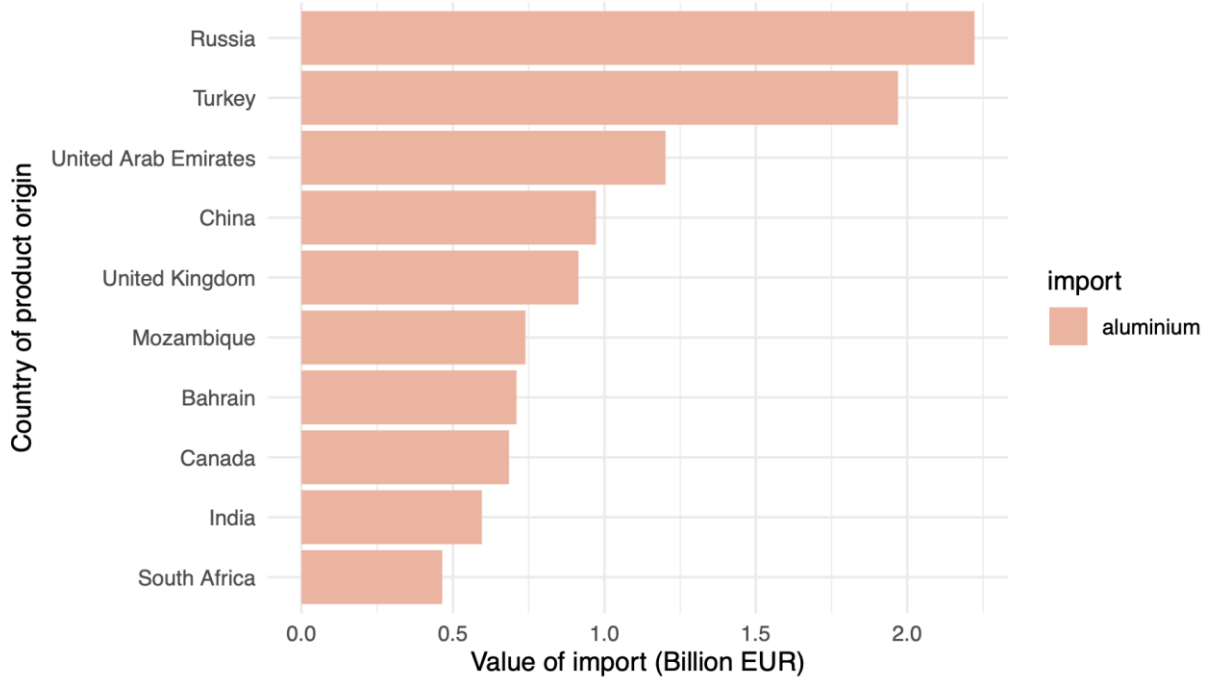
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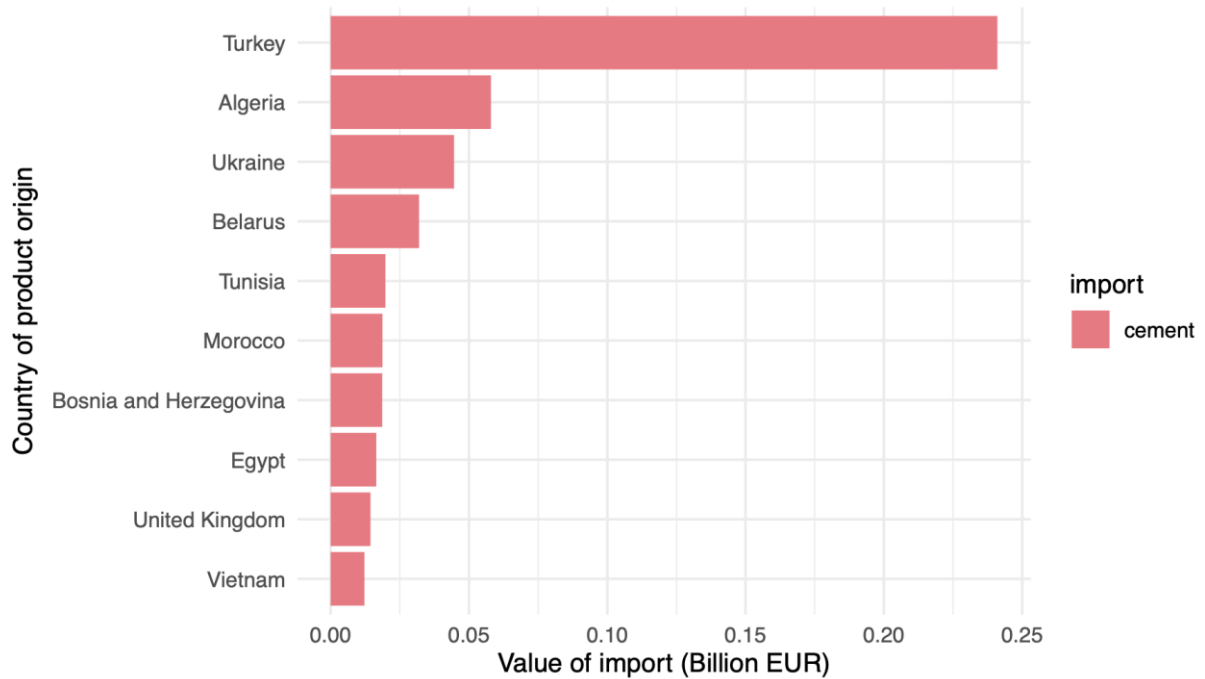
## Annex A

