Reviewer’s report

Title: The relevance of spatial aggregation level and of applied methods in the analysis of geographical distribution of cancer mortality in mainland Portugal (2009-2013)

Version: 0 Date: 27 Nov 2017

Reviewer: Carla Nunes

Reviewer’s report:

I found this study very interesting and within the scope of this journal. It could be published, after some major issues that must be clarified before this paper being accepted.

Major comments:

1) Sometimes it is not clear if the main goal of this study is a methodological issue or a study to answer a specific research question. In my opinion it is a methodological paper with an application - a case study. Some parts of the manuscript should be rewritten (title, results and discussion). For instance the name of small villages aren’t important.

2) The obtained results are expected: the occurrence of lower and higher extreme values tend to increase with the decrease of data spatial aggregation; more clusters at small spatial aggregation. Therefore, in my opinion, this manuscript can be very useful highlighting the importance of choice of spatial aggregation - promoting different results and reinforcing the challenge the scientific community to develop ways to test the identified results. An example, within several other and more recent approaches, could be using simulation processes or the one that it is used here - simple and fast (among others).

3) It is not clearly defined the methodology to state that the most suitable applicable scale and method seemed to be the Municipalities and BYM model. What was the methodology to choose this and cutoffs? This should be one of the most important messages of this paper (related with point 2). It is not clearly described in methods section.

Minor comments

4) in the abstract: write the number of units at each level of aggregation - (and it is not necessary to talk about NUT here) and define what means SMR

5) Pag 4. Line 23 … the aim of this paper is to identify …. Perhaps it could be better to use "discuss" instead of "identify " as it is cannot be clearly and undoubtedly identified. Add the idea that you are proposing a method to choose …
6) Figure 1 is not presented (just a black rectangle)

7) Use subscripts to "i" page 7, line 6 to 15; page 8 line 51 e 54

8) Incomplete or strange phrases in page 7, line 22 "Likewise, in P computing census data..." and in page 13, line 18 "strong CV"?

9) Explain how some classes were defined (page 7, age-classes and 5 SMR classes intervals)

10) It is missing a j in CV’s formula and explain its components (SE) page 7

11) It will be useful to have a table in some descriptive statistics of the histograms.

12) Figure 3 correct the legend of X axis (it is in Portuguese).

13) Present the correlation coefficients related with figure 4

Level of interest
Please indicate how interesting you found the manuscript:

An article of importance in its field

Quality of written English
Please indicate the quality of language in the manuscript:

Acceptable

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