

## **A supply-driven model able to endogenise simultaneous homogeneous and heterogeneous primary inputs: overcoming the Ghosh model's limitation**

Topic: Sraffa and Ghosh

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The Ghosh model, known as the supply-driven model, has been put aside by the input-output community because its interpretation is not clear. The main issue is that, by applying an supply-driven model to the economic system, the primary input increase of a specific sector is pushed forward to all sectors linked to it, without any increase in the primary inputs of these other sectors. This outcome is troubling since it has been interpreted as if the other sectors could produce some output without actually using any input themselves. Analytically, the issue is that the Ghosh model is not able to deal with simultaneous primary inputs of the same type (i.e. homogeneous, from the same row) and different type (i.e. heterogeneous, from different rows).

This paper develops a new supply-driven model that overcomes this issue. In particular, the new model is able to push an increase of a primary input through the economy and calculate all required primary inputs of the other sectors, both homogeneous and heterogeneous, associated to that increase in activity.

The structure of this paper is as follows. First, a literature review illustrating the evolution of the Ghosh model interpretation and criticisms is provided. Second, the new supply-driven model able to endogenise and calculate simultaneously the homogeneous and heterogeneous primary inputs is theoretically developed, highlighting the difference with the traditional Ghosh model. Third, a case study is provided by applying the new model to a conventional monetary input-output table (MIOT). Fourth, for completeness, the traditional Ghosh model is also applied to the same MIOT. It is found that the new model provides very different results than the traditional Ghosh model (different primary inputs, intermediate flows and final outputs). It is demonstrated that this is because both models answer different questions: the new model reveals what is the new level of overall activity due to the primary input push of a single sector while the traditional Ghosh model reveals where does a unit of primary input end up (i.e. in which final demand it is embedded).

To sum up, this paper develops a new supply-driven model overcoming the inherent limitations and associated criticisms of the traditional Ghosh model. The analytical interest on supply-driven models might consequently be rekindled, especially since supply-driven models provide a different view on the economic structure, answering different questions than the Leontief model (e.g. what primary inputs are complementary to each other or how primary inputs are allocated within the economic system).