Figure 4. Top 10 countries by aluminium import value in 2021



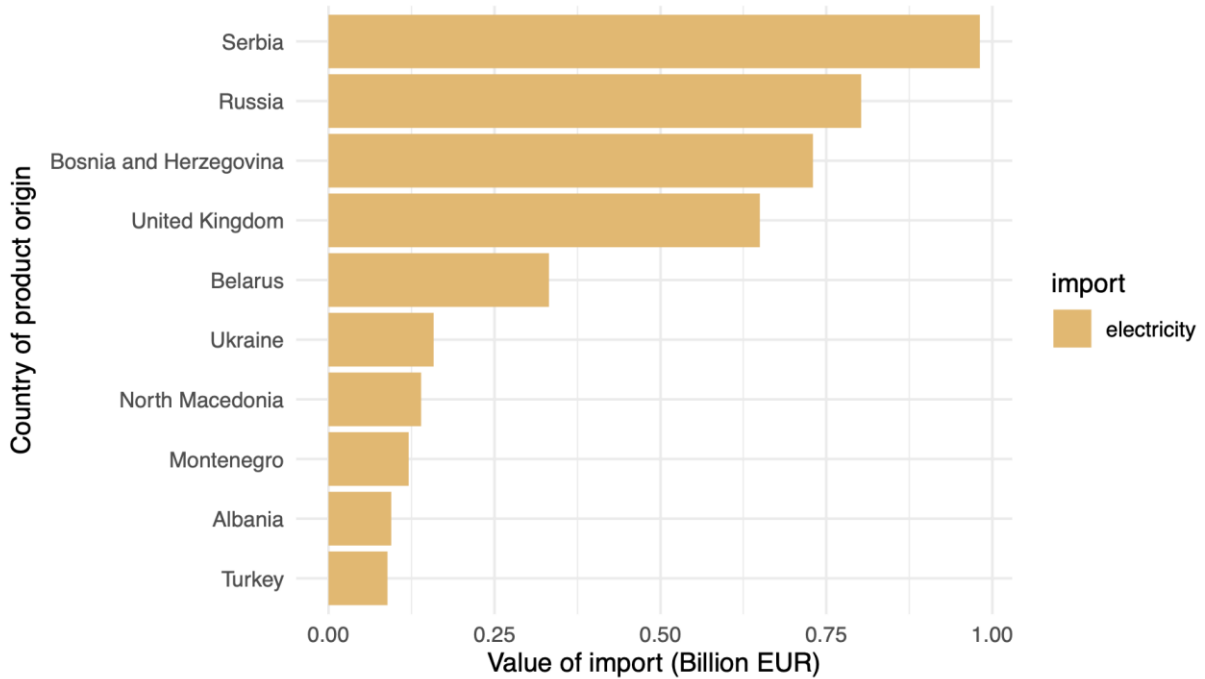
Source: Own dataset, based on Eurostat

Figure 5. Top 10 countries by cement import value in 2021



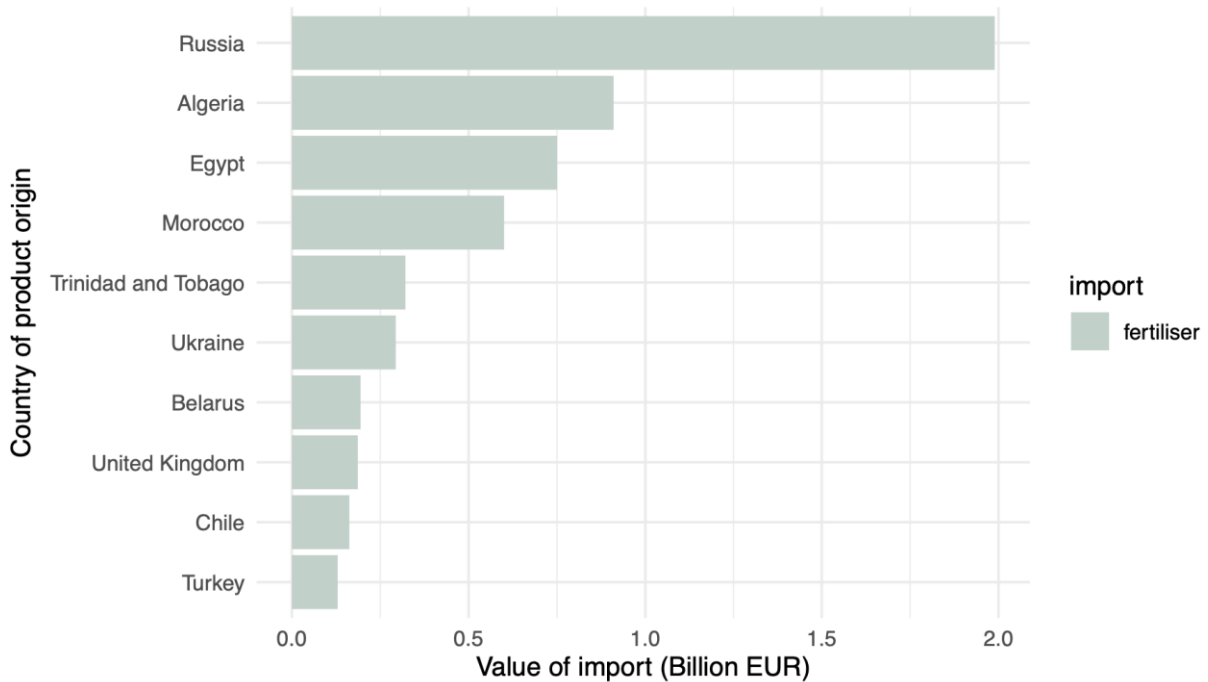
