Bayesian analysis of product-level global CO2 emission multipliers from 1995 to 2009

Topic:
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We first present the regression-form equations of four input-output (IO) transformation models that are based on different technology or sales structure assumptions in terms of (inter)national supply and use tables (SUTs) for deriving various IO multipliers. Then based on the product-technology assumption and using an international SUTs data constructed by the World Input-Output Database project, we estimate product-level global carbon dioxide emission multipliers for 40 countries and 59 products for the period of 1995-2009. We adopt a Bayesian econometric technique for this purpose in order (a) to take into account the inherent uncertainty of SUTs and IO related data, and (b) to avoid the usual practice of products aggregation in published SUTs that, to our view, may lead to severe loss of information on product-industry links. We present a detailed analysis of the development of product-level CO2 multipliers at the world, country and product levels during the considered 15 years.