

Reviewer 1

Review of Comparative Analysis of Regional Development: Exploratory Space-Time Data Analysis and Open Source Implementation

This is a generally well-written paper exploring the potential of visualisation techniques in spatial economic analysis. It is especially rich in the introduction and conclusion; positioning this type of research extensively in a broad international scientific perspective. The main content of the paper, however, is rather shallow. Existing visualisation techniques are applied on basic spatial-economic data (GDP per capita) using an existing software platform. So the novelty of the paper is not really clear to me. Neither the applied techniques, nor the conclusions related to regional differences in economic development are new. The many different visualisation results seem to depend mainly on the different threshold values that are applied for showing certain features. The analysis highlights which regions have a similar development history, providing the somewhat obvious results that the north-eastern USA is prosperous and that coastal China is developing more rapidly than the interior. From my understanding of the paper, only the implementation of the applied visualisation techniques in this specific open-source software is new. While that may be good news for researchers looking for such tools, this achievement alone does not seem to merit the publication of scientific research-oriented paper. Should the authors wish to further develop their paper in this direction I suggest they expand their paper in any of the following ways: 1) develop new visualisation techniques; 2) systematically compare the current representations of regional differences in spatio-temporal development with other metrics to highlight the pros and cons of these methods; 3) analyse the benefits of having your analysis tools in an open source environment (but that seems very difficult to prove); or 4) deepen the analysis of regional economic performance of the selected countries (can you add new insights to existing ones?).

In addition I have the following suggestion to further improve the paper:

All figures appear to be screen dumps from the software package. This is fine for software documentation, but figures in a journal paper should follow standard cartographic conventions and include, amongst others, a readable legend, clarity on the units that are included, scale bar, north arrow.

Figure captions should allow the figures to be understood independent of the text. For example: The caption of Figure 1 mentions a network (as does the text), but also show colours for the state polygons. I am not sure what these colours mean (average value of the links?). Colour coding of the lines is not explained here. Figure 2 should clarify in which respect the various representations differ from each other. And so on.

The text should be proof read to remove typos and small linguistic errors.

Page 8 mentions that you use relative per capita gross domestic product, but does not mention relative to what. This is hidden in a note to the caption of Fig 1. Please also explain in the main text that it is relative to the national mean.

Clarify the importance of applying the different threshold values. From the current text I interpret that they only serve as a means to ignore (not show) values below a certain value. That is effective, but very innovative. A similar result could have been obtained by showing the links in different colours. Or does the underlying analysis also change with different threshold values. If so, how?

The LISA related visualisations may be offer an interesting way to analyse regional development. But they require some more explanation. How should we interpret spatial lag in this case for example? Have others created similar time-path representations before? If so, with which purpose? If not, how does your approach differ from the way others apply LISA-representations. Can you add first and final year to the time path to allow readers o interpret change over time? The current figures 8, 9 and 10 are partially redundant as they repeat some results. Fig.10 contains all the info you discuss. You could even show the four trajectories in one graphs using the same scales. That would be much more efficient.

Page 14 talks about a 21 years range. That should be 31 (1978-2008).