Polish Economic Institute

5/2025

WORKING PAPER

Extension of the CBAM as a Potential Source of the EU's Own Resources

Citation: Klucznik, M. (2025), *Extension of the CBAM as a Potential Source of the EU's Own Resources*, Working Paper No. 5, Polish Economic Institute, Warsaw.

Warsaw, December 2025
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estimated potential revenues from extending CBAM to all sectors covered by the EU ETS (CBAM Plus carbon tariffs), assuming an emission allowance price of EUR 75/tCO_2

EUR 25-32 billion

estimated potential revenues from extending CBAM to the entire industry (CBAM All carbon tariffs), if emission allowances cost EUR 75/tCO_2

0.013%

one-off GDP loss of the European Union Member States resulting from the CBAM charge, assuming an emission allowance price of EUR 75/tCO_2

0.03%

one-off GDP loss in Poland that may result from the CBAM charge, assuming an emission allowance price of EUR 75/tCO_2

approx. 1.5×

stronger positive effects on revenues and negative effects on GDP as a result of doubling the emission allowance price from EUR 75 to EUR 150/tCO_2

by 0.09 pp and 0.11 pp

increase in the share of industry in global production of the EU-27 and Poland, respectively, following the extension of CBAM to all sectors covered by the EU ETS

Key Findings

Our preliminary estimates using the KITE model suggest that the CBAM charge in its current form will make only a limited contribution to the European Union's own resources. The results are sensitive to the chosen method for estimating emission intensity; nevertheless, the most likely scenario points to amounts close to EUR 3.1 billion relative to 2024 GDP, assuming an emission allowance price of EUR 75/tCO_2. This means that total revenues would amount to less than 0.02% of the GDP of the EU-27 Member States. This magnitude is comparable to estimates by the European Commission. It should be borne in mind that 75% of this amount would be transferred to the common EU-27 budget as new EU own resources, while the remaining 25% would remain in the country collecting the charge as compensation for collection costs.

At the same time, we estimate that CBAM may slightly reduce the level of the European Union's GDP. At an emission allowance price of EUR 75/tCO_2, the introduction of the mechanism may result in a one-off loss of approximately 0.013% of EU GDP, with the decline in Poland potentially reaching 0.03%. These figures represent the isolated effect of introducing the CBAM charge and do not constitute a GDP forecast for a given year. For example, if the projected GDP growth rate for Poland in a "no-CBAM" scenario were 3.0%, the introduction of the mechanism should reduce potential growth to approximately 2.97%.

We estimate that extending the scope of CBAM to CBAM Plus (all sectors covered by the ETS) or CBAM All (the entire industrial sector) could increase potential revenues from the mechanism by up to ninefold. Only in these scenarios are CBAM revenues sufficiently large to have a significant impact on the common European budget. A carbon tariff (in the model, we simplify CBAM to a customs duty) applied to all industrial products could generate annual revenues of around 0.177% of EU-27 GDP at an emission allowance price of EUR 75/tCO_2, i.e. equivalent to approximately 15% of the planned EU budget over the next eight years. At the same time, broad carbon tariffs constitute an instrument supporting EU industry and protecting against deindustrialisation; however, the cost is a potential loss of some benefits arising from free trade. In addition, CBAM in this simplified tariff form would be an instrument potentially inconsistent with the rules of the World Trade Organization. Appropriate conditioning of these charges, as in the current design of CBAM, could nevertheless mitigate this problem.

Introduction

CBAM is an acronym for the Carbon Border Adjustment Mechanism, i.e. a mechanism for adjusting prices at the border to account for CO_2 emissions. The purpose of the charge is to complement the EU Emissions Trading System (EU ETS) by addressing the gap related to international trade, thereby helping to preserve the competitiveness of Europe's energy-intensive industry. At the same time, revenues generated by CBAM may increase the common European budget. In this publication, we use the KITE international trade model to estimate the potential costs and revenues associated with the introduction of CBAM in the form of a simplified carbon tariff. We analyse the economic effects of extending the charge to the "CBAM Plus" and "CBAM All" variants, i.e. extending CBAM to industrial sectors covered by the EU ETS or to the entire industrial sector.

Emission Price Adjustment Mechanisms in Economics

Border carbon charges constitute a complement to domestic emission charges. Felder and Rutherford (1993) pointed out that the introduction of climate regulations in a single country creates an incentive to relocate high-emission production to countries with less restrictive climate policies. This phenomenon is known as "carbon leakage" and may be partially mitigated by CBAM-type charges, i.e. charges imposed on imports of high-emission goods and, potentially, subsidies for exporters.

However, **the actual scale of carbon leakage is difficult to measure**. The academic literature includes studies indicating both a significant scale of this phenomenon (De Beule, Schoubben, Struyfs, 2022; Korpar, Larch, Stöllinger, 2023) and a limited scale (Naegele and Zaklan, 2019; Verde, 2020; Koch, Basse Mama, 2019). Consequently, economists from the Bruegel think tank argue that the administrative costs of introducing CBAM may outweigh the potential benefits – especially when the mechanism is limited to a narrow group of high-emission goods or industrial sectors (Zachmann, McWilliams, 2020).

An additional challenge is the measurement of costs resulting from non-tax climate regulations. There is broad consensus among economists that the most efficient form of climate policy is to limit sector-specific regulations in

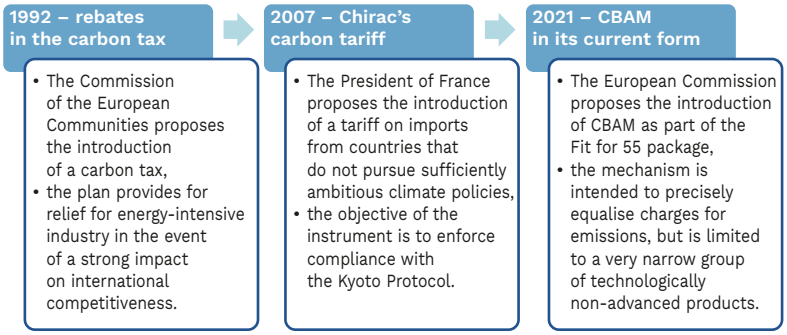
favour of a simple and broadly applied carbon tax complemented by CBAM-type charges (www1). This is because regulation-based climate policy is not consistent with the principle of technological neutrality (www1), and measuring the impact of sectoral regulations on trade and emissions is complex (Shapiro, 2021). CBAM-type charges, however, equalise only the cost of emissions resulting from differences in carbon taxes and ETS systems, and do not include the indirect costs of sectoral regulations.

The data and assumptions adopted in the model are described in detail in the Methodology chapter. The above figures are discussed in greater depth in the Analysis and Results chapter, while the Discussion chapter outlines the limitations of the model and the adopted methods.

CBAM in the European Union

The concept of incorporating international trade into European climate policy predates the European Union itself. The Commission of the European Communities (1992)[1] presented an unrealised proposal for a European carbon tax, which included, inter alia, rebates for energy-intensive industries facing unequal competition from outside the Community. In turn, in 2007 Jacques Chirac proposed the introduction of protective carbon tariffs on imports from the United States and from other countries failing to meet climate targets (www2).

Graph 1. Carbon leakage and carbon charges on imports in the EU – selected proposals



Source: Polish Economic Institute (PEI).

[1] This was an institution of the European Economic Community (EEC), the predecessor of the European Union prior to the entry into force of the Maastricht Treaty in 1993.

CBAM was proposed in 2021 as part of the Fit for 55 package. The mechanism is intended to apply exclusively to a narrow group of high-emission goods (products made of steel, iron and aluminium, cement, fertilisers, electricity, and hydrogen). Companies importing these goods are required to estimate greenhouse gas emissions generated directly in the production process as well as indirectly through the use of electricity, and then to pay a charge calibrated to the emission price under the EU ETS (www3). Where detailed emissions data are not available, default values calculated by the European Commission (2023) are to be used. In addition, importers may deduct emissions charges already paid in the country of production (e.g. in the form of carbon taxes or a local ETS).

Revenues from CBAM are intended to supplement the common European budget. At present, this budget amounts to just over 1% of the GNI of the EU-27 Member States and is under increasing pressure from new expenditure needs, including defence, the energy transition, and digital transformation. Consequently, EU authorities are seeking new sources of financing (referred to as EU own resources) that would enable the funding of EU policies (Darvas et al., 2025). CBAM is expected to become one of the sources of financing for the debt incurred by the EU under the Next Generation EU programme launched in 2020, as 75% of revenues from customs duties and border charges collected by Member States are transferred to the EU budget.

However, the scale of potential revenues is expected to be limited. In its proposal for the new Multiannual Financial Framework (MFF) of July 2025, the European Commission estimated potential EU revenues at EUR 1.4 billion per year on average over the period 2028-2034 (www4). Earlier estimates from 2021 suggested that revenues could reach EUR 2.6 billion in 2030 (European Commission, 2021). Some estimates point to higher revenues, for example the OECD (2025a) estimated potential revenues at EUR 14.7 billion, and S&P (2023) at EUR 12.4 billion in 2030. Differences between these estimates depend both on the modelling approach adopted and on assumptions regarding the pace of the phase-out of free allowances under the ETS. Nevertheless, none of these amounts exceeds even 0.1% of EU-27 GDP[2].

