The Supply-Driven Input-Output Model: A Reinterpretation and Extension

Topic: Modelling resource dependency
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Most previous input-output applications have focused on constructing various demand-driven IO models because of their widely accepted usefulness in regional science. After Ghosh's suggestion of the supply-driven IO model, a debate over its plausibility ensued. Much of this was resolved with Dietzenbacher's (1997) suggestion of its interpretation as a price model, one that similar to Leontief's price model; the Leontief model estimates relative price changes whereas the Ghosh model can estimate absolute price changes. However, in static market equilibrium, producers will not change the current technical relationships that are based on historical sales during the immediate period after an exogenous event. This addresses the fact that Ghosh's supply-driven model is in terms of monetarily expressed quantities and hence applicable when using the supply-side IO in the circumstance of static market equilibrium with abnormal economic cessations. To suggest a new interpretation for the supply-driven IO model, a four-quadrant space of economic situations is introduced, along 'price vs. price-quantity' and 'increase-decrease' axes. Furthermore, even in the case that normal market equilibrium is not maintained, instead of the direct use of supply-side quantity models, Ghosh's case can be translated to a price-type supply-driven model, and play a role in estimating economic impacts. To address this switching process, exogenous price elasticities of demand are combined with the supply-driven model, adjusting quantity responses to price impacts. This logic will underlie the theoretical background necessary to utilize the supply-side model, and hence it highlights the power and the usefulness of linear models by clarifying the applicability of the supply model. This approach can also simplify the development of non-linear IO models.