Testing a new approach to estimating interregional output multipliers using input-output data for South Korean regions

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The multipliers obtainable from a regional input-output (I-O) table are a valuable analytical tool, yet such tables typically must be constructed via non-survey methods. Although Fleggâ€™s location quotient (FLQ) is a method that often performs well, it is designed to estimate intraregional intermediate transactions and coefficients. The input coefficients for different regions are estimated independently and interregional coefficients are not estimated explicitly.
A dataset constructed by the Bank of Korea for all 16 South Korean regions in 2005 is one of the few survey-based full interregional I-O tables. It has data for all intersectoral transactions, both within and across regions, thereby allowing us to test some alternative theoretical approaches. Our focus is on an innovative methodological approach proposed by Jahn (2017), in which two methods of estimation, the FLQ and a gravity model, are combined in a consistent way to estimate the intraregional and interregional transactions, respectively. All regions are treated simultaneously. Furthermore, the estimated transactions are constrained to equal the national aggregates for each pair of sectors.
A novelty of our paper is its use of statistical information criteria to determine the best model for estimating output multipliers. Such criteria are relevant when the approaches being compared employ very different numbers of parameters. With the FLQ, for instance, one has a choice between pursuing a simple approach, whereby an unknown parameter Î´ is held to be invariant across both sectors and regions, and more complex approaches where these assumptions are relaxed. Standard performance criteria cannot reveal whether the inclusion of extra parameters is warranted, whereas information criteria can do so. We demonstrate that, for South Korea, the best approach is to combine the FLQ with a simple trade model. Since the interregional trade flows do not seem to depend much on distances or adjacency, a gravity model is unnecessary.