Structural Comparison of Mexican (1980-2003) and Brazilian (1980-2005) Economies Through a Pretopological Approach

Topic: Structural Comparisons
Author: VICTOR HUGO HERNANDEZ
Co-Authors: ANA BELEN RIOS, Fernando Isaac Montejo Ã•lvarez, Oscar CÃ"RDOBA, Valeria Raquel GarcÃa Aguirre

In this paper we make a comparison of the economic structures of Brazil and Mexico in the years 1980 and 2005 showing the inter-industrial articulation achieved by two growth models adopted by the governments of these countries The model of industrialization through import substitution following Brazil and Mexico in the second half of the twentieth century, underwent a transition to an economic opening during the decade of the 80's, this change was due to both economies experienced serious problems in its stability macroeconomic and governments took measures that involved the abandonment of the economic model adopted so far. The input-output matrices available from 1980 for both economies, for Mexico 2003 and 2005 for Brazil, representing the economic structure obtained with the development models applied in a period of over 50 years. This paper presents an intertemporal analysis for each of the countries Brazil and Mexico and the comparison between them.

The methodology used in this paper is as follows:
1) Stylized facts. This section presents some indicators that can be read directly from input-output matrices, eg, participation in value added sectors of production, participation of major components of final demand; involving intermediate imports are estimated at the production of goods and services. In this case some routines packages IRIOS Groningen University input for product analysis are applied. These stylized facts are a first approach to the economic structures of Brazil and Mexico.

2) Estimation of the fundamental structure of both economies through their important coefficients and the construction of graphs associated with these coefficients. The method used to estimate the significant coefficients, is the Schintke and Staglin (1988) which two tests of connectedness are added to determine the appropriate to build the adjacency matrices of input-output tables considered filters. This allows the construction of graphs and visual display. This section provides a calculation routine used by the Mathematica package.

3) Display of the economic network shown of these matrices and obtaining communities through a spectral network partition. This section calculation routine developed through the Mathematica package was also applied.

4) Characterization of the interaction between communities. Pretopological tools in this section apply to get a perspective economic propagation along the network drives, through assembly of communities considered. Although the methods used in this document are the static nature, the pretopological tools will be used to capture some dynamic aspects of the diffusion process of economic impulses in the systems studied. These tools apply directly fundamental concepts of topology sets, from the generation of a topological space induced by the fundamental relationship of purchases and sales that between sectors (actors) in an economy.
The subsets associated with that space (pre) topological, such as its open and closed sets, closures of these sets, interiors and boundaries, among other things, allow an interpretation, simple and intuitive, the way it propagates an economic boost through its subsystems quantities or prices. Pretopologic analysis package for input-output matrices developed by SolÃs, Unna and Valenzuela is applied.

Key words: Input-Output, Pretopology, Structural Change, Network Theory, Spectral Partition