Source: Own dataset, based on Eurostat

Figure 6. Top 10 countries by electricity import value in 2021



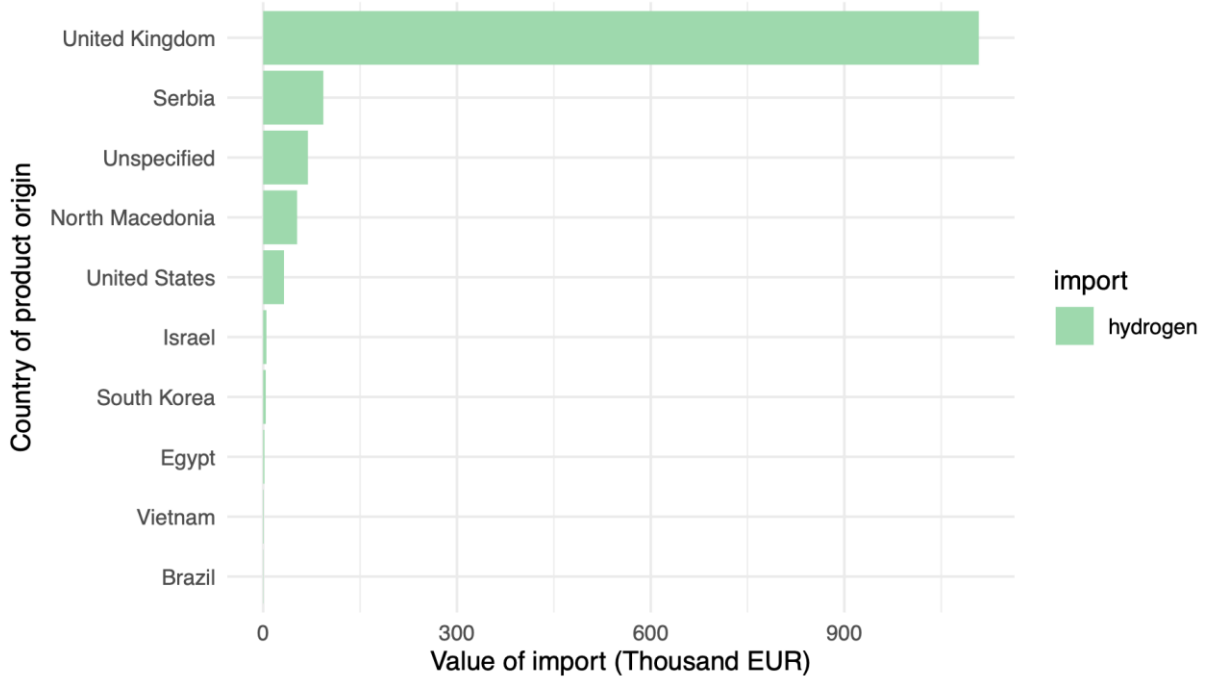
Source: Own dataset, based on Eurostat

Figure 7. Top 10 countries by fertiliser import value in 2021



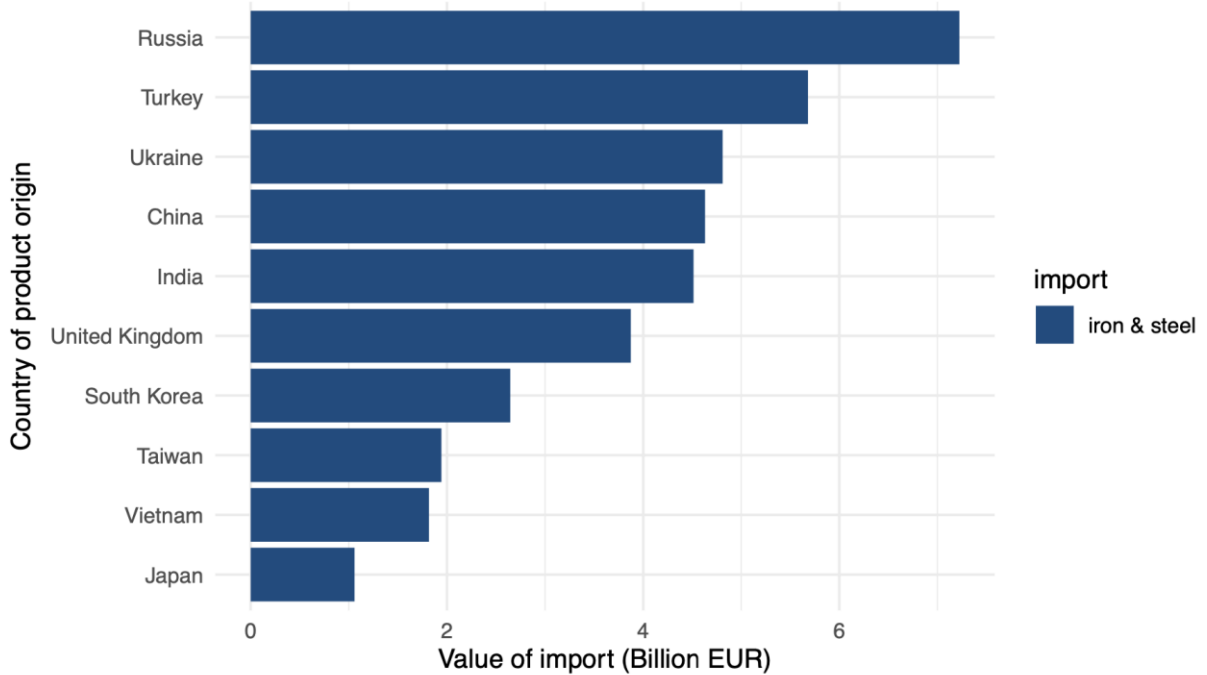
