TITLE: A PRETOPOLOGICAL APPROACH TO FIND CLUSTERS WITHIN MEXICAN ECONOMY

AUTHORS: ALVARADO, ADAN ;

EMAIL: adan.alvarado.79@gmail.com

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ABSTRACT:

In this paper, a new method is applied to find clusters within a Mexico’s input-output matrix for the year 2003. The matrix has a breakdown of 79 economic branches. The construction of the clusters is based on the identification of connected (or strongly connected) components within the input-output matrix. The method is based on the specification of a pseudoclosure operator applied to a binary relation and its dual (showing the inter-industry flows). The induced space by the binary relation and its properties is in fact a pretopologic space whose closure is not idempotent; that is to say, it is a pseudo-closure that has been used to model dilatation, erosion and other propagation phenomena. It is shown, that in the case of discrete and finite sets applying iteratively the operator to each one of the singletons of the set of branches these close. The union of the equal closures of some (or all) singletons constitutes a connected component (or strongly connected). This approach constitutes a generalization of the notion of a network modeled like a graph and has a very direct interpretation in economic terms, in contrast to the methods of the multivariable analysis, widely used, and whose interpretation is not fully transparent.