CBAM is intended to be consistent with the rules of the World Trade Organization (WTO). This means that it may not discriminate against domestic producers in favour of imports, nor unjustifiably favour selected trading partners (Hillman, 2013). Zachmann and McWilliams (2020) argue, however, that this limits the potential effectiveness of the mechanism in protecting against carbon leakage and constrains the number of sectors that can be

[2] Total EU-27 GDP in 2024 amounted to EUR 18,015 billion, and according to European Commission forecasts it is expected to increase to approximately EUR 18,761 billion in 2025.

covered, while the mechanism is likely to face criticism from the EU's trading partners in any case.

CBAM has also been criticised for its bureaucratic complexity and potential loopholes. According to the European Commission's original estimates (2021), the annual costs of the additional administrative burden were expected to be limited and to amount to less than EUR 30 million, half of which would be borne by the private sector and the other half by public administration. However, the instrument was subject to strong criticism in the Draghi report (2024) for four reasons:

1. The requirement to report emissions for each product by individual importers multiplies administrative obligations, while detailed data on the emission intensity of specific production processes in third countries vis-à-vis the EU are generally unavailable. The current formula makes it difficult to extend CBAM to a larger number of products in the future.
2. The mechanism allows for artificial "greening" of production through the redirection of low-emission production to the EU and high-emission production (e.g. from non-decarbonised production lines or electricity generated from coal) to other countries. The reliance on importer-declared emission intensity limits the ability to accurately verify real-world emissions outside the EU.
3. Limiting the mechanism to basic products increases the risk of carbon leakage in downstream industries. CBAM currently applies only to basic products (e.g. steel and aluminium). This increases costs for EU producers using imported inputs, while highly processed goods with significant value added (e.g. cars) are not subject to the charge.
4. CBAM does not level costs for exporters. The charge partially equalises competitive conditions for imports; however, EU exporters will continue to bear higher climate-related charges than their competitors outside the EU. This problem is partly related to the fiscal objective of CBAM (as it constitutes revenue for the EU budget, these funds cannot simultaneously be used to subsidise exporters) and partly to WTO rules (granting subsidies increases the risk of trade disputes).

For these reasons, **the Draghi report suggested developing CBAM towards an instrument with broader product coverage and a simpler design**. Similar views are also expressed in academic literature; for example, Campolmi et al. (2024) propose replacing the mechanism with LBAM carbon tariffs, the level of which would be calculated on the basis of sectoral import and export elasticities and the elasticity of EU emissions with respect to GDP.

In 2025, the European Commission simplified the functioning of the CBAM charge. The most important change concerns the exemption from reporting obligations for so-called small importers, i.e. companies importing less than

50 tonnes of CBAM-covered goods per year. According to Commission estimates, this exemption will apply to approximately 182,000 enterprises, while reducing the share of emissions covered by the mechanism by only 1%. In addition, the Commission declared that it would publish default emission intensity values for countries that have introduced their own emissions pricing systems (i.e. a local ETS or a carbon tax) (www5).

Methodology

1. Model

We estimate the potential effects of introducing the CBAM mechanism, as well as CBAM Plus and CBAM All carbon tariffs (i.e. extending the charge from selected goods to entire industrial sections), using the KITE (Kiel Institute Trade Policy Evaluation) model (Hinz, Mahlkow, Wanner, 2025). KITE is a CGE (Computational General Equilibrium) general equilibrium model used, inter alia, to analyse the impact of trade policies. We have already used this model previously in a publication devoted to the analysis of US tariffs (Sojka, Sułkowski, Wąsiński, 2025). Its main assumptions include:

- the model assumes N countries, each with K economic sectors. This means that a total of N×N×K×K input-output relationships are used,
- production in each sector is based on two factors of production – a sole primary factor of labour and an intermediate capital inputresulting from input-output relationships,
- productivity in individual countries and sectors is estimated so as to reflect Ricardian comparative advantages and the gravity structure of international trade,
- the labour factor is mobile across sectors within a given country, but not across countries,
- markets are perfectly competitive; firms and consumers are therefore price takers,
- international trade balances globally. The trade balance outcomes of individual countries are fixed and assumed exogenously.

We estimated the model on the basis of a combination of several datasets:

- the primary source is the OECD ICIO 2023 inter-country input-output tables (OECD, 2023a),
- additionally, we combine them with OECD TiVA 2023 trade balance indicators (OECD, 2023b) and OECD TIM 2023 wage data (OECD, 2023c),
- data on effective tariff rates are taken from the World Bank's WITS database (2025)[3]. We therefore do not take into account changes in global tariff rates introduced in 2025,

[3] In the absence of data for a given year, the rates are approximated using the most recent available data.

- sectoral elasticities of international trade are calibrated based on the work of Fontagné, Guimbard and Orefice (2022) and Freeman et al. (2021),
- overall, the model is fed with data on trade linkages for 77 geographic regions (76 countries and an aggregate "rest of the world" category) and 44 sectors (including 23 industrial sectors; for the sake of simplicity, we omitted the last sector, i.e. "Services provided by households as employers"), with reference prices from 2020,
- all values in the *Analysis and Results* section are reported relative to the model's steady state. This means that we first compute the equilibrium without introducing the trade shock (CBAM charges or CBAM Plus and CBAM All tariffs in different variants), and then compute the new equilibrium after the policy is introduced. The effects of introducing the new trade policy instrument are the difference between these two values.

2. Specification of the Trade Shock – Methods for Determining Emission Intensity

We estimate the level of applicable rates for different variants of the CBAM charge using three independent approaches based on different data sources. These are: default rates for the goods currently covered by CBAM as provided by the European Commission; sectoral emission intensities in individual countries as estimated by the OECD; and sectoral emission intensities in EU countries based on Eurostat data. In the calculations, we do not take into account the *de minimis* exemption for the smallest importers. In all estimates, we treat the EU as a single entity, i.e. the 27 Member States that apply identical CBAM charge rates to imports from non-EU countries.

a) CBAM default rates

The European Commission (2023) published default emission intensity values for 247 CBAM goods, excluding electricity. These values are expressed in terms of CO_2-equivalent emissions[4] generated directly in the production process of a given good and indirectly, i.e. emissions arising from the generation of electricity consumed in production. The rates calculated by the Commission are published in the form of 8-digit CN commodity codes, whereas our model is estimated at the level of 44 groupings of economic activities based on the ISIC Rev. 4 classification. In order to translate rates for individual goods to the ISIC grouping level, we apply the following procedure:

1. Based on Eurostat (2025a) data on imports of goods into the EU-27 at the CN code level, expressed in kg/EUR, we calculate the total volume of emissions attributed to imports of individual goods covered by CBAM. For

[4] Greenhouse gases include not only carbon dioxide but also, inter alia, nitrous oxide, methane, hydrofluorocarbons, and sulfur hexafluoride. The CO_2 equivalent is a measure that converts their impact on the climate to a common denominator, i.e. expresses it as the equivalent of CO_2 emissions.

this purpose, we use data for 2024, i.e. reflecting the current structure of international trade.
2. We assign values for individual goods to the closest corresponding ISIC groupings, then aggregate them within sections and relate them to the value of imports for the entire group, including goods not covered by CBAM.
3. We calculate the implied carbon border charge rate assuming a selected CBAM allowance price.
4. Due to the applied methodology, the calculated values constitute an upper-bound estimate of the rate level. In practice, individual importers may apply for a reduction of the CBAM border charge if they are able to demonstrate that a specific product was produced using less emission-intensive production techniques or that part of the costs has already been paid in the country of production (e.g. under a local ETS).

b) Eurostat emission intensity data

Under this approach, we use data on emission intensity per unit of output in individual NACE Rev. 2 sections, averaged across all producers in the EU-27 Member States (Eurostat, 2025b)[5]. These data are subsequently converted to the ISIC Rev. 4 classification, and the emission intensity indicators are multiplied by the assumed CBAM allowance prices. This approach allows us to measure only emissions directly attributable to the production process, excluding indirect emissions related to industrial electricity consumption; consequently, it provides a downward-biased estimate of the charge level. The above procedure enables us to derive average indicators of direct emission intensity at the level of industrial sections.

However, Eurostat data do not allow for an unambiguous assignment of emission intensity to individual activities and goods within a given industrial grouping. Both CBAM and the EU ETS cover only a subset of activities within each NACE or ISIC grouping. For goods covered by CBAM, we additionally adjust the value of the indicator by the share of CBAM goods in imports to a given section, based on the calculations presented in the previous subsection[6]. By contrast, for sectors covered by the EU ETS1, the charge is applied to the entire ISIC grouping.

[5] Due to limited data availability, we use emission intensity data per EUR 1 of output for 2022. As the values are expressed in nominal prices, we convert them to 2020 prices using sectoral PPI indices. For several sections, individual small EU countries did not publish data – these include, inter alia, Luxembourg, Malta, Lithuania, and Ireland. In addition, for sections C20 (chemicals) and C21 (pharmaceuticals and medicines), data for Sweden are also unavailable. In such cases, we calculate a weighted average emission intensity for the EU section, excluding the missing countries.

