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Regional economic impact assessment with missing input-output data: a spatial econometrics approach for Poland

Input-output tables are often applied to estimate the direct and indirect effects of an enterprise's activity on the national level, but also for the local economy. The modelling framework developed by Leontief and his followers has long been extended to the case of regional input-output table where one dimension is a cartesian product of the sets of sectors and regions. However, such a formulation creates tremendous data requirements, reaching far beyond the data available from Polish National Accounts. In this contribution, a method for estimating the missing entries of sectoral-regional input-output matrix is proposed, which is based on spatial econometrics. A likelihood function is derived on the basis of the Durbin model, with known coefficients but unknown (and parsimoniously parametrized) distance matrix. This distance matrix is based on (i) physical distance and (ii) supply-related geographical availability of products, and all the necessary restrictions are derived. The proposed approach is illustrated with an empirical application for the panel of 66 subregions in Poland.