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Challenges, policies and governance of the territories in the post-covid era

Desafíos, políticas y gobernanza de los territorios en la era post-covid

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EXTENDED ABSTRACT

Title: Proposal to estimate regional input-output structures using non-survey methods

Authors and e-mail:

Martínez Alpañez, Ruben; e-mail: ruben.ma.@um.es

Buendía Azorín, José Daniel; e-mail: jdbuen@um.es

Sánchez de la Vega, María del Mar e-mail: marvega@um.es

Department: Applied economics and Quantitative Methods for Economy and Business

University: Murcia

Subject area: *S15 - Análisis input-output y medio ambiente. Teoría y aplicaciones*

Abstract:

1. Objective

The main aim has been of this work to provide an improvement in the implementation of the FLQ, 2D-LQ and DSLQ methods, incorporating two novel contributions. The first is related to the evaluation of the precision of different regionalization techniques based on location quotients from the values of a goodness-of-fit statistic. The second novel contribution of our proposal consists of using the interregional road freight traffic (IRFT) and imports from the rest of the world (IROW) variables as regressors in the estimation equation of the parameters associated with FLQ, 2D-LQ and DSLQ.

2. Methodology

The present study uses the Korean multi-regional input-output framework for the year 2015 for 17 regions. Korea's multi-regional table for 2015 presents a 33 x 33 product breakdown for 17 regions with the flows valued in millions of won. The multi-regional table breaks down the intrarregional elements for each region and for each product, the values of transactions between each pair of regions, and the trade with the rest of the world on a product-by-product basis. For our purpose of assessing the efficiency of the different estimations, the use of type B matrices is required.

To assess the accuracy of the different methodologies, we use the Weighted Absolute Percentage Error (WAPE) statistic.

3. Results

The two main findings are:

First, it is shown that the best fit is obtained with the DSLQ approach.

Secondly, the results obtained demonstrate the suitability of our proposal based on the use of regressions whose independent variables are freight transport by road and merchandise imports from the rest of the world.

4. Conclusions

In this paper, different regionalisation approaches based on location quotients have been evaluated by implementing them in the context of the Korean multi-regional input-output table for the year 2015.

First, it is found that the FLQ, 2D-LQ and DSLQ approaches, which incorporate a smoothing (correction) on the proposed transformation of the national input coefficient, perform better than the simple SLQ and CILQ approaches.

The main issue for the use of these procedures lies in the estimation of the parameters associated, which becomes a crucial element in the regionalization process. In this area, our aim has been to provide an improvement in the implementation of the FLQ, 2D-LQ and DSLQ methods, incorporating as a novel contribution a proposal of estimation of these parameters. To do this, regressions are used whose independent variables are freight transport by road and imports of goods from the rest of the world.

Secondly, it is shown that the best fit is obtained with the DSLQ approach. This approach, which is considered as an alternative to the FLQ since it performs the correction on a different ratio, achieves better results than the FLQ methodology and, except in two regions, also better than the 2D-LQ methodology. However, this result should be considered with caution, insofar as in the case of Korea, there is a high correlation between the true values of final demand and those obtained through the ratio of sectoral value added to the national equivalent that has been used to estimate the DSLQ ratio.

Thirdly, based on data from the multiregional input-output table for Korea for the year 2015, the proposal of estimation of the parameters associated to the different methods are contrasted. The results obtained finding demonstrates the suitability of our proposal given that, generally, values deviations of the corresponding WAPE statistics in respect of their respective bests are the smallest ones.

Although all estimates produce good results, our estimation proposal for the method DSLQ presents, on average, the smallest value of the statistic WAPE and also the best estimation.

Therefore, the results obtained justify the use of our estimation proposal applied in the DSLQ approach to obtain regional input-output structures.

Keywords: Location quotients, Non-survey method, Regional input–output tables, Freight road transport, Regression analysis.

JEL Classification: C13, C25, C67, R11, R15