Source: Own dataset, based on Eurostat

Figure 8. Top 10 countries by hydrogen import value in 2021



Source: Own dataset, based on Eurostat

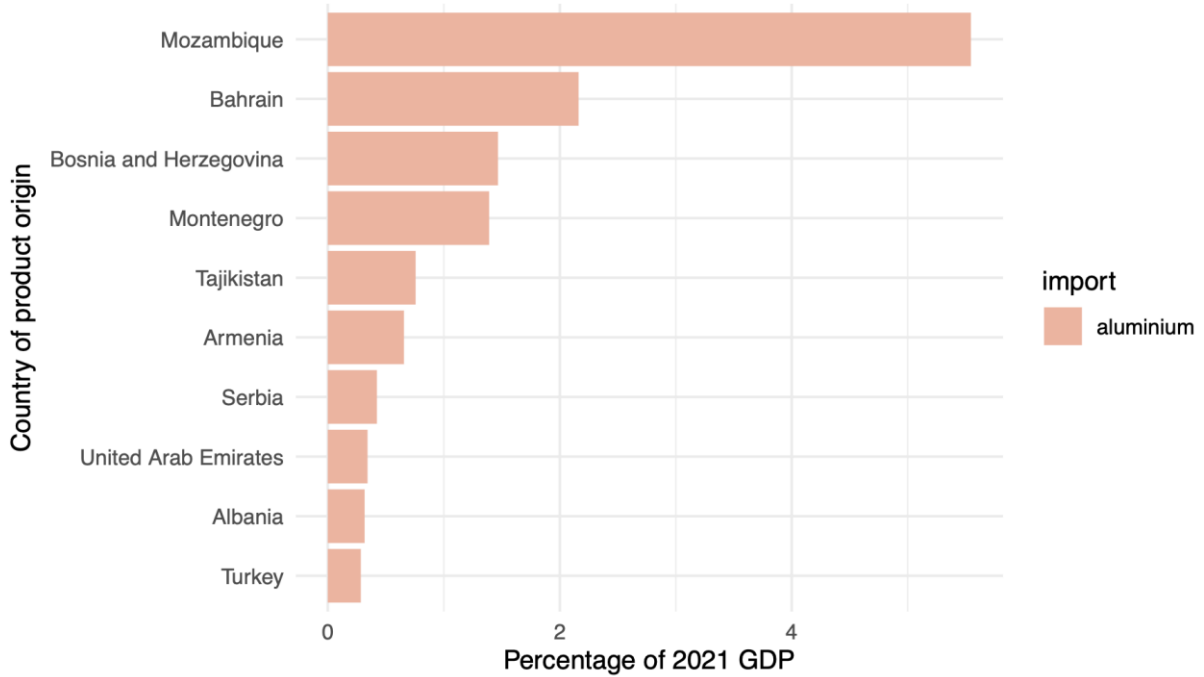
Figure 9. Top 10 countries by iron and steel import value in 2021



