

Measuring regional value chains

Topic: Classical IO applications (Chair: Bernhard Michel, Federal Planning Bureau of Belgium)

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Global value chains analysis using global Input-Output tables captures the direct and indirect economic dependencies across countries in both backward and forward directions. Regionalisation of production networks has been a recognized trading pattern in terms of increasing regional trade agreements and stronger connections along global value chains. However, the existing studies measuring regional trade and TiVA network analyses may not fully capture the role of regionalisation in global value chains. This paper provides a novel and more comprehensive framework to decompose production chains into three components: (1) national production chains; (2) intra-regional production chains, regional production chains excluding national ones; (3) extra-regional global production chains, global production chains excluding national and regional chains. Based on this model, we build regional value chains indicators, including backward linkages, regional value-added content embodied in exports and forward linkages, and domestic value-added embodied in regional value chains. We also calculate the production length in regional value chains to help understand the production of goods and services within regional value chains compared to production within global value chains. Using the 2021 edition of OECD's Inter-Country Input-Output database (ICIO) for the period 1995 to 2018, we show supply and demand networks along regional value chains for six selected regions. Regionalisation effects are much more significant along regional value chains given that, on average, regionally made products are mostly consumed within the region, and regional foreign value-added are mainly embodied in regional value chains. The intra-regional cross-border production networks are most integrated in Europe, particularly in the Eurozone countries. The breakdown of national, regional and global value chains helps a better understanding of the heterogeneous patterns along national, regional and global productions in terms of energy intensity, input concentration, production length, and risk resilience. Global production chains tend to be more energy-consuming than regional production chains while national production chains are generally cleaner than cross-border production chains. Moreover, regional value chains turn out to be more stable and resilient to external shocks.