[6] As a rule, goods subject to the CBAM charge or activities required to participate in the EU ETS1 are above-average emitters. Consequently, this type of estimate further understates the level of charges relative to the value of output.

c) OECD emission intensity data

The final approach is based on the use of OECD emission intensity data (2025b). These data include estimates of both direct and indirect emissions[7], disaggregated by country and ISIC groupings, and are fully aligned with the data used in our model estimation. We directly combine these data with production values from the OECD ICIO input–output tables, thereby obtaining a measure of emission intensity per unit of output for individual countries.

The CBAM charge rates incorporated into the model are prepared under two geographic variants:

1. Average rates, reflecting the emission intensity of producers in the EU-27 within a given ISIC grouping. Under this variant, rates are identical for all countries exporting to the EU.
2. Country-specific rates, calculated individually for each country exporting to the EU (within a given ISIC grouping). This variant differentiates the level of the rate depending on the emission intensity of production in the exporting country.

Box 1. Which emissions should CBAM reflect?

Determining the level of charges under CBAM is a complex economic problem that affects not only the amount of the charge itself, but also economic competitiveness and the environmental effects of the policy.

In an "ideal economic world," the level of the rates should depend on the individual emissions of individual firms in the production of specific goods. In theory, such a mechanism would allow for a precise valuation of the climate costs of emissions. It would penalise high-emission producers and provide a financial incentive for innovation through the decarbonisation of individual production processes. However, the actual implementation of this mechanism in the economy is difficult for two reasons:

1. It requires detailed monitoring of emission intensity at the level of thousands of firms and production processes, which in itself constitutes an additional administrative burden.
2. Production facilities exporting to the EU are located outside the EU's direct jurisdiction; therefore, the obligation to declare emission intensity and to pay the charge rests with EU importers. Where these are independent entities, the European importer will not have the ability to control production processes in the foreign manufacturing entity.

[7] That is, Scope 2, i.e. indirect emissions associated with energy purchased by companies – electricity, steam, heat, and district cooling.

As a consequence, the CBAM mechanism proposed by the European Commission has been criticised, inter alia, for its bureaucratic complexity and for creating loopholes that allow exporters to the EU to understate emissions (Draghi, 2024; Campolmi et al., 2024). In response, the European Commission proposed simplifications, namely, an exemption for small importers (imports of CBAM-covered goods below 50 tonnes per year) and the introduction of default emission intensity values (European Commission, 2023; www5). However, these mechanisms reduce the effectiveness of CBAM as a climate policy instrument. For example, if a company exporting to the EU operates an above-average emission-intensive production process, the CBAM charge may be set at the level of the default rates. In such a scenario, investment in greener production methods may yield no financial return, thereby removing incentives for decarbonisation.

An alternative option – considered in the initial analyses of CBAM – was to set rates with reference to the emission intensity of European producers. Such a form of the charge would equalise costs – and thus competitiveness – on the European market, but would create a weaker decarbonisation incentive for producers outside the EU (European Commission, 2021).

The data used in this study do not allow for analysis at the firm level. They do, however, make it possible to account for some of the challenges related to choosing the reference country whose emission intensity is to be equalised:

a) default CBAM rates for goods correspond to the average emission intensity of exporters to the EU from outside the Union,
b) Eurostat data reflect the direct emission costs of European producers,
c) OECD data capture emissions of European producers and also allow for the calculation of country-specific rates for all non-EU countries and economic sectors. In addition – unlike Eurostat data – they make it possible to account for indirect emissions.

3. Sectoral Coverage

The CBAM currently being implemented covers only the most emission-intensive goods, namely steel, aluminium, fertilisers, cement, and electricity. This limited scope serves both as a simplification of the CBAM charging mechanism and as a pilot approach, allowing for the possible inclusion of additional sectors in the future. The activities intended to be covered by CBAM are indeed among the most emission-intensive; however, within the EU they are not fully subject to ETS charges, as they benefit from derogations in the form of free emission allowances. As a result, while the existing ETS imposes charges on CO_2 emissions within the EU, it does not currently provide for full border equalisation of these charges vis-à-vis competitors from outside the EU.

Accordingly, this analysis considers three alternative sectoral scopes:

- CBAM All – covering all industrial goods sectors,
- CBAM Plus – covering sectors subject to the EU ETS1,
- CBAM – covering sectors included in the implemented CBAM, i.e. steel, aluminium, fertilisers, and cement, excluding electricity.

Table 1. Sectors subject to constraints, by scenario

CBAM	CBAM Plus	CBAM All
B07_08 Mining and quarrying, non-energy products	C17_18 Manufacture of paper and paper products; printing	B05_06 Mining and quarrying, energy products
C20 Manufacture of chemicals and chemical products	C19 Manufacture of coke and refined petroleum products	B07_08 Mining and quarrying, non-energy products
C23 Manufacture of other non-metallic mineral products	C20 Manufacture of chemicals and chemical products	B09 Mining support service activities
C24 Manufacture of basic metals	C22 Manufacture of rubber and plastic products	C10T12 Manufacture of food products, beverages and tobacco products
C25 Manufacture of fabricated metal products	C23 Manufacture of other non-metallic mineral products	C13T15 Manufacture of textiles, wearing apparel, leather and footwear
	C24 Manufacture of basic metals	C16 Manufacture of wood and cork products
	C25 Manufacture of fabricated metal products	C17_18 Manufacture of paper and paper products; printing
	D Electricity, gas, steam and air conditioning supply	C19 Manufacture of coke and refined petroleum products
		C20 Manufacture of chemicals and chemical products
		C21 Manufacture of basic pharmaceutical substances and pharmaceutical preparations
		C22 Manufacture of rubber and plastic products
		C23 Manufacture of other non-metallic mineral products
		C24 Manufacture of basic metals
		C25 Manufacture of fabricated metal products
		C26 Manufacture of computer, electronic and optical products
		C27 Manufacture of electrical equipment
		C28 Manufacture of machinery and equipment n.e.c.
		C29 Manufacture of motor vehicles, trailers and semi-trailers
		C30 Manufacture of other transport equipment
		C31T33 Manufacture of furniture; other manufacturing; repair and installation of machinery
		D Electricity, gas, steam and air conditioning supply

Source: Polish Economic Institute (PEI).

In the above scenarios, we assume two methodological simplifications. First, when estimating the effects of CBAM, we exclude trade in electricity due to the absence of specified default emission intensity values in the European

Commission document – for the sake of consistency, this assumption applies to all estimates of CBAM impacts. Second, in the CBAM Plus scenario, we define the sectors covered by the EU ETS as divisions C17-C20, C23-C25, and Section D. It should be noted that in the CBAM scenario we include the grouping "B07_08" due to the classification of kaolinic clays as a CBAM-covered good; however, the process of its extraction should not be subject to the EU ETS.

4. Assumptions on ETS Emission Allowance Prices and, Consequently, CBAM Emission Allowances

Given that, under the CBAM design proposed by the European Commission, the border charge price is linked to the price of emission allowances in the **EU ETS**, it was necessary to adopt an assumption regarding the level of this price in the model. We assume three scenarios for the evolution of allowance prices – the first being close to the current ETS allowance price, and the latter two reflecting industry forecasts for the coming years (Marcu et al., 2025):

1. EUR 75/tCO_2[8],
2. EUR 150/tCO_2,
3. EUR 200/tCO_2.

5. Assumptions of the Adopted Geographic Scenarios

A further complication in constructing the model was the need to define the countries from which imports would be subject to CBAM charges or CBAM Plus and CBAM All carbon tariffs. Some countries operate existing systems for collecting emission charges from domestic producers. Given that the model was primarily intended to verify the potential of an alternative approach to CBAM, we developed trade and policy criteria for countries potentially included in or excluded from CBAM. In line with research on climate clubs, the set of countries covered by CBAM should evolve over time and encourage accession to the mechanism.

In this study, we construct eight scenarios for the geographic scope of CBAM and its extensions to additional sectors:

1. Imposition of CBAM charges on all non-EU countries.
2. Exemption of the United States from CBAM in connection with the agreement on the reduction of tariffs on industrial goods.

[8] For the sake of simplicity, we use the notation EUR/tCO_2 throughout the text instead of the longer EUR/tCO_2eq. In practice, however, the measures applied capture emissions from all greenhouse gases, expressed in CO_2 equivalent.

