Reviews of ECONJOURNAL-D-23-00206R1

A Novel Approach for the Assessment of logistics performance index of EU Countries

Round 1

Reviewer 1

Comments for "A novel approach for the assessment of logistics performance index of EU countries"

1. Introduction:
   - The introductory section effectively establishes the context for logistics performance and MCDM methods. However, it could be further strengthened by incorporating a detailed critical analysis of the literature on LPI evaluation using MCDM techniques. Such an analysis should identify key studies in this area, critically assess their methodologies and findings, and delineate research gaps that the current study aims to address.

2. Methodology:
   - The methodology section introduces the Fuzzy ROV method but requires more comprehensive elaboration. Key aspects such as the detailed steps of the algorithm, the utilization and rationale behind fuzzy numbers, and the normalization process need to be thoroughly explained to enhance the clarity and reproducibility of the research.
   - The paper asserts that the proposed method represents a hybrid subjective-objective FMCDM approach. However, this claim is presented without sufficient empirical or theoretical justification, particularly concerning the critical aspect of consistency checks. In the realm of decision-making models, especially those involving fuzzy logic, the validation of consistency is paramount to ensure the reliability and credibility of the results. The lack of a rigorous consistency assessment in the methodology raises significant questions about the integrity and applicability of the model. A thorough explanation of how consistency is maintained or evaluated within this subjective-objective framework is essential. This should include, but not be limited to, a discussion on the measures or tests employed to assess consistency, how these measures are integrated into the FMCDM framework and the impact of any inconsistencies found on the overall decision-making process. Without this level of detail, the method's claim to effectively integrate subjective and objective elements remains unsubstantiated, potentially undermining the robustness and scientific merit of the study's findings.

- The rationale behind converting the outputs of three distinct weight calculation methods into fuzzy numbers is not adequately justified. A comparative analysis emphasizing the agreements and discrepancies among these methods could provide richer insights, rather than a forced unification into a fuzzy framework.
- The paper fails to provide substantial evidence or theoretical justification that the conversion of LPI scores into fuzzy sets aligns with the established principles of fuzzy set theory, particularly concerning memberships and their properties. This omission calls into question the validity of applying fuzzy set theory in this context.
- The adopted linguistic scale for capturing expert assessments, with its limited scope of only 8 levels, seems overly coarse. This limitation could hinder the ability to capture subtle nuances in evaluations, potentially leading to oversimplified interpretations of complex data.
- Results:
  - While the results section effectively presents the rankings derived using the Fuzzy ROV method, it would benefit from a more nuanced analysis. A comparative evaluation with World Bank rankings, emphasizing the differences and similarities, would provide a richer context for understanding the efficacy and distinctiveness of the Fuzzy ROV method.
  - Symmetry of Membership Functions: The process of normalization seems to have distorted the symmetry of certain membership functions. A case in point is criterion C4 for A25, where the normalized values are (1.00, 1.00, 2.00). Theoretically, these values should form a symmetric set around the modal value, possibly as (1.00, 1.33, 1.67), to maintain mathematical and logical consistency within the fuzzy set framework.
  - Consistency with Original LPI Scale: There is a noticeable discrepancy between the minimum and maximum ranges of the normalized values and the original LPI scale. For instance, in a 1-5 LPI scale, it's mathematically incongruent to observe a maximum rating of 9, as illustrated for criterion C5. Such inconsistencies raise questions about the methodological soundness of the normalization process.
  - Overlapping Bounds and Assumptions: The overlapping bounds in the normalized values challenge the foundational assumption of fuzzy logic where a higher index score should correspond to a higher membership grade. An example of this issue is observed in A25, where the range for criterion C1 exceeds that of C4, despite C1 having a lower original score than C4.
- Discussion of Implications:
  - The discussion could be significantly enhanced by exploring the theoretical and practical implications of the findings. An analysis of how these results might inform policy-making or decision-making processes in the realm of LPI would add considerable value to the paper.

- Conclusion:
  - The concluding section could be expanded to provide a more comprehensive summary of the key findings, acknowledge the study's limitations, and suggest potential areas for future research. Additionally, a clearer articulation of the study's novel contributions would underscore its significance in the field.

Reviewer 2

Please include any specific comments for the author concerning his/her manuscript. These comments will be sent to the author. Please use as much space as necessary. Please be as constructive as possible and include clear and specific suggestions stating which aspects of the manuscript must/should be improved, and your rationale.

