Exploring resource efficiency through individual supply chains - precision and accuracy in analysing the impacts of apparel

Topic: Environmental input-output modeling III
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The European Union considers resource efficiency as one of the fundamental characteristics of a sustainable and inclusive growth.
Environmental extended multi regional input output tables (EE MRIOs) have emerged as useful tools to analyse resource use and environmental impacts across international supply chains.

The EE MRIO assembled during the fp7 EU project CREEA (Compiling and Refining Environmental and Economic Accounts) - EXIOBASE 2.0 - has been released in March 2014.
It provides the first major update of the EXIOPOL/EXIOBASE 1.0 EE MRIO.
EXIOBASE 2.0 exhibits a consistent sector classification of 163 industries / 200 products with more than 300 environmental extensions.
All countries of the European Union plus 16 major economies are included in the database. The remaining countries have been aggregated into five distinct rest of the world regions.

The high level of detail of EXIOBASE 2.0 provide a unique possibility to investigate the impacts of products which exhibit a globally dispersed supply chain.
However, the question remains if such an investigation could also be conducted using a more aggregated system.
We exemplify this by analysing the impacts caused by EU final clothing demand in countries outside Europe.

In the case of the EU, the production of clothes occur to a large extend outside Europe, especially Asia.
In fact, apparels are one of the most important exports of many developing countries in terms of value added. However, the production is also connected to a variety of undesirable environmental impacts along the supply chain.
In the last years public attention mainly focused on the social implications of this production.
Here we estimate the amount and source of embodied low skilled labor in EU apparel imports and how this is correlated with various environmental impacts.
By comparing the original results with those obtained from various aggregated systems we analyse in which cases the use of a simplified EE MRIO can be justified.

This study illustrates if the high level of detail provided by CREEA/EXIOBASE 2.0 and associated projects can be utilised to investigate resource efficiency of key product groups for the European Union taking into account multiple environmental impacts.