Resolving the international trade asymmetry in Eora multi-region input-output table

Topic: Supply, Use and IO Tables: Different approaches to reconcile world trade asymmetries (I)
Author: Keiichiro Kanemoto
Co-Authors: Arne Geschke, Daniel Moran, Manfred Lenzen

Recent developments of multi-region input-output (MRIO) analysis have focused on how environmental emissions shifted to developing countries through international trade. We find that international trade was a major driving force of environmental threats in developing nations. The volume of bilateral international trade is associated with high uncertainty in MRIO tables. Export volumes from Japan to Australia reported by Japan are not the same as import volumes from Japan reported by Australia. Here, we show the solution of this international trade asymmetry in the Eora MRIO tables. First of all, we find that the larger the bilateral trade volume, the smaller the relative difference of bilateral trade. Second, we set a standard error for each bilateral trade by product based on the first finding, a high standard error for smaller international trade volumes, and vise versa. Finally, we resolve the international trade asymmetry as an optimization problem in terms of minimizing the change in the initial estimate subject to fulfill constraints, bilateral trade statistics, with a given standard error.