Estimating SDG impacts through GVCs on countries that are in the ICIO's Rest of the World region

Topic: Global value chain analysis II (Chair: Kirsten S. Wiebe, SINTEF industry)
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Global value chain analysis based on multiregional or intercountry input-output (MRIO/ICIO) tables has been used to quantify and locate the effects that consumption, policies and trade in global value chains have on a range of social and environmental indicators (Wiedmann and Lenzen, 2018), and these effects can be linked directly or indirectly to diverse SDGs (Gomez-Paredes and Malik, 2018). Furthermore, this type of GVC analysis can be used to compare the spillovers of the impacts of future changes in global value chains owing to different policies (Wiebe et al., 2019). Although the currently available MRIO/ICIO databases provide a somewhat aggregated industry resolution, they are ideal to assess spillovers of policy choices at sector level or within product groups (Schmidt-Traub et al., 2019). The OECD-ICIO, which together with WIOD, best reflects the economic and trade structure of countries, has aggregated many countries into the Rest of the World region. While this region reflects less than 10% of global GDP, almost 30% of the global population live in this region.
Here, we suggest a new approach for assessing impacts of the global green transition on SDGs in the countries that are summarized in the Rest of the World (RoW) region of the OECD's ICIO. We use the example of increasing global diffusion of offshore wind and solar PV for electricity generation, and differentiate between the short term effects due to investment and the long term effects due to the resulting structural change. Assessing the effect of such changes on SDGs will be done in a four-step approach: First, exogenously implementing technological change into the technology and trade structure by introducing additional offshore wind and solar PV electricity industries as "what-if" scenarios. Second, using the multi-regional input-output modelling approach to quanitfy effects on industrial production around the world. Third, based on an analysis of historic relations (econometric estimations) between exports by product and value added, employment (by skill and gender, if available), and GHG and local emissions by industry, assess how these indicators change when exports change. And, fourth, link changes in these indicators to changes in 16 SDG indicators, such as for example SDG indicator 9.4.1 "CO2 emissions per unit of value added", SDG indicator 5.5.2 "women in managerial positions", or SDG indicator 4.3.1 "mortality rate attributed to [â€¦] chronic respiratory disease".