Source: Own dataset, based on Eurostat

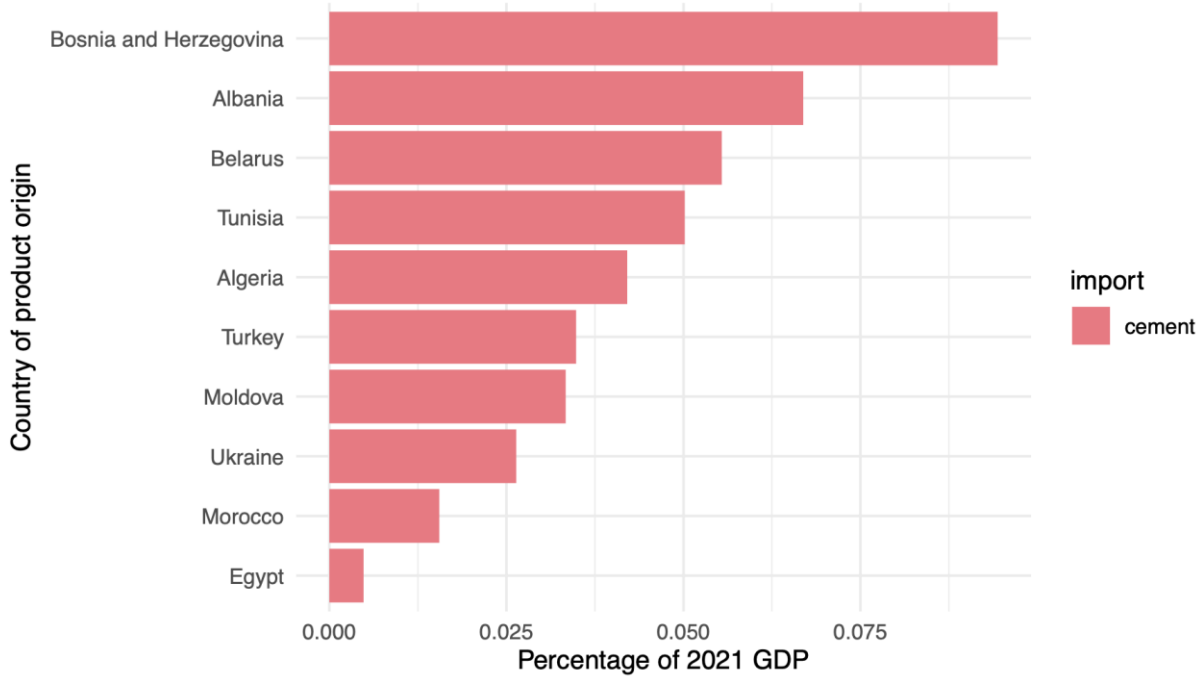


Figure 10. Top 10 countries by aluminium import value as percentage of 2021 GDP



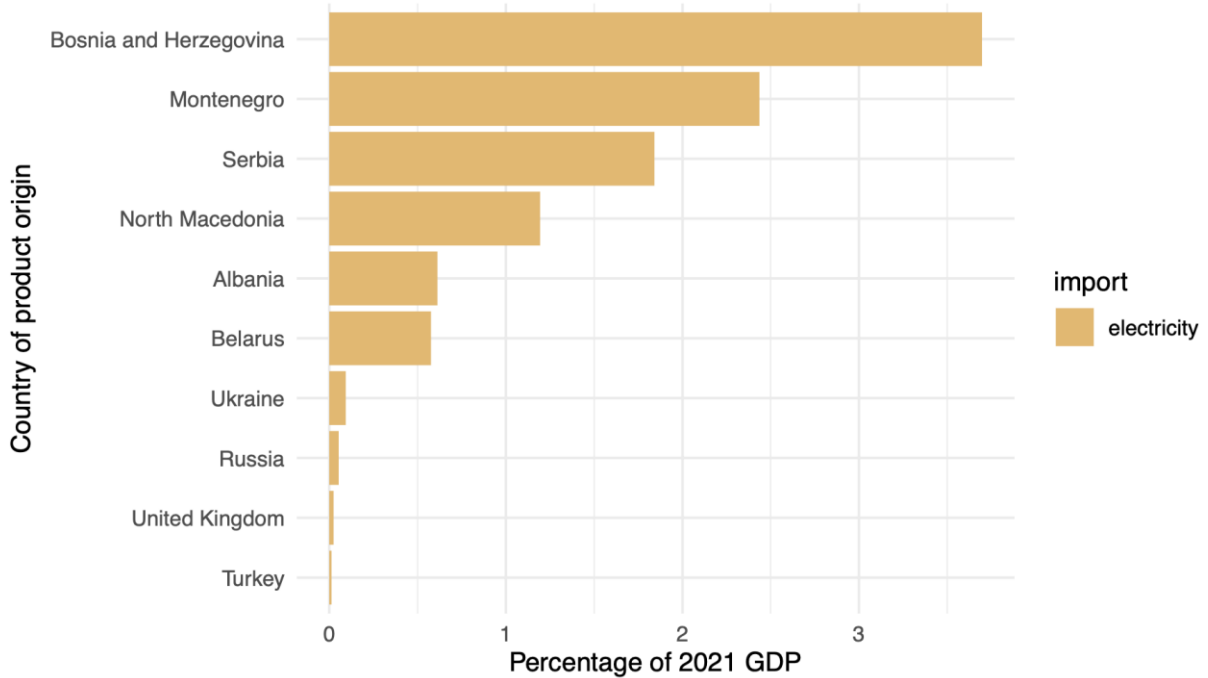
Source: Own dataset, based on Eurostat

