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EDITORIAL

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ABSTRACT

In addition to the three special issue papers, issue 15.1 contains two papers on input-output analysis. The first paper provides a thorough analysis of the cross entropy (CE) method to build input-output tables at sub-territorial levels or to update them in time. The second paper proposes a spatial input-output location quotient accounting for the co-location of related industries within the same area and for spatial spillovers of concentration into neighboring areas.

KEYWORDS

input-output, location quotients, spatial dependence

JEL C67, R12, R15

Although *Spatial Economic Analysis* is not the main outlet for input–output (IO) studies, it still frequently contributes to this area of research. The most recent contribution is by Fujimoto (2019), while the corresponding editorial of Elhorst et al. (2019) provides a full list of previous IO studies in this journal. This issue again contains two IO papers. Owing to this proliferation of IO studies, we decided to extend the editorial team by appointing a new co-editor in this field: Umed Temursho (IOpedia, Spain, and University of Central Asia, Kyrgyz Republic). We wish him all the best with his new position.

An IO model is a quantitative economic model that represents the interdependencies between different sectors of a national economy. It can also be built at sub-territorial levels or existing tables can be updated over time using survey, semi-survey or non-survey methods. Since the costs and time required for survey or semi-survey methods are often prohibitive, non-survey or indirect methods have long attracted the attention of statisticians and researchers. Various methods have been proposed in the literature, which can be classified in two major groups: location quotient (LQ) methods and constrained matrix balancing methods.

The first paper considered here, by Lamonica, Recchioni, Chelli, and Salvati (2019, in this issue), reports the results of a variety of experiments based on real data analysing the performance of the constrained matrix balancing methods in general, and the cross-entropy (CE) method in particular. The main findings of this study are the following: (1) an efficient implementation of the CE method makes it very competitive when applied to the analysis of real data; (2) the

CONTACT
(Corresponding author) j.p.elhorst@rug.nl

performance of the CE method is superior to RAS (see below for an explanation of this acronym) for countries with small economies, and similar to that of the normalized squared differences (NSD) method; (3) the CE method has good predictive power, in particular for countries with small economies; (4) the CE method does not always converge owing to the large number of parameters to be estimated and the large number of sectorial total outputs involved in the algorithm, though this problem can be solved by rescaling sectorial total productions; and (5) in combination with the Flegg LQ, the CE method provides even better estimates.

The second IO paper by Tian, Gottlieb, & Goetz (2019, in this issue) fits into the literature exploring how to measure empirically the concepts of specialization and of concentration associated with localization economies. The authors develop a spatial IO LQ (i.e., SI-LQ) that accounts for the co-location of related industries within the same area and for spatial spillovers of concentration into neighbouring areas. The paper starts with the traditional LQ, then considers three extensions, and next introduces the SI-LQ as the geometric average of these four LQ variants. In addition, the authors use a bootstrap method based on the spatial error model to determine statistically the cut-off values of the proposed location coefficient. Finally, the paper illustrates the statistical properties and elaborates on the performance of the proposed LQ, using data for all counties in the 48 continental states in the United States from 1998 to 2015.

Readers interested in IO analysis are also recommended to consult the new publication by Oosterhaven (2019). According to him (p. 22), the acronym 'RAS' stands for a bi-proportional, iterative matrix balancing technique that sequentially scales and rescales the rows and columns of a base input–output table (IOT) until they equal the rows and columns totals (called margins) of the target IOT. RAS was initially developed to update an older national IOT such that it becomes consistent with more recent national margins. The product of the series of scalers for row i was denoted as $r_i \in \hat{r}$, the product of the series of scalers for column j as $s_j \in \hat{s}$, and the initial matrix as A. The solution of the iterative scaling algorithm thus equals $\hat{r}A\hat{s}$, which explains the name of the method.

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