Review of: "Causality Analysis for Non-Communicable Diseases, Obesity, and Health Expenditure: Toda Yamamoto Approach"

Matheus Koengkan[1]

1 Universidade de Coimbra

Reviewer comment (R.C.): The authors need to improve the abstract. Therefore, the abstract should answer these questions about your manuscript: What was done? Why did you do it? What did you find? Why are these findings useful and important? Answering these questions lets readers know the most important points about your study and helps them decide whether they want to read the rest of the paper. Make sure you follow the proper journal manuscript formatting guidelines when preparing your abstract.

Reply:

Reviewer comment (R.C.): The introduction section needs improvement. It is important to clearly state the following aspects in the introduction:

- The main research question
- Hypothesis, if applicable
- Main objective of the study
- Gap in the literature that this study aims to address
- Motivation behind the research
- Relevance and significance of the topic
- Innovations and novel contributions of the study compared to existing work
- Unique contribution of this study to the field of investigation.

Reply:

Reviewer comment (R. C.): The authors should include a comprehensive literature review section that delves into an in-depth discussion of existing research. They should also identify any literature gaps, which are areas where there is a lack of information or insufficient data. These gaps represent opportunities for further research, considering factors such as sample size, location, research methods, and variables or conditions. The authors should aim to explore these unexplored, under-explored, or outdated aspects to contribute to the field.

Reply:

Reviewer comment (R. C.): The method section could benefit from further improvement. It is important to provide a clear justification for the methodology approach used, explaining why it was chosen and how it is appropriate for the research question at hand. Additionally, it would be helpful to reference prior studies that have successfully used this methodology approach to strengthen the argument for its use in this particular study.

Reply:

Reviewer comment (R. C.): The data section requires improvement. The authors must address several key questions to provide a better understanding of their approach. Specifically, why were these variables selected for the model? What does the existing literature say about these variables? Additionally, it's important to provide information on previous authors who have used these variables. Without this information, readers may find it difficult to fully comprehend the approach and results presented in the study.

Reply:

Reviewer comment (R. C.): The authors should provide a justification for the use of a time series analysis and provide more information about the selected time frame (1990-2019). Specifically, they should explain why this time period was chosen and how it relates to the research question or hypothesis being investigated. Additional details on any relevant historical, social, economic, or political events during this period may also be helpful to contextualize the analysis.

Reply:

Reviewer comment (R. C.): The authors could consider extending the time frame of their study to include data up until 2022. This would provide a more up-to-date and comprehensive analysis of the subject matter, taking into account any recent developments or trends that might have occurred since the data cutoff point. By including the most recent data available, the authors can enhance the relevance and applicability of their findings, ensuring that their research remains current and informative for policymakers, researchers, and other stakeholders in the field.

Reply:

Reviewer comment (R. C.): The authors should develop a conceptual framework that is related to the methodological approach used. An example of such a framework can be found in Figure 8 of the article referenced below. Including this conceptual framework will greatly enhance the quality of the manuscript, and it is important to mention this reference.

https://doi.org/10.3390/su132413611

Reply:

Reviewer comment (R. C.): The authors need to expose the software that was used (e.g., Stata, R, EViews, Python, and others) and the econometric commands used during the process of analysis. This allows the reapplication of your study by others. Please, see the example below:

"We used the econometric software **Stata 17.0** in our study. Indeed, the Stata commands used in this study included

sktest, sum, xtcd, swilk, vif, multipurt, xtwest with option constant, xthst, xtqreg, hausman, and xtreg. These commands were used to realize the preliminary tests and the model estimations".

Reply:

Reviewer comment (R. C.): To enhance the clarity of the results, the authors may consider including figures to visually summarize their findings.

Reply:

Reviewer comment (R. C.): The authors need to improve the discussion section. In this section, the authors need to make the discussion correspond to the results but not reiterate the results. Here you need to compare the published results, and the authors must confront it and convince the reader that your explanations are correct or better.

Reply:

Reviewer comment (R. C.): The authors need to improve the quality of the conclusions section. The conclusions section needs to be supported by the results and the authors need to show how their investigation advances the field from the present state of knowledge.

Reply:

Reviewer comment (R. C.): To provide more comprehensive and actionable recommendations, the authors should create a dedicated subsection titled "Policy Implications." In this section, they should identify the specific areas where the current policy falls short and explain why their proposed recommendations can help improve the status quo. It's important to keep in mind that policymakers are interested in practical, cost-effective, and socially acceptable solutions, so the authors should address the following questions before presenting their recommendations:

What specific changes need to be made?