Figure 11. Top 10 countries by cement import value as percentage of 2021 GDP



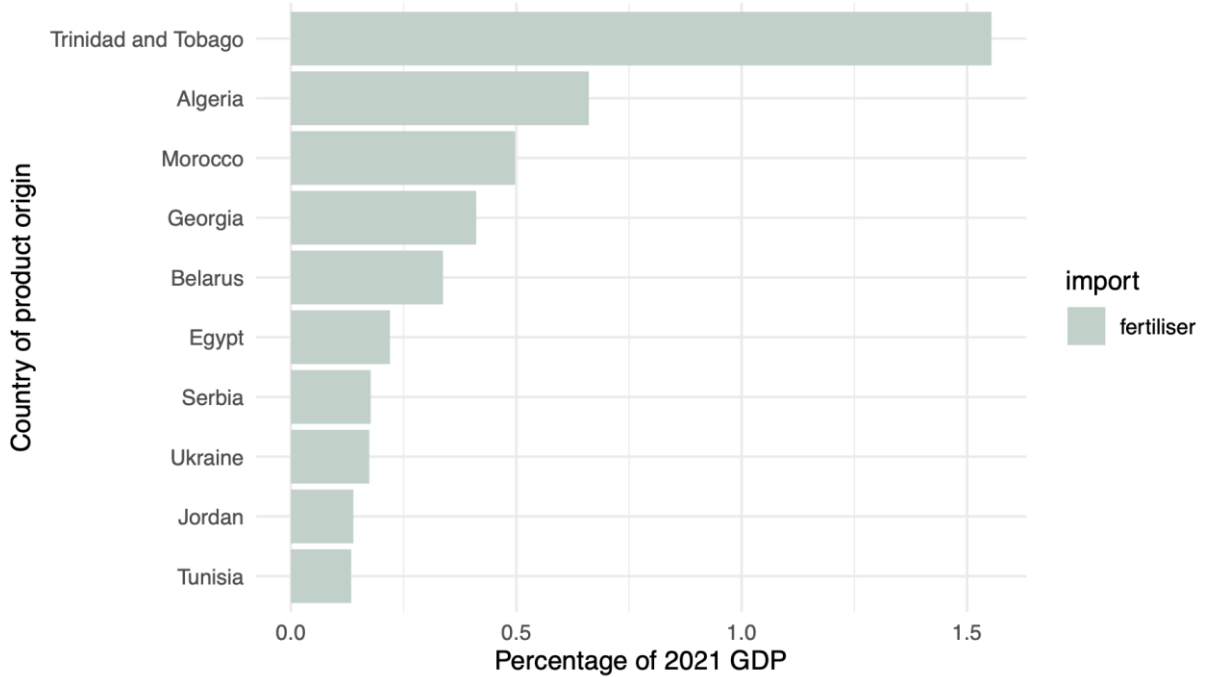
Source: Own dataset, based on Eurostat

Figure 12. Top 10 countries by electricity import value as percentage of 2021 GDP



