Application of MRIO model on a small economy: case study of the Czech Republic

Topic: Regional input-output modeling I
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Examination of inter-sector relations in national Input-Output tables is very important and popular. It helps us to predict and model changes in the economy when particular “shock” occurs. In the last decades such models also helped to monitor e.g. environmental damage. Very often multi-regional models are used to evaluate this (e.g. EORA, EXIOBASE, GTAP, IDE-JETRO or WIOD), however, in most cases regions cover whole countries.

This paper is aimed at the construction of multi-regional Input-Output (MRIO) model in terms of a small and very open economy. The model is based on our estimates of regional Input-Output Tables for 14 regions within the Czech Republic (NUTS 3 digit level). It is therefore clear that shares of interregional and international transactions on total transactions in the regions are highly significant. These regions are small; moreover, they vary quite a lot, especially from the point of view of economic performance or sector specialization. For example capital city Prague forms a separate region (actually a city region) and it is obvious that its economy substantially differs from the surrounding region, which has more or less the function of its suburb, or some other more rural regions.

Creation of our model consists of several phases. All the components of expenditure approach to GDP in commodity breakdown have to be estimated and balance for each product in each region is found. Various estimation techniques of regional coefficients are discussed. They are based on expert opinion, interregional transportation figures etc., because no surveyed data on interregional trade are available.

The paper describes benefits and difficulties connected with MRIO model specification for very small regions of one country. The main obstacles are limited data sources and strong regional relations. Our model improves current regional analyses that are based on national Input-Output tables and fully ignore differences in the structure of regional economies.