

A New Method for Triangulation of Input-Output Tables for Comparing Industrial Structures and Investigating Clusters of Industries

Topic: Various approaches to structural analysis

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Understanding the industrial structure of a national or regional economy is one of the central issues in economics. Because an input-output table (IOT) provides a complete and detailed picture of the economy from the point of view of inter-sector transactions, there has been a great need for summarizing and visualizing IOTs in a way that facilitates specific analysis and interpretation. The triangulation of an IOT, which dates back to at least the 1950s, is one such method, known for providing understanding of the hierarchical structure of industrial sectors. Its importance has recently been rising, largely due to more researchers and practitioners using input-output tables for tackling environmental issues, and with variants of IOTs like inter-sector energy flow and material flow accounts becoming available. This paper proposes a new method to triangulate IOTs for comparing the industrial structures of economies and investigating clusters of industries within an economy. The method for comparing the industrial structures is consistent with a maximization of the Kendall rank correlation coefficient as a measure of similarity of hierarchies, while the Spearman rank correlation coefficient has been used in the literature without paying attention to a maximization of it. The method for investigating clusters can achieve a block-triangulation, for which expert knowledge of industrial structures or physical characteristics of products is not necessary. The application of the proposed method to the Japanese IOTs demonstrates its usefulness and exemplifies how it provides insight into industrial structures.