

Peer Review Report

Review Report on Climate Disaster and Cognitive Ability: Evidence from Wildfire

Original Article, Int J Public Health

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EVALUATION

Q 1 Please summarize the main findings of the study.

The study finds that wildfires have a significant negative impact on cognitive abilities, with word and math test scores decreasing by 0.224 and 0.225 standard deviations, respectively, for every 10 upwind wildfires compared to non-upwind wildfires. Additionally, young individuals and those with lower defensive expenditures are more vulnerable to the adverse effects of wildfire disasters.

Q 2 Please highlight the limitations and strengths.

Limitations:

Scope: The study focuses specifically on wildfires in China between 2014 and 2018, potentially limiting the generalizability of the findings to other regions or periods.

Data Limitations: The reliance on satellite-monitored wildfire data and self-reported cognitive test scores may introduce measurement error and bias into the analysis.

Endogeneity Concerns: Despite efforts to mitigate endogeneity issues using exogenous wind direction modeling and instrumental variables, residual confounding factors may still exist, impacting the causal interpretation of the results.

Sample Composition: The study utilizes data from the China Family Panel Studies, which may not fully represent the diversity of the Chinese population, potentially limiting the generalizability of the findings.

Strengths:

Causal Inference: The study employs sophisticated methods, including exogenous wind direction modeling and instrumental variables, to establish causal relationships between wildfires and cognitive abilities, enhancing the robustness of the findings.

Data Quality: The use of satellite-monitored wildfire data and longitudinal panel data from the China Family Panel Studies contributes to the reliability and validity of the analysis.

Statistical Rigor: The study employs rigorous statistical techniques, such as regression analysis and robustness checks, to analyze the data and assess the robustness of the findings.

Relevance: The findings of the study have significant implications for climate disaster management policies, highlighting the importance of addressing the adverse effects of wildfires on cognitive health.

Q 3 Please provide your detailed review report to the authors. The editors prefer to receive your review structured in major and minor comments. Please consider in your review the methods (statistical methods valid and correctly applied (e.g. sample size, choice of test), is the study replicable based on the method description?), results, data interpretation and references. If there are any objective errors, or if the conclusions are not supported, you should detail your concerns.

Some additional details or clarifications are needed to enhance the clarity or completeness of the objective. The objective could provide more detail on the aspects of cognitive health being investigated, such as cognitive functions affected or the population being studied.

The method lacks detail on how potential confounding variables are controlled for, and it would benefit from a clearer explanation of the rationale behind the choice of the exogenous wind direction realization as an instrumental variable.

the conclusion is not clear and precise enough and some details must be added.

line 105, beta_0 to beta_4 were not defined.

In the wildfire section, there is a lack of logical flow/Incoherent transitions between some of the sentences.

Some suggestions for the Result section:

While the section covers various aspects such as robustness checks, heterogeneity analysis, mechanism analysis, etc., the transition between these subsections could be smoother. Each subsection could be introduced more clearly to help the reader navigate through the different analyses conducted.

While the section presents the results of various analyses, there is limited interpretation or discussion of the implications of these findings. Providing more interpretation would help the reader understand the significance of the results and their implications for the research question.

information, such as the explanation of the methodology used in the robustness checks, is repeated multiple times throughout the section. Streamlining this information and referring the reader back to previous explanations where appropriate would improve readability.

While tables are referenced throughout the section, the text could be enhanced by incorporating more direct references to specific results in the tables. This would help reinforce the key findings discussed in the text.

There are several instances of grammatical errors and awkward phrasing throughout the section ("epplanatory," "epperience," "epogenous," etc.). A thorough editing pass to correct these errors would improve the overall quality of the writing.

Some suggestions for the Conclusion section:

The conclusion section effectively summarizes the main findings of the paper regarding the impacts of wildfire disasters on cognitive abilities. However, there are a few areas where it could be improved:

Lack of Synthesis: The conclusion could benefit from synthesizing the findings into a more cohesive narrative. It presents the results but does not elaborate on the broader implications or significance of these findings in the context of existing literature on climate change and disaster response.

The conclusion repeats phrases such as "wildfires significantly reduce individuals' cognitive abilities" without offering much variation in language. Varying the wording could enhance the clarity and impact of the conclusion.

While the conclusion briefly mentions the methods employed to mitigate endogeneity issues, such as the use of an exogenously changing wind direction model and instrumental variables approach, it does not delve into the rationale behind these methods or their effectiveness in addressing potential biases.

The conclusion does not offer any suggestions for future research or avenues for further investigation. Including recommendations for future studies could enrich the discussion and highlight areas for continued inquiry in the field.

The conclusion could be more precise in its language and presentation of results. For example, it states that "These findings still hold after robustness tests," but it could specify which specific robustness tests were conducted and how they support the main findings.

PLEASE COMMENT

Q 4 Is the title appropriate, concise, attractive?

The title "Wildfire Disaster and Cognitive Health: Evidence from China" is appropriate and concise, providing a clear indication of the main focus of the paper. However, it could potentially be made more attractive by adding a bit of specificity.

Q 5 Are the keywords appropriate?

yes

Q 6 Is the English language of sufficient quality?

yes

Q 7 Is the quality of the figures and tables satisfactory?

Yes.

Q 8 Does the reference list cover the relevant literature adequately and in an unbiased manner?)

yes

QUALITY ASSESSMENT

Q 9 Originality



Q 10 Rigor



Q 11 Significance to the field



Q 12 Interest to a general audience



Q 13 Quality of the writing



Q 14 Overall scientific quality of the study



REVISION LEVEL

Q 15 Please make a recommendation based on your comments:

Major revisions.
