Reviewer’s report

Title: The Impact of PM2.5 on Mortality in Older Adults: Evidence from a Natural Experiment in the United States

Version: 0 Date: 18 Oct 2019

Reviewer: C. Arden Pope

Reviewer's report:

Comments to authors (Env Health 2019)

Major comments:

1. This study uses power plant closures in the Eastern U.S. and mortality data among Medicare beneficiaries to evaluate the impact of PM2.5 on mortality. "Causal" modeling approaches, including instrumental variable and diff-in-diff are used. Overall, this is an excellent idea and approach.

2. The analysis is fairly straight forward, at lease as standard approach in econometrics. The approach seems to be conducted appropriately and competently.

3. Page 13, line 7-9. "In contrast, air quality improved significantly after the power plant retirement in the treated group." What do you mean by "significantly"? Is this just based on the visual observations in the figures or is there a formal measure of statistical significance or is this based on the IV validation discussed later?

4. One clear and important limitations to this analysis is the lack of data regarding the emissions from each power plant. The authors note this limitation, but then do not discuss it well. What impact will this have on exposure-measurement error in the context of this IV approach and how might this impact the estimates.

5. The lack of cause of death information is also a frustrating limitation that can not be solved using the Medicare data. The authors note this limitation.

6. With regards to socioeconomic and related controls, the analysis does not include any controls for smoking. Why?

Minor comments:


Level of interest
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An exceptional article

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

Acceptable

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