How will these changes be implemented?

What resources will be required to implement the changes, and where will they come from?

What are the overall benefits of the proposed changes for policymakers and society as a whole?

By answering these questions, the authors can provide a more compelling and practical set of policy recommendations that can help address the shortcomings of the current policy and lead to positive changes.

Reply:

Reviewer comment (R. C.): The authors should consider creating a new subsection titled "Limitations and Future Recommendations". It's essential to address the study's limitations, which are the design or methodology constraints that may have affected the interpretation of the research findings. Limitations may have an impact on the ability to generalize results or describe applications for practice, as well as the usefulness of the findings that resulted from the research

design or method used to establish internal and external validity, or unanticipated challenges encountered during the study.

In addition to addressing limitations, future recommendations should consider the following aspects: (1) building upon a specific finding in the research; (2) addressing a flaw in the research design; (3) testing a theory, framework, or model in a new context, location, or culture; (4) re-evaluating or (5) expanding a theory, framework, or model. It's important to consider these aspects to ensure that future research is based on solid foundations and provides valuable insights that can inform practice and policy decisions.

 Reply:

Reviewer comment (R. C.): The authors should prioritize improving the presentation quality of the manuscript, particularly with regards to the organization of the text and the presentation of tables and figures. While the manuscript shows promise, its overall investigation quality requires improvement. The authors must ensure that the manuscript is both attractive and readable, in order to increase its likelihood of being read and cited. Paying close attention to details in all manuscripts will be critical to achieving this goal.

Reply:

Reviewer comment (R.C.): Minor editing of English language and style required.
Reply:

Reviewer comment (R.C.): A notation list is necessary

Reply:

Reviewer comment (R.C.): The authors need to pay attention to acronyms throughout all text.

Reply:

Reviewer comment (R.C.): To ensure originality and avoid copying and pasting graphs, please endeavor to create your own visual representations.

Reply:

Reviewer comment (R.C.): How did you ensure the reliability and accuracy of the data used in your study, especially considering that it spans a period of almost three decades?

Reply:

Reviewer comment (R.C.): The study utilizes econometric causality models to establish causal relationships between obesity, non-communicable diseases (NCDs), and health expenditure. What are the limitations and assumptions associated with using econometric models in this context?

Reply:

Reviewer comment (R.C.): The Toda-Yamamoto causality test was employed to examine the causal relationships between variables. Can you explain why this test was chosen over other causality tests? What are the strengths and weaknesses of the Toda-Yamamoto causality approach?

Reply:

Reviewer comment (R.C.): The study discusses the burden of non-communicable diseases (NCDs) and their impact on health expenditure. However, it does not explicitly define how the burden of NCDs is measured using Disability-Adjusted Life Years (DALYs). Can you provide more details on how DALYs are calculated and their significance in assessing the burden of disease?

Reply:

Reviewer comment (R.C.): The research hypotheses state that obesity is the cause of the burden of non-communicable disease and health expenditures. Could you elaborate on the theoretical rationale and existing empirical evidence that supports these hypotheses?

Reply:

Reviewer comment (R.C.): The study uses the body mass index (BMI) scale to assess obesity. However, BMI has limitations and does not consider factors such as muscle mass or body composition. How might these limitations impact the interpretation of the results and the conclusions drawn regarding the causal relationship between obesity and non-communicable diseases?

Reply:

Reviewer comment (R.C.): The analysis covers a wide range of countries and time periods. Did you observe any variations or trends in the causal relationships between obesity, non-communicable diseases, and health expenditure across different countries or over time? How do these variations, if any, contribute to the overall findings of the study?

Reply:

Reviewer comment (R.C.): The study focuses on the causal relationships between obesity, non-communicable diseases, and health expenditure. Were any other potential confounding factors or variables considered in the analysis? If so, how were these factors controlled for to ensure the robustness of the causal relationships identified?

Reply:

Reviewer comment (R.C.): The study highlights the economic costs associated with obesity and non-communicable diseases. However, it does not delve into the potential interventions or policies that could be implemented to address these issues. Can you discuss any recommendations or implications that arise from your research findings in terms of

preventive measures or interventions?

Reply:

Reviewer comment (R.C.): The data sources used in the study are from international organizations such as the World Health Organization and the World Bank. Were there any limitations or challenges in accessing or utilizing this data? How did you address potential data gaps or inconsistencies that might arise from using data from multiple sources?

Reply: