Measuring I/O-Production in DIGITAL ECONOMY

Topic: IO Theory II (Chair: Eva Varga, Hungarian Central Statistical Office)
Author: Emmenegger Jean-François
Co-Authors: Hassan Ahmed Nour Eldin

(1) Productivity is an all-power measure of a national economy and stays beside the main aggregates of the system of national accounts, as the national income Y (a proxy of GDP), the total output X and the circulating capital K, which is the total value of the means of production. -- In this paper a notion of the measurement of the productivity of an economy, also called the productiveness of the economy, is proposed. Two algebraic properties have to exist. The first property (a) has to guarantee that the theorem of Perron-Frobenius can be applied to the appropriate matrices of a production system, as the commodity flow matrix, appearing in Input-Output Tables (The Perron-Frobenius theorem says that for a non-negative irreducible n x n matrix, there exists always a maximal, real and positive eigenvalue, the Frobenius number, to which is associated a positive eigenvector.). The second property (b) has to guarantee the productivity of the economy, i.e., the vector of final demand is semi-positive.

(2) mathematics and computations with Mathematica

(3) World Input-Output Tables developped by the Groningen University, Netherlands (Germany, Austria, Switzerland)

(4) In this paper a notion of the measurement of the productivity of an economy, also called the productiveness of the economy, is proposed.