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# **CARBON BORDER ADJUSTMENT MECHANISM (CBAM): IMPACT ON INDIA'S STEEL EXPORTS TO THE EU AND CARBON TAX INCIDENCE**

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## **EXECUTIVE SUMMARY**

### **Introduction**

The iron and steel (I&S) sector provides key inputs for vehicles, construction, and machinery materials. Global steel production is increasing, with the world's share of steel exports falling to 22%. Since this sector accounts for about 8% of total emissions, numerous major steel-producing countries have implemented policy initiatives to decarbonise it.

Taking the specific case of the EU, a net steel importer, the region has made firm commitments towards climate sustainability. It plans to introduce a Carbon Border Adjustment Mechanism (CBAM) to ensure it meets the requirements for a climate-neutral EU by 2050 and to lower global carbon emissions by controlling carbon leakage (planned for implementation in 2026). Nonetheless, this mechanism might impede the growth of trade opportunities for the developing nations, potentially serving as a protectionist tactic. India, a significant net steel exporter with a diverse supply chain, could

experience detrimental effects on its trade patterns and regional income due to the EU's implementation of carbon border taxes.

Building on this narrative, this study aims to understand the impact of the EU's imposition of CBAM on India's steel exports, as well as its effects on carbon emissions in India and the EU, and on major steel-producing countries. The objective is to simulate the CBAM scenario as realistically as possible, mirroring the European Parliament's actual notification.

### **Methodology**

The economic, sector-specific, and spillover impacts of policy actions are analysed using Computable General Equilibrium (CGE) models. ICRIER's 'Samridhi' Trade CGE Model is based on the multi-regional and multi-sectoral GTAP 11 database released in May 2023. The model uses GTAP-E, an extension of the standard GTAP model,

which better represents energy-economy linkages by incorporating energy as a direct input into the production structure, enabling energy substitution, unlike the standard GTAP model. To incorporate the carbon tariffs levied on goods imported from foreign countries, the study considers, for each country, the production of CBAM products, CO<sub>2</sub> emissions, the share of exports in production, and the carbon price (set at \$86 per ton of CO<sub>2</sub>). The additional tax burden has been calculated for different countries, taking into account their CO<sub>2</sub> emission intensity and other relevant factors. Carbon taxation variables are defined within the GTAP-E model. However, no carbon tariff variable is explicitly defined in the GTAP-E model. Therefore, this has been imposed on the model after computing the additional tax burden associated with supplying the EU market. The values of the constant elasticity of substitution (CES) between domestic and imported goods (ESUBD) and the CES elasticity of import demand across sources (ESUBM) have been estimated.

### Calculating the CBAM Levy

Using information on domestic carbon taxes from the Carbon Pricing Dashboard of the World Bank, countries with existing carbon taxes are identified, and an appropriate adjustment is made in determining the applicable tax rate under CBAM.

## Results

### Impact on GDP and Trade

The global GDP is likely to see a marginal 0.01% increase due to the EU's imposition of CBAM. The small increase in global GDP reflects the price and composition effects rather than an improvement in productive efficiency. The distributional consequences are asymmetric: the EU records a welfare gain driven by a large positive terms-of-trade effect, despite a decline in allocative efficiency, while most other regions experience welfare losses. Among the countries experiencing a decline are Ukraine (-0.45%), Russia (-0.17%), Saudi Arabia (-0.10%), and Singapore (-0.09%); India's GDP will decline by 0.04%. The EU, the UK, and CBAM-exempt countries, including Switzerland, Norway, and other EFTA countries, benefit from the CBAM. Thus, the results highlight the standard trade theory: the CBAM reduces global efficiency and real output but redistributes gains toward the EU through favourable terms-of-trade effects.

Imports from India would decline for all CBAM commodities. The impact is felt most in the I&S sector, where the decline in EU imports could reach 24%. Fertilisers and aluminium products, followed by metal products, are next in line to be hurt the most. India's global export of I&S will decline by 5.7%; for China, the corresponding estimate is 1.2%. There is a marginal increase in I&S exports to various markets, particularly to CBAM-exempt countries, including Switzerland, Norway, and the Rest of EFTA.

### Impact on Carbon Emissions

Addressing carbon leakage is the primary objective of the CBAM, which seeks to equalise carbon prices domestically and internationally. The analysis indicates a 0.26% reduction in carbon emissions in India, mainly due to lower emissions from the combustion of coal (-0.17%) and oil products (-0.08%). Carbon emissions are likely to increase in the EU by 0.29%, not because EU firms become dirtier, but because the CBAM shock is modelled as an import-tariff-equivalent shock on carbon-intensive imports, with the rise mainly a scale effect from increased domestic EU production. The results indicate a minor decrease in global carbon emissions intensity (-0.53%). In conclusion, CBAM shall adversely impact India's trade with the EU and will have a negligible effect on carbon emissions.

### Policy Recommendations

To offset the projected export losses, India must pursue a dual strategy of boosting export competitiveness and accelerating decarbonisation in the I&S sector, in line with its Long-Term Low-Emissions Development Strategy (LT-LEDS) and net-zero 2070 commitment.

Shifting toward higher-value-added steel products would reduce the applicable CBAM tax burden and improve India's competitive position in the EU market. This structural transition should be supported by industrial policies that integrate Production Linked Incentives (PLI) with dedicated research and development funding. Targeted financial and technical assistance, including concessional financing, access to clean technology, and investment guarantees, is essential to ease the disproportionate compliance burden on MSMEs.

On the carbon pricing front, India should establish or strengthen domestic carbon pricing mechanisms, either through a domestic carbon tax or by leveraging the Carbon Credit Trading Scheme (CCTS). In parallel, India should actively advocate in international fora for a differentiated CBAM tax rate for developing economies.

Finally, strengthening Monitoring, Reporting, and Verification (MRV) systems through standardised measurement protocols and digital traceability will be critical to ensuring credible emissions accounting,

maintaining market access, and supporting MSME compliance across the supply chain (Singh et al., 2025).

Addressing CBAM-related trade exposure requires a targeted decarbonisation strategy for India's I&S sector, one that shifts production toward low-carbon technologies, improves sustainability and circularity, and strengthens value-chain competitiveness to secure long-term access to developed-country export markets.