Overall, I have ambivalent reservations about the manuscript and am uncertain whether to recommend rejection or propose revisions. Although the abstract and data analysis exhibit commendable quality, the introduction lacks inspiration, the systematic research background remains unexplored, and the methodology lacks innovative elements. Nonetheless, I am open to reconsidering my stance if the authors enhance the manuscript. The primary areas requiring improvement include:

1- The introduction lacks motivation, especially when introducing a new decision-making approach.

2- In the introduction, supporting your writing with literature is necessary. Below are some suggested resources that could be helpful for authors:

https://www.journal-aprie.com/article_136396.html

https://www.journal-dmor.ir/article_142519.html?lang=en

https://www.riejournal.com/article_49164.html

https://www.acadlore.com/article/JOSA/2023_1_4/josa010401

3- The introduction requires better paragraphing to clarify points, including LPI in the next paragraph.

4- In the conclusion of this section, the research problem should be addressed.

5- The literature review section requires support from existing literature in its first paragraph. The following resources may be useful for authors:

https://www.journal-aprie.com/article_139093.html

https://www.journal-dmor.ir/article_106852.html?lang=en

6- The references cited in the third paragraph of this section need to be updated.

7-The literature review section lacks clarity in its systematic review, source order, and purpose.

8- What is the conclusion at the end of this section, and what background research gap exists?

9- There is no explanation as to why a new method is needed or the weaknesses of previous approaches.

10- Can you please clarify the reason for needing fuzzy data, as I have

mentioned previously? You may use the following works:

https://www.journal-fea.com/article_183902.html

https://www.riejournal.com/article_182535.html

https://www.journal-aprie.com/article_153852.html

11- Can you please clarify your innovation? Is it solely focused on fuzzy data, or does it also have other aspects?

12- Why are unusual signs used for abbreviations (such as decision matrix)?

13- What is the basis for transforming the data of Table 1 to 3? For example, why are the values 2.7 and 2.8 converted to (1, 1, 1), etc.?

14- In subsection 5-1, can these data be analyzed using robustness and antifragility analysis? Either do this analysis or put it forward in the suggestions section for future directions. It is recommended that you do these analyses. To achieve this objective, please take into account the following sources:

https://link.springer.com/article/10.1007/s13132-023-01558-5

https://www.mdpi.com/2079-8954/11/2/80

https://www.acadlore.com/article/JOSA/2023_1_4/josa010403

15- Figures 3 and 4 are unclear and require further explanation to ensure their proper understanding.

16- Neutrosophic and Plithogenic Sets can be useful when making future research suggestions. Here are some examples:

https://www.journal-fea.com/article_136845.html

https://www.acadlore.com/article/JOSA/2023_1_2/josa010204

https://www.acadlore.com/article/JOSA/2023_1_2/josa010205

17- As we approach the end of the manuscript, the number of grammatical errors increases. These errors should be corrected.

18- The number of references in your scientific text is insufficient. Please include more up-to-date articles to strengthen this section.

Reviewer 2

The paper "A novel approach for the assessment of logistics performance index of EU countries" represents a very good study with a strong and new developed and proposed methodology.

The authors are very familiar with the fields covered in the paper. It is well-written with almost all the necessary elements. The authors have proposed extensive validation analysis due verify their results.

The paper has great potential and can be accepted after major corrections:

- You have used three objective methods for determining criteria weights and transformed them into TFNs. This part of the paper needs more explanations and should be given more reasons for the decision.

- It is unclear how you have created the initial fuzzy matrix in the fuzzy ROV method. Please give proper explanations.

- The presented results below Table 6 need more description and comparison with the World Bank report. Provide more details.

- Figures 3 and 6 can be more discussed.
- Can be added more references.
- It would be interesting if you could enrich sensitivity analysis in a way that you aggregate weights using some operator like Bonferroni, Dombi, or others and use crisp values in the Fuzzy ROV method. Compare results with those existing in the paper.

Round 2

Reviewer 1

Dear Authors,

Thank you for the updates and accepted recommendations.

Reviewer 2

Please include any specific comments for the author concerning his/her manuscript. These comments will be sent to the author. Please use as much space as necessary. Please be as constructive as possible and include clear and specific suggestions stating which aspects of the manuscript must/should be improved, and your rationale.

Congratulations to the authors.

Reviewer 3

Dear authors

The article looks much better in its revised form. Therefore, the article can be accepted in its current form.