

A global MRIO Lab – overview of concepts and architecture

Topic: 714W Special session: Input-Output Virtual Laboratories (1)

Author: Yanyan XIAO

Co-Authors: Arne GESCHKE, Muhammad Daaniyall ABD RAHMAN, Keiichiro Kanemoto, Manfred LENZEN

We describe the creation of the Global Multi-Region Input-Output (MRIO) Lab, which is a cloud-computing platform offering a collaborative research environment through which participants can use each other's resources to assemble their own individual MRIO versions. The Global MRIO Lab's main purpose is to harness and focus previously disparate resources aimed at compiling large-scale MRIO databases that provide comprehensive representations of interregional trade, economic structure, industrial interdependence, as well as environmental and social impact. Based on the operational Australian Industrial Ecology Lab, a particularly important feature of this cloud environment is a highly detailed regional and sectoral taxonomy called the "root classification". The function of this root is to serve as a feedstock from which researchers can choose any combination of regions and economic sectors to form a model of the economy that is suitable to address their particular research questions. Thus, the Global MRIO Lab concept enables enhanced flexibility in MRIO database construction whilst at the same time saving resources and avoiding duplication, by sharing time- and labour-intensive tasks amongst multiple research teams. We explain the concept, architecture, development, and preliminary results of the Global MRIO Lab, and discuss its ability to continuously deliver some of the most prominent world MRIO databases such as EXIOBASE, WIOD, and Eora.