Material footprint of EU27: comparison between Eurostat and Eora models - For special session on MFA & IO modelling

Topic:
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ABSTRACT:
The mass of materials consumed by a population has become a widely used proxy for measuring environmental pressure. The "raw material equivalents" (RME) metric of material consumption addresses the issue of including the full supply chain (including imports) when calculating national or product level material consumption. RME calculations require quantitative data on production practices along the full supply chain across different countries. Such data is not readily available. Therefore RME of trade are currently estimated by different methodical approaches. The observed considerable differences between the results require investigation.

This contribution concentrates on comparing the results on RME of imports and exports for EU-27 from two approaches, the EUROSTAT and the Eora model. The Eora model (worldmrio.com) is a multi -regional input-ouput (MRIO) approach based on 186 national monetary IOTs or SUTs with different degrees of sectoral disaggregation. The EUROSTAT model applies a highly disaggregated hybrid IOT matrix for EU-27. While the Eora model uses country-specific data on the domestic extraction and production of materials, the EUROSTAT model estimates RME of imports by assuming the production technology of the country of destination and supplementing this information with region-specific life-cycle data, e.g. on specific mines (hybrid LCI-IO approach).

The differences between the two models are analysed with the objective of understanding the reasons for differences and to find ways for improving both models. The following factors have been assessed with respect to their impact on the results:
- General conceptual differences between MRIO and hybrid LCI-IO approaches
- The effect of regional and sectoral resolution and of hybridization of the IOT matrix
- Data issues: The impact of using different data (especially on trade flows and domestic extraction) and further data quality issues