Reviewer’s report

Title: The striking geographical pattern of gastric cancer mortality in Spain: environmental hypotheses revisited

Version: 7 Date: 11 July 2009

Reviewer: Vincent Plagnol

Reviewer’s report:

The authors have addressed my comments, and the paper is essentially ready for publication. However, I just want to clarify a point I raised in the earlier review: I mentioned I would have liked to see the statistical approach motivated in the Background section. I feel this is where it belongs and the authors haven’t exactly done that. Specifically I read in the discussion:

"For small geographic units, the use of SMRs introduces an extra source of variability, in the form of random variability, since sparsely populated areas with few or zero cases can generate extreme SMR values [21]. The Bayesian approach attempts to solve this problem, by using smoothing techniques that help identify the underlying geographic pattern."

This point is definitely important as it motivates the use of Bayesian smoothed estimates, which is key from a methodological point of view. Therefore some shortened version of this statement should be present in the background section. Otherwise the reader really does not understand where these Bayesian estimates are coming from until quite late in the paper.

Otherwise this latest manuscript is ready for publication.

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: Yes, and I have assessed the statistics in my report.