

Complexity measures *versus* matrix measures

Teresa Pedroso de Lima¹, João Ferreira do Amaral²
and Anabela Borges³

¹*University of Coimbra, Portugal*

²*Technical University of Lisbon, Portugal*

³*University of Trás-os Montes e Alto Douro, Vila Real, Portugal*

Abstract

The dependence degree of a nonnegative matrix assumes a relevant importance in the context of input-output (IO) analysis. In 2007 [1] presented a new method for quantifying complexity as interdependence in an IO system considering it explicitly as (the level of) interdependence between the components parts or sectors of an economy. This method considers two dimensions or effects that are present in a linear IO system: a 'network' effect, based on the number of zeros in the Leontief inverse and a 'dependence' effect, based on the magnitude of the technical coefficients. In this paper we study the second one considering it like a matrix measure.

Keywords

Nonnegative matrices, Input-output systems, Matrix norms, Dependence degree.

References

- [1] Amaral, J.F., J. Dias, and J. Lopes (2007). Complexity as interdependence in input-output systems. *Environment and Planning A* 39, 1770–1782.