

The Carbon Footprint in the EU Climate Law: an opportunity for Official Inter-Country Input-Output Tables?

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During the first two decades of this century, there has been an explosion of studies calculating carbon footprints, that is, the overall upstream greenhouse gas (GHG) emissions to maintain the final demand of a country or a region using inter-country input-output (ICIO) databases, such as Eora, WIOD or Exiobase. Such analyses have focused on identifying the drivers of GHG emissions along supply chains, linking source of GHG emissions upstream, known as direct emissions, with the industries and households downstream that consume products made with polluting inputs, known as embedded or indirect emissions. Another crucial aspect analysed in such works was carbon leakage. This refers to the extent to which more stringent environmental regulations in one region could cause the production of more carbon-intensive industries to be transferred to regions with lower climate ambitions. However, these environmental ICIO databases differ in their compilation methods and underlying data, and do not replicate official national supply and use, and input output tables. For this reason, although they are valuable tools for setting the policy agenda, it has been argued that they cannot be used for monitoring policy impact. Single country National Accounts Consistent (SNAC) ICIO databases found in the literature were developed to counteract this situation, namely, to analyse the role of a given economy in global supply chains. Nevertheless, recent developments towards compiling official or quasi-official ICIO databases, such as the OECD's, ECLAC's or Eurostat's FIGARO ICIO databases, and their gradual harmonization of compilation methods and data inputs, could bring about a change in this situation. In addition, being part of a regular production process, such as the FIGARO ICIO database, which became an official Eurostat's statistic in 2022 with annual new releases, ensures timely production and prevents risks of discontinuation, which can occur in pilot academia-based ICIO projects.

In this paper, we revisit the question addressed in the SNAC literature, which is to what extent ICIO databases that are fully consistent with official national input-output statistics can lead to new potential applications in policymaking. We focus on the European Union (EU) policies to combat climate change, specifically on the application of official ICIO within two frameworks: i) as monitoring indicators in the proposal for a new Carbon Border Adjustment Mechanism (CBAM), and ii) as binding targets in the EU climate law and national energy and climate plans (NECPs). The main purpose of the CBAM is to prevent carbon leakage, as the EU's increasing ambitions increases this risk (e.g. the intermediate target of reducing net GHG emissions by 2030, compared to 1990 levels, was recently increased from 40% to 55%). Accordingly, the CBAM will ensure that the same carbon price is applied to domestic and imported products, providing incentives to foreign industries to innovate and reduce emissions. The legislative proposal for establishing a CBAM was put forward in mid-2021, and currently is awaiting EU Parliament's first reading position. However, the proposal do not detail how the level of emissions in the EU will be measured. The document mentions unspecific "emission statistics", "sector statistics" or "trade statistics". These statistics could inform on trade flows between CBAM sectors, and embedded CO₂ emissions, but computing the overall impact of potential carbon leakage policies is certainly more challenging. We argue that this could be achieved using the FIGARO ICIO.

Further, despite the commitment of EU authorities to prevent carbon leakage, the main progress indicators in the European Climate Law adopt a territorial perspective, e.g. EU climate-neutrality by 2050. This is also the case of most NECPs, although there are countries, such as France, currently

considering including carbon footprint indicators to monitor the impact of their national mitigation policies. It is clear, therefore, that there exist a policymaking need for indicators complementing the territorial perspective. In this paper, we provide an exploratory assessment of the roadmap for such a change in paradigm, paying special attention to the main methodological limitations (e.g. shift from survey to modelling as the predominant approaches) and obstacles of political nature (e.g. in climate diplomacy). We conclude that FIGARO ICIO-based carbon footprint indicators could be employed in both frameworks, as complementary impact measure of CBAM and as a binding target in national and EU laws.