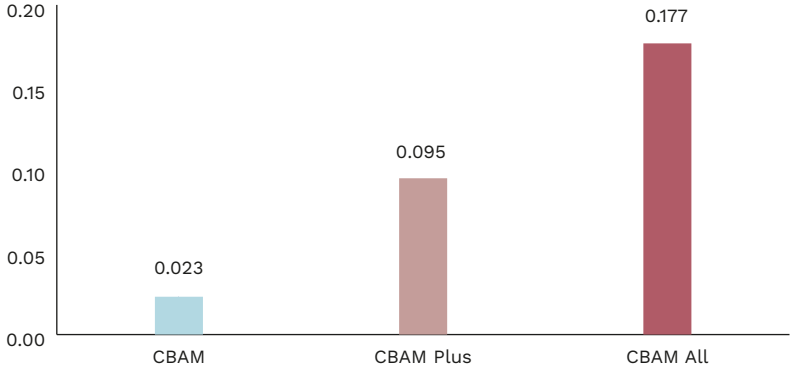
3. Exemptions for countries with which the EU has concluded free trade or economic cooperation agreements (www6):
   a) exemption for countries with which the EU has concluded free trade or economic cooperation agreements, as well as for the United States,
   b) exemption for countries with which the EU has concluded free trade or economic cooperation agreements, excluding Turkey[9],
   c) exemption for the United States and for countries with which the EU has concluded free trade or economic cooperation agreements, excluding Turkey.
4. A potential climate club for the EU. Its members would include Australia, Canada, Iceland, Japan, South Korea, Norway, and New Zealand.
5. The above climate club extended to include the United States.

[9] The purpose of this scenario is to estimate part of the risk associated with carbon leakage to a large and geographically proximate country with a strong industrial base, rather than to penalise Turkey. The authors note that, in the context of climate change, Turkey has acceded to the Paris Agreement and, in July 2025, adopted legislation aimed at establishing a national ETS (www7).

Analysis and Results

Both the CBAM charge and the CBAM Plus and CBAM All carbon tariffs increase the budget revenues of European Union Member States. In addition, they level the playing field for the industrial sector and lead to an increase in the share of industrial sections in the EU's global output. The cost, however, is lower economic efficiency, reflected in a decline in real GDP.

Figure 1. Revenues from CBAM All and CBAM Plus carbon tariffs compared with the CBAM charge (% of GDP, allowance price: EUR 75/tCO_2)



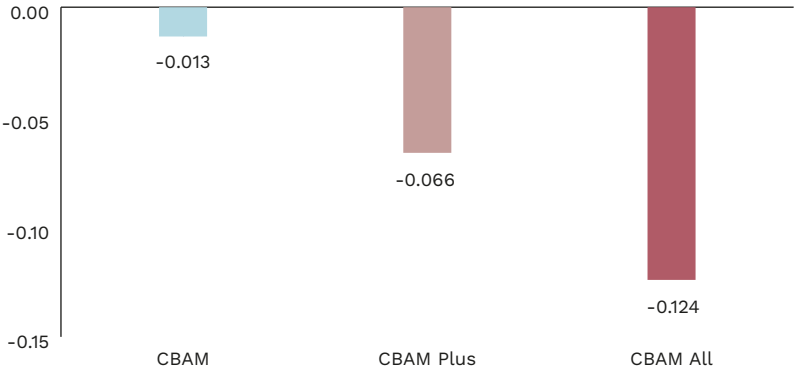
Note: one-off GDP loss resulting from the loss of benefits from international free trade and from less efficient allocation of resources. Based on OECD data on total emissions, i.e. emissions generated directly in the production process (Scope 1 emissions) and indirectly through the use of energy in production (Scope 2 emissions).

Source: Polish Economic Institute (PEI).

The magnitude of the economic effects will be limited. Estimates of the impact of the CBAM charge mechanism vary depending on the emission intensity data applied and the assumed carbon price. Nevertheless, even in the case of an increase in emission allowance prices to EUR 200/tCO_2, the decline in GDP of the EU-27 should not exceed 0.08%. The increase in revenues resulting from the introduction of the mechanism is similarly modest. By contrast, the introduction of CBAM All carbon tariffs on all industrial products could increase EU-27 revenues by up to 0.35% of GDP and lead to a decline in real GDP of 0.27%.

Carbon tariffs could become a relatively significant source of financing for the EU budget. The results of our model estimates indicate that the CBAM All tariff could increase EU budget revenues by 0.10-0.26% of GDP, depending on the selected method for estimating emission intensity and the assumed price of carbon emission allowances – even after accounting for the fact that only 75% of tariff revenues would accrue to the EU budget, with the remaining 25% going to Member States. This nevertheless represents a relatively large increase, as the latest proposal for the EU Multiannual Financial Framework (MFF) envisages a common European budget amounting to 1.26% of the Union's Gross National Income (GNI), of which 0.11% is earmarked for the repayment of debt under the NextGenerationEU programme (www8).

Figure 2. GDP loss in the EU-27 resulting from the introduction of CBAM All and CBAM Plus carbon tariffs compared with the CBAM charge (% of GDP, allowance price: EUR 75/tCO_2)



Note: one-off GDP loss resulting from the loss of benefits from international free trade and from less efficient allocation of resources. Based on OECD data on total emissions, i.e. emissions generated directly in the production process (Scope 1 emissions) and indirectly through the use of energy in production (Scope 2 emissions).

Source: Polish Economic Institute (PEI).

All of the above effects affect Poland more strongly than the average EU Member State. We estimate that CBAM charges may reduce Poland's GDP by 0.01-0.14%, depending on the chosen method for estimating emission intensity and the assumed price of carbon emission allowances. In turn, the CBAM All tariff could reduce Poland's GDP by up to 0.69%, assuming an increase in emission allowance prices to EUR 200/tCO_2. In each of these scenarios, Poland also obtains proportionally higher revenues from collected tariffs than the EU-27 average.

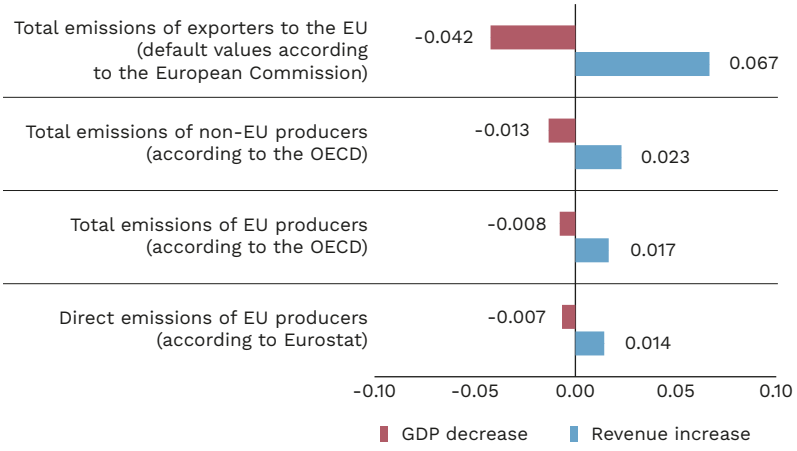
A likely explanation for this result is the relatively large share of industry in Poland's economy. According to Eurostat (2025c), industrial sections

(excluding construction) accounted for 25.6% of value added generated in Poland in 2023, compared with an EU-27 average of 20.1%. This suggests that Poland has greater exposure to industrial shocks, including through indirect linkages in global value chains.

1. Estimates of the Impact of the CBAM Charge

The methods we selected for calculating emission intensity yield divergent estimates of CBAM effects. Revenues from the CBAM charge could reach 0.07% of EU-27 GDP and simultaneously result in a loss of 0.04% of EU real GDP, assuming an allowance price of EUR 75/tCO_2 (method based on default emission intensity rates published by the European Commission). This estimate, however, appears to be overstated, as the estimated effects are approximately three times higher than those obtained using OECD emission intensity data. By contrast, methods based on Eurostat and OECD emission intensity data indicate a much weaker fiscal effect – around 0.01-0.02% of GDP in additional revenues, i.e. EUR 2.6-4.1 billion based on GDP at current prices for 2024. All estimates represent the upper bound of potential effects, as they do not account for the exemption for small importers or the possibility of reducing the charge by climate taxes already paid in countries of production.

Figure 3. Impact of the introduction of the CBAM charge on EU-27 revenues and GDP, by emission intensity calculation method (% of GDP, allowance price: EUR 75/tCO_2)

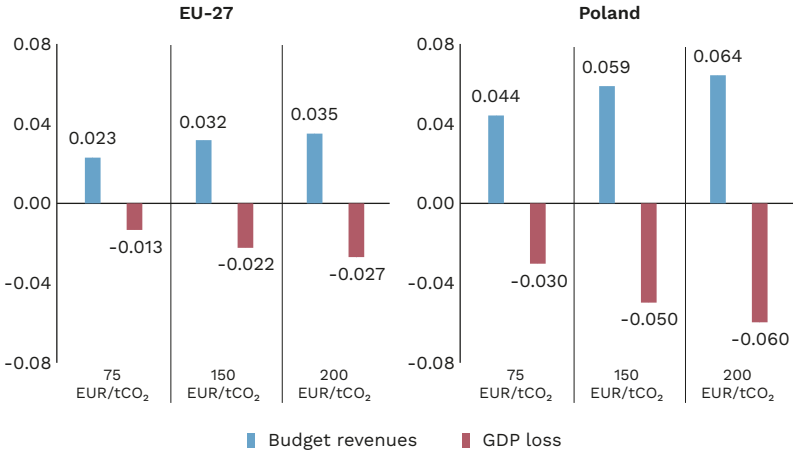


Note: total additional revenues from border charges, without a breakdown into the EU share and the national share. Direct emissions are emissions generated during production (Scope 1). Total emissions comprise direct emissions and indirect emissions related to energy used in production (Scope 2). The estimate based on default rates published by the European Commission is very high, both relative to other emission intensity estimation methods and to independent estimates by the European Commission. This estimate is therefore likely overstated.

