A shortcut to footprint calculations

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It is well known how to calculate footprints and perform consumption-based emission accounting (CBEA). Yet several issues that hamper their acceptance in the debate on climate change are related to the underlying data. Footprints require global multiregional input-output (GMRIO) tables that are linked to emissions data. Questions that arise are: which GMRIO tables to use and does the industry classification do justice to the characteristics of a certain country? In this paper, we provide an alternative way to compute carbon footprints using national input-output tables (NIOTs). The idea is as follows. The footprints are obtained as the territorial emissions of a country minus the balance of trade in emissions. This balance is defined as the export of emissions minus the imports of emissions, both in a CBEA setting. Next, we use the fact that the balance of trade in emissions is equal to the balance of emissions in trade. The final step is to approximate the balance of emissions in trade from GMRIO tables with the emissions in the exports minus the emissions in the imports from NIOTs. In this way, each country (e.g. the US) can calculate the emissions in its own exports, using its NIOT. Another country such as Germany (using its NIOT) provides the emissions in the US imports from Germany. To test the possibility of calculating footprints from NIOTs (and testing the quality of the approximations) we compare the calculations with NIOTs from WIOD with the footprints from the GMRIO table.