

Authors' response to reviewers' comments

Dear Ms. Mateja Makan and all reviewers,

Thank you for giving us the opportunity to submit a revised draft of our manuscript titled "Spatio-temporal Distribution Patterns and Local Driving Factors of Java's Regional Development" to the International Journal of Geo-Information (IJGI). We really appreciate the time and effort that you and the reviewers have dedicated to provide your valuable feedback on our manuscript. We are grateful to the reviewers for their insightful comments on our paper. We fully considered and dealt with all of them. We have been able to incorporate changes to reflect most of the suggestions provided by the reviewers. In addition to dealing with all of the comments below, the current version of this manuscript has been checked and updated. We hope all issues have been fully dealt with. Once again, many thanks for your kind supports to improve the quality of our manuscript. Here is a point-by-point response to the reviewers' comments and concerns.

Response to Reviewer 3#:

I do like the research idea and also some of the methods used into. Still, many improvements should be considered as:

Comment #1:

The figures - in particular figure 3 should be divided and shown in a better quality - perhaps put those as Appendix.

Response #1 :

Thank you for pointing this out. As suggested by reviewer, all figures including Figure 3 have been replaced with pictures/images in a better quality and higher resolution.

Comment #2:

The results should be further discussed.

Response #2 :

Thank you for your suggestion. We already revised and put additional explanation in 'results and discussion' section. Please find them in our revised manuscript.

Comment #3:

The discussion should be extended and similar studies and researches should be added to foster the debate on this issue

Response #3 :

Thank you for this suggestion. It would have been interesting to explore this aspect. However, in our research, especially in the results and discussion section, we focused on our result with only limited debate because the previous studies in this issue in the same area are still limited. Most studies related

to the distribution of development level in Java were addressed in the framework of regional (income) inequality with limited spatial consideration.

Comment #4:

The study limitations and future research lines should be emphasized

Response #4 :

Thank you for your comments. As suggested by reviewer, we already put some additional sentences in the conclusion section which mentioned the study limitations and expecting improvement in future research (see line 399-410). Please find the revised version of our conclusion as follow:

“This research showed that the level of regional development of Java improved during the last two decades. Generally, the regional development level is affected by factors related to social, economic, infrastructure, land use, and environmental barrier. HDI, education facilities, GDP, and paddy field conversion into the built-up area have a positive impact on the regional development level. On the contrary, environmental barriers (flood, landslide, drought, and tuberculosis) have a negative impact on it. The spatial pattern of the power of local driving factors has shifted between 2000 and 2017, especially the following factors: HDI, landslide, paddy field conversion, tuberculosis, and crime. Initially, the development level of the eastern part of Java could be well explained by HDI, landslide, and paddy field conversion in 2000. However, the profound development activities of western Java during the last two decades made the western part could be explained well by those factors in 2017. Java’s mega-urbanization appears unstoppable, and it is a daunting challenge for the central and local governments to manage the spatial urban growth and improve regional development in Java in the near future. The research results can be used as an evaluation tool for providing place-based policy in reducing regional disparity in Java and contribute to further recommendations to the central and local governments in determining policies aiming at improving regional development in each regency/municipality. Some of limitation of this research are lack of available or reliable data; studies addressing the same issues in research area are still limited; the diversity of types of variables used in the model, and research design limitation. Such kind of this approach can be implemented and improved in future research by selecting different aspects or variables and employing panel data to identify local driving factors of regional development in Java.”