Source: Polish Economic Institute (PEI).

Revenues and economic costs increase along with emission allowance prices. In the scenario based on emission intensity rates according to the European Commission, an increase in allowance prices from EUR 75/tCO_2 to EUR 150/tCO_2 leads to a rise in revenues from the CBAM charge for the EU-27 from 0.067% to 0.08% of GDP. This means that a doubling of allowance prices results in only a modest increase in revenues. At the same time, the magnitude of GDP at risk increases relatively more rapidly – from 0.042% to 0.067%.

Figure 4. Impact of the introduction of the CBAM charge on all EU trading partners – method based on total emissions of non-EU producers according to OECD data (% of GDP)



Note: total additional revenues from border charges – without a breakdown into the EU share and the national share.

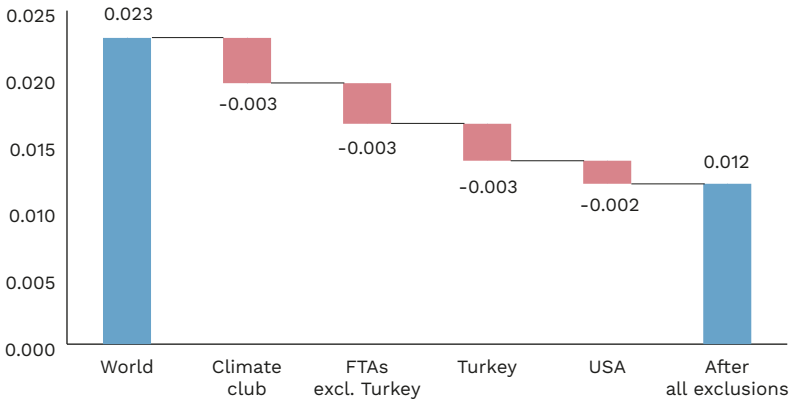
Source: Polish Economic Institute (PEI).

Poland may experience the introduction of CBAM more strongly than average. In scenarios based on OECD data, Poland collects 86.4% higher revenues relative to GDP than the EU average and may incur 123.2% higher GDP losses – this result reflects an average across the three price variants. Nevertheless, even in these cases the scale of the potential impact remains very small: the share of GDP at risk in Poland should not exceed 0.06%.

Scenarios introducing exemptions for specific countries significantly reduce revenues from the mechanism. We estimate that applying the broadest set of preferences would halve potential revenues – this is the scenario in which we assume exemptions for countries with free trade agreements, a potential climate club, and the United States. By contrast, exempting only the climate club or Turkey results in a revenue decline of approximately 15%. Given the

model specification, these results also partly approximate the potential effects of industrial decarbonisation in countries trading with the EU.

Figure 5. Impact of country-specific exemptions from the CBAM charge on EU-27 revenues – method based on total emissions of non-EU producers according to OECD data (% of GDP, allowance price: EUR 75/tCO_2)



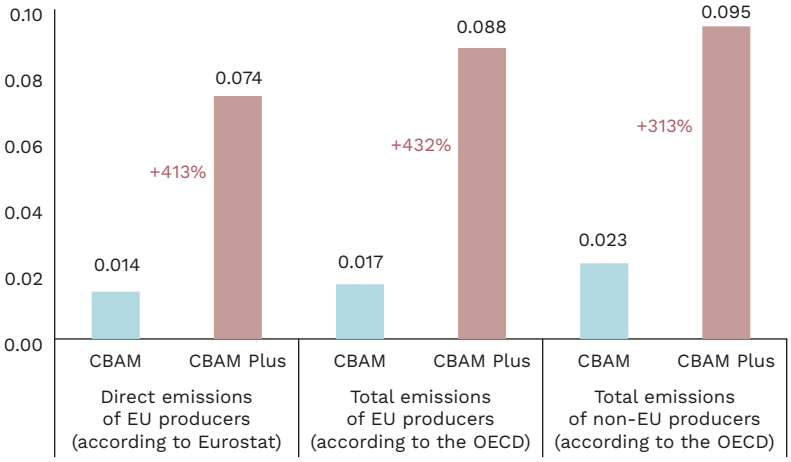
Note: all countries classified by us as potential members of the climate club, with the exception of Australia, have also negotiated trade agreements with the European Union. Consequently, the category "Free trade agreements excluding Turkey" ("FTAs excl. Turkey") reflects the additional effect associated with exempting only those countries that have concluded a free trade agreement with the EU (excluding Turkey) but are not members of the potential climate club.

Source: Polish Economic Institute (PEI).

2. Estimates of the Impact of CBAM Plus Carbon Tariffs

The CBAM Plus carbon tariff could increase revenues by up to four times compared with the CBAM scenario. Assuming an emission allowance price of EUR 75/tCO_2 and depending on the adopted method for estimating emission intensity, it could generate revenues of 0.074-0.095% of EU-27 GDP, i.e. EUR 13-17 billion relative to the level of economic activity in 2024. The greatest fiscal potential is achieved when the emission pricing mechanism accounts for indirect emissions resulting from energy consumption and is based on emission intensity in the countries where the goods are produced. Given the selection of sectors, this estimate simultaneously illustrates the upper bound of revenues that could be obtained by extending CBAM's product scope to additional activities covered by the EU ETS.

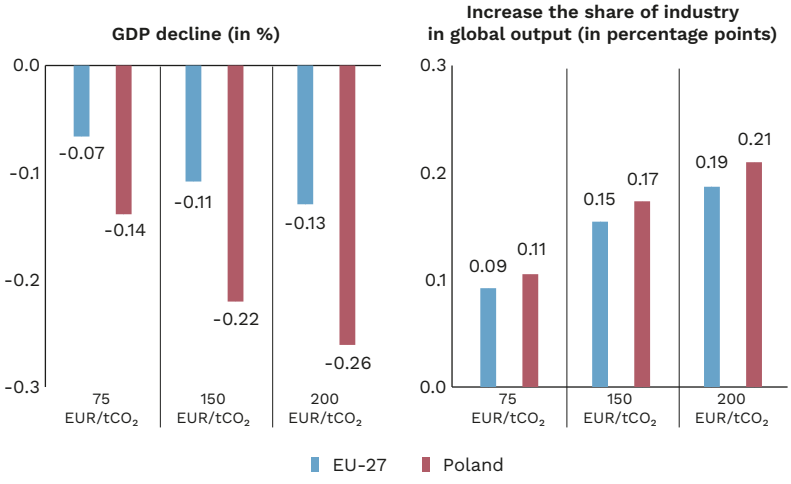
Figure 6. Revenues from CBAM Plus carbon tariffs compared with the CBAM charge (% of GDP, allowance price: EUR 75/tCO$_2$)



Note: total additional revenues from border charges, without a breakdown into the share accruing to the EU and the national share. Direct emissions are emissions generated during production (Scope 1). Total emissions comprise direct emissions and indirect emissions related to energy used in production (Scope 2).

Source: Polish Economic Institute (PEI).

Figure 7. Impact of CBAM Plus carbon tariffs on GDP and the share of industry – method based on total emissions of non-EU producers according to OECD data



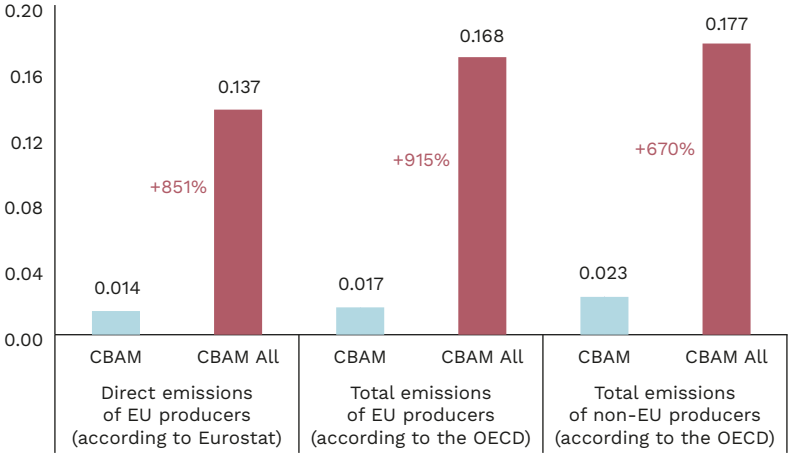
Source: Polish Economic Institute (PEI).

The carbon tariff will support European industry at the expense of the rest of the economy. We estimate that the introduction of CBAM Plus tariffs may increase the share of industry in global output in Poland and the EU by approximately 0.09-0.11 percentage points, assuming an emission allowance price of EUR 75/tCO_2. If the allowance price doubles, this effect increases to 0.15-0.17 percentage points. This also implies a relocation of parts of production chains to the EU, thereby reducing the Union's import dependence. Given the model assumptions, increased industrial output occurs at the cost of labour outflows from other sectors, such as services, where value added per unit of labour is higher than in industry. As a consequence, up to 0.13% of EU-27 GDP and up to 0.26% of Poland's GDP are at risk.

