Reviewer's report

Title: Long term unemployment, income, poverty, and social public expenditure, and their relationship with self-perceived health in Spain (2007-2011)

Version: 1 Date: 14 Aug 2017

Reviewer: William Hulme

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The additional analyses performed lend additional credibility to the causal hypothesis. In particular, that a decline in perceived health may be partly attributed to a rise in unemployment following the financial crisis. The analyses still don't, and can't, prove it (as the authors acknowledge). But crucially, nor does it do anything to falsify a general statement of the selection hypothesis. These are not mutually exclusive hypotheses! It's not credible to reduce this complicated network of causes and effects to an either/or question. This is more a criticism of the conclusions and framing of the study rather than the methods themselves.

If the authors choose not to revise their methods, they may want to adapt their conclusions - the selection hypothesis does not need to be discredited to increase the credibility of the causal hypothesis.

I'm curious to know what the authors would expect to see if the analyses were repeated in reverse, setting unemployment as the dependent variable and perceived health as the predictor (+ confounders). Would an association between unemployment and perceived health support the selection hypothesis and discredit the causal hypothesis? If so you have performed two analyses on the same data and found contradictory results.

The issue of inadequately modeling the longitudinal nature of the data remains (relabel years 2007-2011 as A, B, C, D, E and reorder, and the model will be the same)
Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

No

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
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I am able to assess the statistics

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