Claude Ponsard

A TOPOLOGICAL MODEL OF INTER-REGIONAL ECONOMIC EQUILIBRIUM

(Un modèle topologique d'équilibre économique interrégional)

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The work presents a method of study of the inter-industrial and inter-regional equilibrium. The method consists in associating a graph to a matrix, in the idea which has become classical through Leontieff's and Isard's works, an association which aims at suggesting its topological interpretation.

The model presented at a general level for an inter-regional analysis is adaptable, through few non-essential transformations, to the inter-industrial analysis. The whole presentation of the problem is made in the hypothesis of a static, linear model, in a natural expression, a fact which has permitted certain simplifications in approaching the problem and the making of the analysis. In the end, the author returns to the static character but makes no reference to the possibilities of approaching the problem in a value expression and of the possible effects implied by such a way of approach on the generally given model and of the extension of the model in case of a non-linear system.

In rather a large introductory part about the fundamental elements of the theory of graphs, the author deals, at length, with the correspondence between graphs and matrices as well as with the transfer graph. The transfer graph is defined as a particular type of a graph, associated to a system of simultaneous linear equations whose technique consists in passing from the matrix method to the topological method. In this connection, the author concludes that the way in which the elements of the system are linked among them is as important as the nature of the elements itself.

Applicable in all linear economic circuits, the theory of transfer graphs is used by the author for analysing an inter-industrial and inter-regional circuit.

Throughout the work, a very general inter-regional circuit is established with the aid of the transfer graph, in which the method of flux always serves as a methodological instrument. In the study of such a system, the interdependence and aggregation of the flux is approached and, on the basis of the graph theory, a topological interpretation is given to it, which, as a matter of fact, constitutes the basic aim of the work. For the elaboration of a method of aggregation of the interdependent flux, the author does not particularly dwell on any method for the evaluation of the system, but, he makes the remark that this should be chosen in keeping with the structure and dimensions of the graphs.

Special part in the study made is occupied by the examination of the influence of the different, arbitrarily chosen parameters, on the conduct of an inter-regional flux system. The impact of a consumption co-efficient in a model of space interdependence is measured especially.

In conclusion of the work, the author makes a few considerations on the dynamization of the model, especially on how this could be achieved. Two ways are indicated in this connection:

— the first consists in the introduction of temporary differences;

— the second in underlining the structural relations between the flux and the stocks.

The author inclines to the first, more simple way, with a level of greater applicability than in the case of a complicated graph and with the advantage of revealing the dynamic lack of balance of the system and the speed of transmitting local impulses to various zones of the considered space.

The work, which is extremely interesting for those dealing with the graph theory or topology and equally for those approaching the problems of regional planning would have had a surplus of utility had it presented a real case from which its practical efficaciousness could have resulted, too.

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