3. Estimates of the Impact of CBAM All Carbon Tariffs

Extending the carbon tariff to all industrial products results in an additional increase in revenues. Assuming an emission allowance price of EUR 75/tCO_2, revenues would amount to 0.137-0.177% of EU-27 GDP, depending on the selected method for estimating emission intensity and the geographic scope. This represents up to an 8.5-fold increase compared with the CBAM charge. By contrast, the additional fiscal effects relative to CBAM Plus tariffs (approximately a twofold increase in revenues) are relatively smaller, as in this scenario the extension covers industrial sectors with lower direct emissions.

Figure 8. Revenues from CBAM All carbon tariffs compared with the CBAM charge (% of GDP, allowance price: EUR 75/tCO_2)



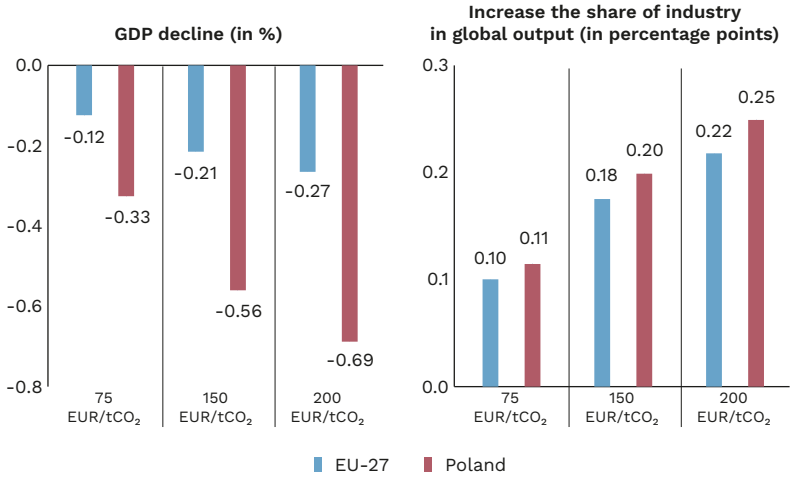
Note: total additional revenues from border charges, without a breakdown into the share accruing to the EU and the national share. Direct emissions are emissions generated during production (Scope 1). Total emissions comprise direct emissions and indirect emissions related to energy used in production (Scope 2).

Source: Polish Economic Institute (PEI).

Broad carbon tariffs also imply the strongest protection of industry and, potentially, the largest GDP losses. Depending on the emission allowance price, between 0.12-0.27% of EU-27 GDP and 0.33-0.69% of Poland's GDP may be at risk. At the same time, a broad carbon tariff instrument could increase the share of industry in the European economy by up to 0.22 percentage points – with the effect for Poland being slightly stronger, reaching up to 0.25 percentage points.

The main advantage of such a tariff lies in protection against carbon leakage in downstream industries, i.e. in highly processed goods with significant value added, as well as in supporting industry during a period of increasing economic security and domestic production. This would, however, come at the expense of service sectors.

Figure 9. Impact of CBAM All carbon tariffs on GDP and the share of industry – method based on total emissions of non-EU producers according to OECD data

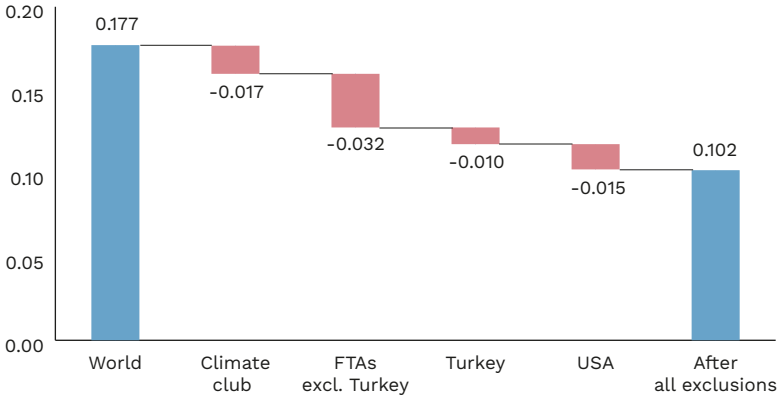


Source: Polish Economic Institute (PEI).

Broad CBAM All carbon tariffs may be slightly less susceptible to circumvention attempts by exporters. Exempting the United States and all countries with which the EU has concluded free trade agreements could reduce revenues from 0.177% to 0.102% of EU-27 GDP – in the scenario based on OECD country-specific emission intensity data and assuming an emission allowance price of EUR 75/tCO_2. This corresponds to a reduction in potential revenues of approximately 18.5%. By comparison, the analogous effect limited to goods currently covered by CBAM amounts to 22.6% when using exporter emission intensity data and 24.8% when using data on the emission intensity

of EU producers. In our model, this difference results directly from applying the charge to a larger share of the global value chain.

Figure 10. Impact of exemptions for selected countries on EU-27 revenues under CBAM All – method based on total emissions of non-EU producers according to OECD data (% of GDP, allowance price: EUR 75/tCO$_2$)



Note: all countries classified by us as potential members of the climate club, with the exception of Australia, have also concluded trade agreements with the European Union. Consequently, the category "FTAs excl. Turkey" captures the additional effect associated with exempting only those countries that have concluded a free trade agreement with the EU (excluding Turkey) but are not members of the potential climate club.

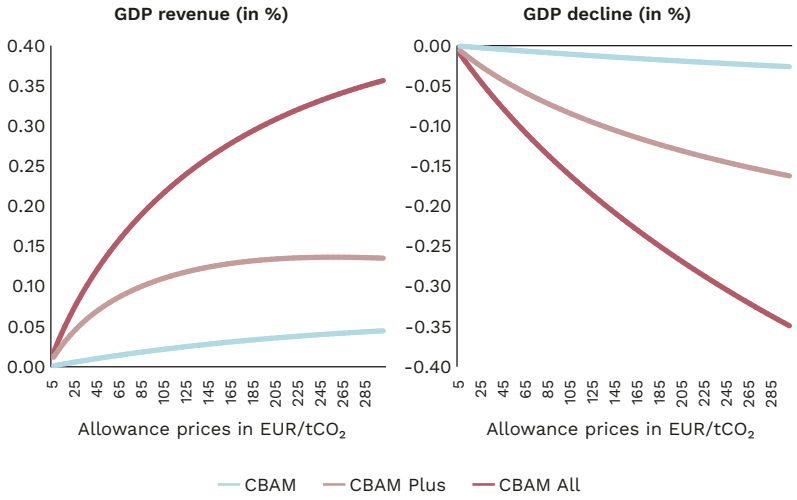
Source: Polish Economic Institute (PEI).

Broad CBAM All carbon tariffs may also deliver slightly better economic outcomes in the event of a strong increase in emission allowance prices. We additionally estimated the impact of the individual mechanisms across allowance prices ranging from EUR 5/tCO$_2$ to EUR 300/tCO$_2$. For CBAM All tariffs, both revenues and potential GDP at risk are higher at every emission price level. Revenues increase proportionally alongside the potential GDP loss even when allowance prices rise to EUR 300/tCO$_2$. Model results suggest that, for CBAM Plus tariffs, a significant increase in revenues occurs as allowance prices rise to approximately EUR 125-150/tCO$_2$; above this range, the marginal cost to real GDP outweighs increase in revenues. By contrast, the CBAM charge in its current form is unable to generate significant budget revenues even under the assumption of a fourfold increase in emission allowance prices.

It should be borne in mind, however, that these results are subject to considerable uncertainty, as the assumed allowance price levels are up to four times higher than the current price in the EU ETS. Moreover, large trade shocks in the form of tariffs may have unpredictable effects, depending on

the specific implementation mechanism. Our model isolates only the effects of higher emission allowance prices in international trade between EU countries and the rest of the world, and does not account for the effects of higher allowance prices on European industry itself.

Figure 11. Impact of CBAM, CBAM Plus, and CBAM All on the EU-27, by emission price



Note: total additional revenues from border charges, without a breakdown into the share accruing to the EU and the national share. All scenarios are based on OECD data on exporters' emission intensity.

Source: Polish Economic Institute (PEI).

Discussion

The presented estimates contribute to two distinct debates. The first concerns the potential of the CBAM charge and possible CBAM Plus and CBAM All carbon tariffs as EU own resources. The second relates to methodological challenges associated with the availability and consistency of emissions data and their integration with international trade databases.

