

Spatially Explicit Footprints for Biodiversity, Carbon, and Air Pollution

Topic: (1.3) MRIO Modelling

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Environmental footprints can most easily be understood as maps of where a given demand bundle drives environmental pressure remotely. However currently most footprint-type results are developed and presented only numerically, not spatially. We present our approach for combining spatially-explicit (GIS) data on environmental impacts with a global MRIO to create spatially explicit footprints at the subnational level. This approach makes it possible to develop environmentally-extended MRIO models that resolve points of impact to below the national level e.g. to locations of biodiversity hotspots or points of pollution emission. This is possible because while economic activity data is, in most cases, available at a national or perhaps state level, observations of environmental impact associated with that activity are available at finer resolution. We present results for spatially explicit biodiversity, CO₂ and PM footprint hotspots. We present our three recent papers on these topics, include the paper on biodiversity footprint hotspots which was published in *Nature: Ecology & Evolution* and received wide press coverage including from National Geographic, TIME, Scientific American, and a number of other national magazines and newspapers. We discuss methodological details and steps forward. Maps of environmental footprints are intuitive to understand, useful for communication, and can be used to more precisely identify which states/regions/municipalities a consumer entity should engage which to reduce their induced environmental pressure.