IMF Carbon Price Tool

Topic: Input-Output Analysis
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An effective way to reduce greenhouse gas emissions is to put a price on carbon. This approach, often referred to as carbon pricing, serves as a powerful incentive for economic agents to adopt more sustainable practices, leading to a more efficient use of energy and a subsequent reduction in emissions. This economic policy can take various forms, such as carbon taxes, cap-and-trade systems, or other market-based mechanisms. Understanding the impact of these policies on the economy is paramount for policy makers.

The Carbon Price Tool (CPT) developed by the International Monetary Fund (IMF) allows users to simulate the detailed impact of imposing a carbon price (measured in USD per ton of CO2 emitted) at the industry level within an economy including the propagation of price changes through the global supply chain. The CPT enables users to explore diverse scenarios, such as applying different carbon prices to 45 industries and 67 economies or country groups (e.g., EU or G7), facilitating a comprehensive analysis of carbon pricing effects across trading partners. Additionally, it opens the door to a broader discussion on Carbon Border Adjustment mechanisms, exploring how carbon pricing might influence international trade dynamics and competitiveness.

The underlying data driving these simulations comprises global input-output tables and emissions estimates for countries by industry. The modeling strategy employed is grounded in the Leontief Price model, allowing for a robust analysis of intricate economic interactions.

The CPT not only provides a user-friendly interface but also offers several functionalities. Users can assign different carbon taxes to industries and countries, compare scenarios simultaneously, visualize price changes by industry and by final demand components of GDP, explore the most impacted economies globally, and download results for further analysis.

Work is underway on the CPT to provide results that will break down household expenditure by income groups for a selection of countries and quantify revenues generated through carbon pricing in exports, imports, and final demand. The CPT will also include more countries in the analysis and provide a more detailed industry breakdown. Finally, in the long term, the CPT could incorporate price elasticities of supply, demand, exports, and imports, enabling simulations to estimate broader impacts on GDP, emissions, revenue generated and on competitiveness of countries.