

Uncertainty and sensitivity analysis in MRIO modelling – some empirical results with regard to the carbon footprint of the Netherlands

Topic: Multiregional input-output modelling

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Recently, an input-output model has been developed for the calculation of the Dutch carbon footprint. The model is a full multi-regional input-output (MRIO) model with feedback loops in trade between 12 world regions and the Netherlands. Given the huge amounts of economic and greenhouse gas (GHG) emission data used in the model and the assumptions made in constructing the MRIO table, an uncertainty analysis seems to be useful.

In the paper, an uncertainty and sensitivity analysis are presented for the MRIO model mentioned. The uncertainty analysis is carried out in order to gain an understanding of the effects of uncertainties in the data on the uncertainties in the outcomes. This uncertainty analysis concerns a Monte-Carlo analysis based on probability distributions around the IO and GHG emission coefficients in the model. The sensitivity analysis is performed to investigate which of the coefficients are the most important in the calculation of the Dutch carbon footprint. Especially the coefficients in the MRIO table are considered by determining their effects on the overall footprint as well as on more detailed outcomes at the regional and sectoral level.