On the importance of manufacturing sectors for economic development – Indications from a refined Product Space

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Previous studies introduced the concept of the “Product Space”, which was claimed to condition the development of nations (Hidalgo et al., 2007). The Product Space is a weighted network, consisting of nodes which represent economic sectors and links reflecting these sectors’ pairwise statistical similarities.

Sharing the conceptual idea, we adapt and extend the methodology substantially (1) by the use of output data deduced from multi-regional input-output databases, (2) by revising the statistical estimation of the similarities, (3) by constructing a meaningful directionality of the links, and (4) by providing necessary significance levels for the links.

In contrast to previous studies showing a core-periphery structure our approach uncovers a particulary strong community structure of the Product Space. The communities reflect major economic fields as resource extracting sectors (A), agricultural/food and textile industries (B), light manufacturing (C) and advanced and heavy manufacturing plus services (D).

While the entire (multi-regional) input-output information reveals that communities A and B (regionally) exhibit the highest value added per unit input, the (globally) highest absolute value added can be found in community D, especially in the services sectors. Interestingly, some of the light manufacturing sectors are situated in community B (textile-related ones), some in D (metal-related ones), and some in neither of them. Yet they are closely interlinked, thus, forming a bridge between both banks. Most strikingly, we can show that all bridging links point from B over C toward community D. The prominent position in between and the directionality together emphasize the crucial role of manufacturing sectors in economic development. Finally, we find the resource extraction community to be very weakly connected to all other communities, depicting a specifically different role of such sectors in development processes. The global, qualitative picture remains persistent over time and across different MRIO data sets.