The level of estimated revenues resulting from the CBAM charge (i.e. the mechanism currently being implemented) varies depending on the chosen method for estimating emission intensity:

- Estimation approaches starting from emission intensity data at the level of individual ISIC groupings and subsequently narrowing them to CBAM-covered goods suggest very low revenues. At an allowance price of EUR 75/tCO_2, we estimate revenues at 0.014-0.023% of EU-27 GDP, i.e. EUR 2.6-4.1 billion based on GDP at current prices for 2024 – of which 75% would accrue to the EU budget (EUR 2.0-3.1 billion). These figures are close to the most recent estimates published by the European Commission;
- By contrast, the method based on default rates proposed by the European Commission, aggregating products to the level of ISIC sections, results in an increase in revenues of 0.067% of GDP, i.e. approximately EUR 12.0 billion (including EUR 9.0 billion accruing to the common EU budget). This estimate, however, is most likely overstated;
- These figures do not include potential deductions related to emissions charges already paid by exporters in countries of production, nor potential underreporting of emissions by importers in the EU. Moreover, due to the lack of emissions data at the level of individual production facilities outside the EU, it is not possible to estimate the scale of potential deductions associated with climate innovation investments undertaken by individual firms;
- The discrepancies are not limited to PEI estimates. During this year's presentation of the new Multiannual Financial Framework, the European Commission indicated that CBAM charges could generate revenues of around EUR 1.9 billion, while estimates from 2023 suggested

approximately EUR 2.5 billion[10]. These figures should reflect the gradual introduction of CBAM as free allowances under the EU ETS1 are phased out (European Commission, 2021; www4). By contrast, OECD estimates (2025a) indicated potential revenues of EUR 14.7 billion, assuming an allowance price of EUR 80/tCO_2 and full implementation of CBAM. Similarly, S&P (2023) anticipated a markedly higher revenue trajectory.

Replacing the CBAM charge with a broader CBAM Plus or CBAM All carbon tariff substantially increases expected revenues:

- Extending CBAM to the CBAM Plus form, covering sectors subject to the EU ETS, could increase revenues three- or fourfold, assuming an emission allowance price of EUR 75/tCO_2. By contrast, extending the mechanism to CBAM All, covering the entire industrial sector, implies up to a ninefold increase in potential revenues, amounting to approximately EUR 31.9 billion, of which EUR 23.9 billion would accrue to the common EU budget, with the remainder flowing to Member State budgets.
- **The relatively large revenue potential associated with extending CBAM stems largely from the fact that the EU budget is small**. Over recent decades, the annual EU budget has amounted to around 1% of European GNI, and under the new financial framework it is set to increase to 1.26%. Under such conditions, any moderate-sized new revenue source will have a significant impact on the size of the EU budget. We do not estimate costs related to cyclical volatility in import volumes and tariff revenues. We also note that EU policy regarding revenues from the EU ETS and CBAM is inconsistent with the views of a substantial share of economists, who argue that revenues from climate charges should be budget-neutral, i.e. redistributed to society (www1) or allocated directly to decarbonisation investments (Antosiewicz, Sokołowski, 2025).
- **The cost–benefit balance of introducing a carbon tariff is ambiguous**. At an emission price of EUR 75/tCO_2, our model indicates that the direct costs associated with EU-27 GDP losses could reach approximately 0.6 percentage points for a 1% of GDP increase in revenues. Non-modelled risk factors include the potential escalation of carbon tariffs into a trade war, as well as investment and training costs linked to shifts in relative demand. Consequently, any arguments in favour of introducing a carbon tariff would also need to have a protectionist dimension.
- **We also estimate that the GDP loss for Poland could be twice as high as the EU average**. This result is likely related to the larger share of industry in the Polish economy, i.e. sectors that would directly face higher costs of imported production inputs. On the other hand, CBAM-type charges

[10] The publications indicated an increase in the common EU budget of EUR 1.4 billion and EUR 1.5 billion, respectively. These amounts take into account the fact that 75% of CBAM revenues would accrue to the EU budget. Accordingly, total revenues (including the share accruing to the countries collecting the charge) would amount to approximately EUR 1.9 billion and EUR 2.0 billion, respectively. Yet, the earlier of the European Commission's estimates was expressed in constant 2018 prices – after adjusting for inflation, the amount increases from EUR 1.9 billion to EUR 2.5 billion.

or CBAM All tariffs also function as instruments for protecting domestic industry. Our model does not account for a potential increase in demand for heavy industry goods in the EU associated with higher military spending, nor for costs related to securing supply chains for products imported from outside the EU. These issues may provide a basis for further discussion on the indirect redistributive costs of increasing EU own resources.

- **We do not estimate administrative costs associated with specific methods for calculating emission intensity or with oversight of the CBAM collection mechanism**. Our estimates relate exclusively to costs arising from the loss of comparative advantages. These costs would, however, be relatively lower for CBAM All or CBAM Plus carbon tariffs due to the simple border collection mechanism, which avoids the complex reporting system currently embedded in CBAM. In addition, our estimates suggest that the choice of emission intensity calculation method (e.g. reflecting emissions of non-EU exporters or EU producers) may have a relatively limited impact on fiscal outcomes.
- **We also do not assess alternative revenue options**. Alternative ways of increasing the EU budget could include, for example, raising Member State contributions or granting the EU a share in selected taxes.
- **We partially estimate potential risks related to exemptions or limited oversight of the CBAM collection mechanism**. In most estimated scenarios, exempting a large industrial country (or significant underreporting of emissions by firms importing CBAM-covered goods from that country) reduces revenues by approximately 10%. A broad set of exemptions covering the United States and countries that have concluded free trade agreements with the EU reduces potential revenues by up to one half. **Due to the model structure, however, we are unable to estimate revenue losses associated with the exemption for small importers**.

The model we selected is a suitable tool for analysing the potential extension of CBAM charges to a broader range of industrial sectors, but it also has several limitations:

- The KITE model is designed to analyse trade relationships at the level of representative economic sectors using input–output tables. Due to data constraints, however, it does not allow for measuring relationships or estimating production changes at the level of detailed products (e.g. CBAM at the level of 8-digit CN codes). This means that global value chain linkages are captured only at aggregated section levels (e.g. metal production, chemical production), rather than for specific products.
- On the other hand, selecting this model in combination with OECD tables allows the model to be populated almost entirely with internally consistent data, prepared by a single organisation under a uniform classification system. All scenarios considered also illustrate the difficulties involved in linking datasets based on different classifications, in particular mapping detailed product codes onto sectoral data.

Further Research

The study has scope for extension in several directions. The most obvious avenue would be to translate the analysis into a model that allows for detailed product-level linkages (e.g. GTAP). Another promising direction would be a systematic explanation of the substantial heterogeneity in forecasts of potential CBAM revenues, depending on the chosen model, assumptions, and datasets. From a public policy perspective, an important extension would be a broader assessment of the redistributive effects of CBAM charges within the European Union, both at the level of Member States and across income groups, and the proposal of a compensation mechanism to offset potential losses suffered by poorer countries at the EU budget level or by citizens through national public policies. A particularly complex and challenging issue is the identification and estimation of all costs associated with additional administrative requirements, reporting obligations, and potential loopholes in the CBAM charging mechanism.

Appendix. Tables with Detailed Results

Table 1. Impact of the introduction of the CBAM charge for all countries outside the European Union

Sectoral scope	Method for calculating emission intensity	Whose emission intensity is reflected?	Emission allowance price (EUR/tCO_2)	Change in budget revenues (%)			Change in GDP (%)		
				PL	EU-27	Rest of the world	PL	EU-27	Rest of the world
CBAM-covered goods excluding electricity	Scope 1+2 emissions, CBAM default rates	Exporters to EU, averaged	75	0.108	0.067	-0.002	-0.073	-0.042	-0.012
CBAM-covered goods excluding electricity	Scope 1+2 emissions, CBAM default rates	Exporters to EU, averaged	150	0.136	0.080	-0.002	-0.118	-0.067	-0.019
CBAM-covered goods excluding electricity	Scope 1+2 emissions, CBAM default rates	Exporters to EU, averaged	200	0.144	0.082	-0.003	-0.139	-0.079	-0.022
CBAM-covered goods excluding electricity	Scope 1+2 emissions according to OECD	Exporters to EU, country-specific	75	0.044	0.023	-0.001	-0.030	-0.013	-0.004
CBAM-covered goods excluding electricity	Scope 1+2 emissions according to OECD	Exporters to EU, country-specific	150	0.059	0.032	-0.001	-0.050	-0.022	-0.006
CBAM-covered goods excluding electricity	Scope 1+2 emissions according to OECD	Exporters to EU, country-specific	200	0.064	0.035	-0.001	-0.060	-0.027	-0.008
CBAM-covered goods excluding electricity	Scope 1+2 emissions according to OECD	EU producers, averaged	75	0.024	0.017	0.000	-0.013	-0.008	-0.002
CBAM-covered goods excluding electricity	Scope 1+2 emissions according to OECD	EU producers, averaged	150	0.043	0.029	-0.001	-0.024	-0.015	-0.004
CBAM-covered goods excluding electricity	Scope 1+2 emissions according to OECD	EU producers, averaged	200	0.052	0.035	-0.001	-0.031	-0.019	-0.006
CBAM-covered goods excluding electricity	Scope 1 emissions according to Eurostat	EU producers, averaged	75	0.021	0.014	0.000	-0.011	-0.007	-0.002
CBAM-covered goods excluding electricity	Scope 1 emissions according to Eurostat	EU producers, averaged	150	0.037	0.026	-0.001	-0.021	-0.013	-0.004
CBAM-covered goods excluding electricity	Scope 1 emissions according to Eurostat	EU producers, averaged	200	0.046	0.032	-0.001	-0.027	-0.016	-0.005

Source: Polish Economic Institute (PEI).

