

Bridging disciplines over network theory and analysis around input-output economics

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Abstract

Recent advancement of network theory and analysis in physics, biology and social science has drawn considerable attention in scientific journal space. Theory and applications of network analysis encompass broad field of sciences including electrical engineering, computer science, genetic science, social and behavioral science, physics, mathematics, ecology, and management science. We believe that various developments in input-output economics could be positioned in close proximity to network analysis intellectually, although studies seeking to formally bridge the two fields are scarce to nonexistent. In this introductory talk, we would like to review a number of key aspects of network analysis and its applications in adjoining fields of science around input-output economics, aiming to build up a set of common vocabulary across the disciplines. The objective of the review is to provide a common platform that can help organize conversations and cross-fertilize across the disciplines. Key concepts and terms in network analysis in a number of disciplines will be reviewed and translated into those of input-output economics, and the use of matrices and digraphs in network analysis will be compared with those of input-output economics.

Keywords: network theory and analysis, input-output economics, matrix, digraph