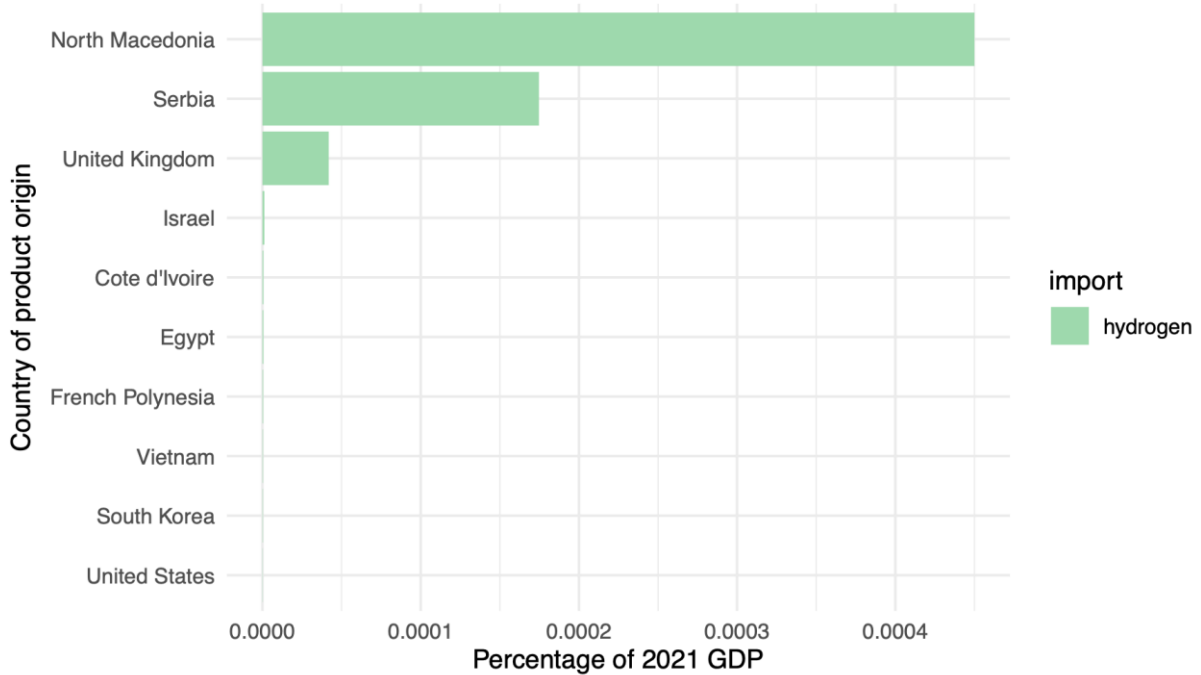
Source: Own dataset, based on Eurostat

Figure 13. Top 10 countries by fertiliser import value as percentage of 2021 GDP



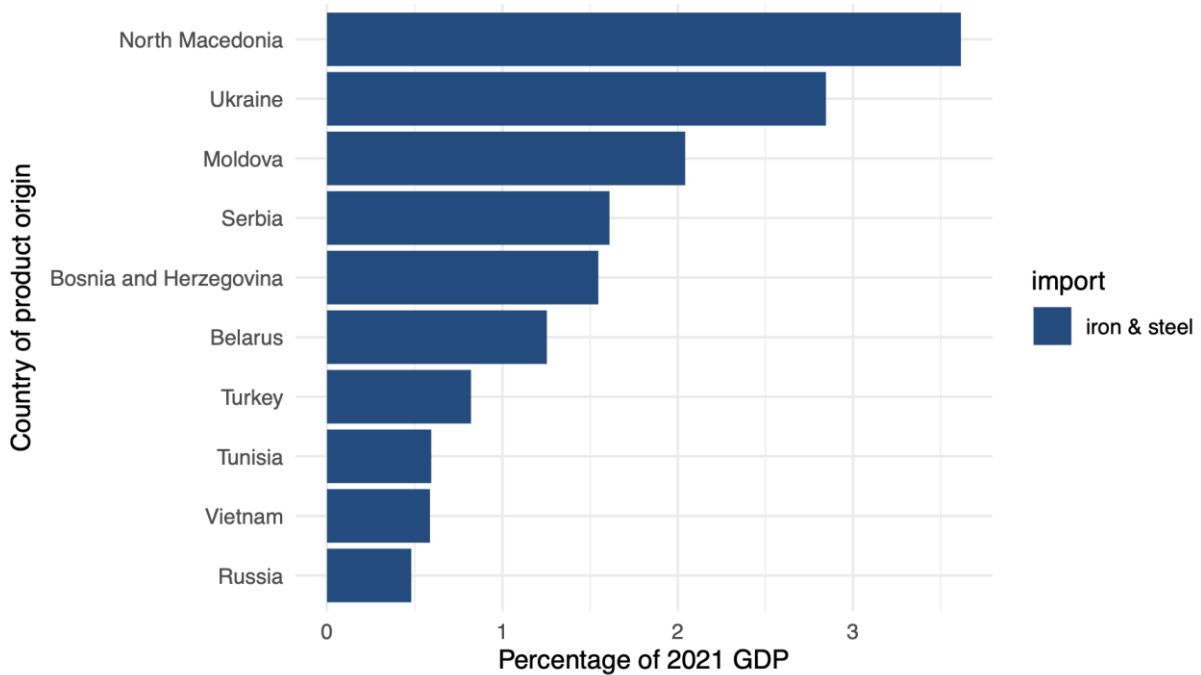
Source: Own dataset, based on Eurostat

Figure 14. Top 10 countries by hydrogen import value as percentage of 2021 GDP



Source: Own dataset, based on Eurostat

Figure 15. Top 10 countries by iron and steel import value as percentage of 2021 GDP



Source: Own dataset, based on Eurostat

## About the project

4i-TRACTION – innovation, investment, infrastructure and sector integration:  
TRANSformative policies for a ClimaTe-neutral European UnION

To achieve climate neutrality by 2050, EU policy will have to be reoriented – from incremental towards structural change. As expressed in the European Green Deal, the challenge is to initiate the necessary transformation to climate neutrality in the coming years, while enhancing competitiveness, productivity and employment.

To mobilise the creative, financial and political resources, the EU also needs a governance framework that facilitates cross-sectoral policy integration and that allows citizens and public and private stakeholders to participate in the process and to own the results. The 4i-TRACTION project analyses how this can be done.

## Project partners



BRUSSELS  
SCHOOL OF  
GOVERNANCE



UNIVERSITY OF  
EASTERN FINLAND



WAGENINGEN  
UNIVERSITY & RESEARCH



rede  
research group in energy,  
innovation and environment



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