The Generalized Dynamic Input-Output Principle

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My paper, entitled as "The Generalized Dynamic Input-Output Principle ", has been advancing the Nonlinear Model of the Generalized Dynamic Input-Output System (NMGDIOS) and solving its optimal solution of Pontryagin maximum. The Generalized Dynamic Input-Output System (GDIOS), on the theoretical plane, which is going to be the result from the synthesis of the optimal control theory, the general reproduction, the productivity theory and the input-output analysis.
Facing a few of input-output tables, like the count of distinct digital map recorded around the world in a year or a certain period of the national economy. But, the input-output table of different years, however, can only indicate an isolated, static state at one time point of national economic situation, does not reveal which exists the inner and inevitable connection among different input-output tables.

In the current input and output system, time "t" is usually defined by the nature time. Such as the continuous dynamic input-output model by W.Leontief, But, as so long as limiting the dynamic input-output analysis on the basis of the nature time series, is to meet the inconsistency problem between the theoretical prediction and the actual event on the time step size or the time point etc., which does not have the inevitable reproducibility characteristics necessary to predict the future events.

The Production Function Structure Classification(PFSC) in my paper, as the result from my research for the evolution of labor instruments in human history, is the comparison study among laborers, his tools and its functions in historical evolution, abstracts have common characteristics and generalization. Therefore, carried out classifying sectors in accordance with the PFSC, to span of time step beyond nature and to get rid of the fixed time step and its sequence, thus makes the input-output analysis based on the qualitative change of productive forces in history, and is closely related to laborers, his tools and its functions, that come into being common rhythm or developed on the basis. So I use the PFSC to classify different structures for the input-output system and to approach the evolution of the varied typical input-output systems from lower type to higher one in accordance with different typical productive forces.

The GDIOS can be regard as making the choice in the varied time point, which connects with every type or each stage of productive forces and with the process of social reproductions, based upon the dynamic structure and balance conditions of the varied productive forces, so that the GDIOS has a few of characteristics, due to the PFSC, such as speeding up the economy development, shortening the production cycle and raising productivity etc.

In my paper, I try using the principle of Pontryagin maximum, by constructing the Hamiltonian, forming and solving the corresponding Jacobian matrix, calculating with in-homogeneous differential equations solution and general solution form, thus constitute the Pontryagin maximum solution for the Generalized Nonlinear Dynamic Input-output Model and deduce the coexistence of diverse types.