Review of: "Differences in Regional Productivity and Imbalance in Regional Growth"

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Potential competing interests: No potential competing interests to declare.

Comments on “Differences in Regional Productivity and Imbalance in Regional Growth”

Overall appreciation

The article is interesting, it uses a set of complex methodologies already known in the literature, to define the sensitivity and interdependence of a set of local economies to changes in productivity. In this way, it generates relevant information that will allow defining public policies aimed at promoting the relatively lagging regions. I would recommend highlighting the relevance of the analysis case, the Danish municipalities, emphasizing the universal value of their proposed subject. Similarly, in the conclusions section, the result discussion could reinforce again the universal importance of their findings and their applicability to other national contexts (it could be done by expanding the 4th paragraph in that section).

I would recommend looking at the work of Iammarino et al. (2016) and DePietro et al. (2021) to deepen the implications on public policy that the findings of the work imply. At the same time, I suggest the work of Cuadrado-Roura et al. (2013), Sanguinet et al. (2023), and Yeh, et al. (2015) to identify other international contexts where the kind of analysis carried out and its public policy proposals can be highly relevant, to reinforce the universal value that the analyzed case has.

Comments and specific recommendations

A. In the section “Description of Sector's Selection…", the use of the location coefficients requires a more complete analysis, I suggest including the confidence intervals of the LQ indicators, to focus the attention on those sectors that are significantly different between the three groups of regions, for this see the work of Moineddin et al. (2003) (there equation 4 may be the one of greatest interest). The same for the annual growth rates of productivity, there only would be interesting to focus on those sectors presenting significant differences between groups of regions (a two-way ANOVA test could be adequate to perform this). By focusing only on the statistically different sectors, the sector`s choice is simplified and the information contained in figures 1, 2, and 3 could be reduced.

B. In the "Methods and Assumptions" section, the center of the calculation model rests on the SAM-K/Line model, in general terms, this type of model has non-linear behaviors derived from the interaction effects between the production sectors, final demand, agents institutions, and the factorial distribution of income, consequently it would be interesting to observe the sensitivity of the results to more simulations that were contained in the range of [-10%,+10%]. It is understood that for purposes of simplicity, only the 6 current scenarios (of changes of +10% in the 3 regions) will continue to be

reported, but an appendix could show the results of the simulations of the previously recommended interval (as an example using jumps of |2%|, 60 new scenarios will be generated, 10 shocks X 3 regions X 2 sectors, base on them a very complete sensitivity analysis could be done).

In this same section, I think that figure 4, baseline, should come before the explanation about the shocks that will be simulated. In the manner in which is presented now, it is a bit confusing, especially when considering that the analysis is focused only on the short-term effect (2020 base versus 2020 simulated), which means that the complete time component from 2000 to 2020 is no longer of interest.

Additionally, in this same section, it could be clarified how the total effect is calculated (this seems very important to a better understanding of tables 2, 3, and 4), a detail that is not clear there, is how the SAM-K/Line model includes the external sector (and its foreign trade components), it is necessary to know if those are broken down at the municipal level or if they are just aggregate categories at the national level, this affects the feedback loops of the shocks and its distribution along regions.

C. In the section “Inter-and intra-sectoral spillovers: Spatial Analysis”, the results of tables 2 and 3 are very interesting. To better illustrate those results, representing them as a Graph could be useful, with sectors as nodes and edges proportional to the value(%) of their spilled effect.

Finally, the intra-regional absorption vectors for both shocks are quite strong ({72%, 78%, and 97%} v/s {73%, 86%, and 93%}). There, it is not very clear what could be explaining this similarity in both cases, especially when those two involved sectors are very dissimilar in their regional location pattern. In my opinion, this initial analysis needs to be better complemented with those results obtained in the following section ("...Multiplier analysis") and presented in tables 4 and 5.

D. In the section “Inter-and intra-sectoral spillovers: Multiplier analysis”. The results of tables 4 and 5 only present an Intra-Inter decomposition of their Derived Effects, in this section, it would be interesting to clarify if it is possible to decompose the "inter-sector derived effects" but by regions, similar to the exercise in tables 2 and 3.

E. In the discussion and conclusions section, I recommend going deep on their findings, by comparing them with some of the international experiences referred to in my initial comment (or others that the authors consider pertinent putting attention to some possible underlying mechanisms explaining them). Finally, I also suggest comparing the consistency of those obtained results - at the national level - with the decomposition of labor productivity recently published by the OECD (as example, see: https://www1.compareyourcountry.org/compendium-productivity-indicators-2023/en/2/5167+5137/default/all/DNK+DEU?embed=noHeaderNoNav) .

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