Table 2. Impact of the introduction of CBAM Plus and CBAM All carbon tariffs for all countries outside the European Union

Sectoral scope	Method of calculating emission intensity	Whose emission intensity is reflected?	Emission allowances price (EUR/tCO_2)	Change in budget revenues (%)			Change in GDP (%)		
				PL	EU-27	Rest of the world	PL	EU-27	Rest of the world
ETS sectors (CBAM Plus)	Scope 1 emissions according to Eurostat	EU producers, averaged	75	0.120	0.074	-0.001	-0.065	-0.041	-0.010
ETS sectors (CBAM Plus)	Scope 1 emissions according to Eurostat	EU producers, averaged	150	0.198	0.124	-0.002	-0.121	-0.075	-0.019
ETS sectors (CBAM Plus)	Scope 1 emissions according to Eurostat	EU producers, averaged	200	0.233	0.146	-0.003	-0.153	-0.095	-0.024
ETS sectors (CBAM Plus)	Scope 1t2 emissions according to OECD	EU producers, averaged	75	0.144	0.088	-0.001	-0.079	-0.050	-0.012
ETS sectors (CBAM Plus)	Scope 1t2 emissions according to OECD	EU producers, averaged	150	0.228	0.142	-0.003	-0.144	-0.090	-0.022
ETS sectors (CBAM Plus)	Scope 1t2 emissions according to OECD	EU producers, averaged	200	0.262	0.164	-0.003	-0.180	-0.112	-0.028
ETS sectors (CBAM Plus)	Scope 1t2 emissions according to OECD	Exporters to the EU, country-specific	75	0.184	0.095	-0.002	-0.139	-0.066	-0.017
ETS sectors (CBAM Plus)	Scope 1t2 emissions according to OECD	Exporters to the EU, country-specific	150	0.237	0.126	-0.003	-0.220	-0.108	-0.027
ETS sectors (CBAM Plus)	Scope 1t2 emissions according to OECD	Exporters to the EU, country-specific	200	0.250	0.134	-0.004	-0.261	-0.129	-0.032
All industry (CBAM All)	Scope 1 emissions according to Eurostat	EU producers, averaged	75	0.289	0.137	-0.002	-0.168	-0.086	-0.014
All industry (CBAM All)	Scope 1 emissions according to Eurostat	EU producers, averaged	150	0.497	0.240	-0.003	-0.316	-0.162	-0.027
All industry (CBAM All)	Scope 1 emissions according to Eurostat	EU producers, averaged	200	0.602	0.293	-0.004	-0.404	-0.208	-0.034
All industry (CBAM All)	Scope 1t2 emissions according to OECD	EU producers, averaged	75	0.347	0.168	-0.002	-0.212	-0.108	-0.018
All industry (CBAM All)	Scope 1t2 emissions according to OECD	EU producers, averaged	150	0.597	0.291	-0.004	-0.395	-0.202	-0.032
All industry (CBAM All)	Scope 1t2 emissions according to OECD	EU producers, averaged	200	0.724	0.353	-0.005	-0.504	-0.258	-0.041
All industry (CBAM All)	Scope 1t2 emissions according to OECD	Exporters to the EU, country-specific	75	0.461	0.177	-0.003	-0.326	-0.124	-0.024
All industry (CBAM All)	Scope 1t2 emissions according to OECD	Exporters to the EU, country-specific	150	0.690	0.266	-0.005	-0.560	-0.215	-0.040
All industry (CBAM All)	Scope 1t2 emissions according to OECD	Exporters to the EU, country-specific	200	0.787	0.306	-0.006	-0.688	-0.265	-0.048

Source: Polish Economic Institute (PEI).

Table 3. Impact of the introduction of the CBAM charge and CBAM Plus and CBAM All carbon tariffs for all countries outside the European Union, depending on the price of CO_2 emission allowances

Emission allowance price (EUR/tCO_2)	Change in budget revenues (%)			Change in GDP (%)		
	CBAM	CBAM Plus	CBAM All	CBAM	CBAM Plus	CBAM All
10	0.002	0.022	0.035	-0.001	-0.011	-0.020
20	0.005	0.039	0.064	-0.002	-0.022	-0.038
30	0.007	0.054	0.090	-0.003	-0.031	-0.056
40	0.009	0.065	0.113	-0.004	-0.040	-0.072
50	0.012	0.075	0.133	-0.005	-0.048	-0.088
60	0.014	0.084	0.152	-0.006	-0.056	-0.103
70	0.016	0.091	0.169	-0.007	-0.063	-0.117
80	0.018	0.098	0.184	-0.008	-0.070	-0.131
90	0.019	0.104	0.199	-0.009	-0.076	-0.144
100	0.021	0.109	0.212	-0.010	-0.082	-0.157
110	0.023	0.113	0.224	-0.011	-0.088	-0.169
120	0.025	0.117	0.236	-0.012	-0.093	-0.181
130	0.026	0.120	0.247	-0.013	-0.099	-0.193
135	0.027	0.122	0.252	-0.014	-0.101	-0.199
140	0.028	0.123	0.257	-0.014	-0.104	-0.204
150	0.029	0.126	0.266	-0.015	-0.108	-0.215
160	0.030	0.128	0.275	-0.016	-0.113	-0.226
170	0.032	0.130	0.284	-0.017	-0.117	-0.236
180	0.033	0.132	0.291	-0.017	-0.122	-0.246
190	0.034	0.133	0.299	-0.018	-0.126	-0.256
200	0.035	0.134	0.306	-0.019	-0.130	-0.265
210	0.037	0.135	0.312	-0.020	-0.133	-0.275
220	0.038	0.135	0.318	-0.021	-0.137	-0.284
230	0.039	0.136	0.324	-0.021	-0.141	-0.292
240	0.040	0.136	0.330	-0.022	-0.144	-0.301
250	0.041	0.136	0.335	-0.023	-0.147	-0.309
260	0.042	0.136	0.340	-0.023	-0.150	-0.318
270	0.042	0.136	0.344	-0.024	-0.154	-0.326
280	0.043	0.136	0.349	-0.025	-0.157	-0.334
290	0.044	0.136	0.353	-0.026	-0.159	-0.341
300	0.045	0.135	0.357	-0.026	-0.162	-0.349

Source: Polish Economic Institute (PEI).

Table 4. Impact of preferences for selected country groups – method based on OECD data on exporters' emission intensity to the EU, assuming an allowance price of EUR 75/tCO_2

Sectoral scope	Geographical scope	Change in budget revenues (%)			Change in GDP (%)		
		PL	EU-27	Rest of the world	PL	EU-27	Rest of the world
ETS sectors (CBAM Plus)	Exemption for the US	0.176	0.084	-0.002	-0.136	-0.060	-0.015
ETS sectors (CBAM Plus)	Exemption for countries with free trade agreements	0.132	0.062	-0.002	-0.104	-0.049	-0.012
ETS sectors (CBAM Plus)	Exemption for the US and countries with free trade agreements	0.124	0.052	-0.002	-0.101	-0.043	-0.010
ETS sectors (CBAM Plus)	Exemption for countries with free trade agreements, excluding Turkey	0.141	0.069	-0.002	-0.109	-0.053	-0.013
ETS sectors (CBAM Plus)	Exemption for the US and countries with free trade agreements, excluding Turkey	0.133	0.059	-0.002	-0.105	-0.047	-0.011
ETS sectors (CBAM Plus)	Exemption for the climate club	0.157	0.083	-0.002	-0.125	-0.061	-0.015
ETS sectors (CBAM Plus)	Exemption for the US and the climate club	0.149	0.072	-0.002	-0.122	-0.055	-0.013
ETS sectors (CBAM Plus)	All non-EU countries	0.184	0.095	-0.002	-0.139	-0.066	-0.017
ETS sectors (CBAM Plus)	Exemption for the US	0.449	0.161	-0.003	-0.321	-0.115	-0.022
All industry (CBAM All)	Exemption for countries with free trade agreements	0.343	0.118	-0.003	-0.258	-0.091	-0.017
All industry (CBAM All)	Exemption for the US and countries with free trade agreements	0.332	0.102	-0.002	-0.253	-0.082	-0.014
All industries (CBAM All)	Exemption for countries with free trade agreements, excluding Turkey	0.359	0.128	-0.003	-0.265	-0.097	-0.018
All industry (CBAM All)	Exemption for the US and countries with free trade agreements excluding Turkey	0.347	0.112	-0.003	-0.260	-0.088	-0.016
All industry (CBAM All)	Exemption for the climate club	0.420	0.160	-0.003	-0.305	-0.116	-0.022
All industry (CBAM All)	Exemption for the US and the climate club	0.409	0.144	-0.003	-0.300	-0.107	-0.020
All industries (CBAM All)	All non-EU countries	0.461	0.177	-0.003	-0.326	-0.124	-0.024

Source: Polish Economic Institute (PEI).

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The Polish Economic Institute

The Polish Economic Institute is a public economic think tank with a history dating back to 1928. The Institute produces reports, analyses and recommendations on key areas of the economy and social life in Poland, taking into account the international situation. Its research areas primarily include macroeconomics, energy, the global economy, the digital economy, behavioural economics and social processes.

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