

## REVIEWER'S REPORT

Manuscript No.: **IJAR-54099**

**Title: Impact of Economic Activity on PM2.5 Levels in India: An empirical study on selective Indian Districts.**

### Recommendation:

Accept as it is .....  
 Accept after minor revision.....  
**Accept after major revision** .....  
 Do not accept (*Reasons below*) .....

Rating	Excel.	Good	Fair	Poor
Originality		✓		
Techn. Quality			✓	
Clarity			✓	
Significance			✓	

Reviewer Name: Dr.P.Manochithra

**Date:** 29-09-2025

## Detailed Reviewer's Report

### Title and Abstract

- **Strengths:**
  - The title clearly conveys the theme (economic activity and PM2.5 levels).
  - The scope (Indian districts, zone-wise analysis) is stated.
- **Weaknesses:**
  - The abstract is missing (not provided in the PDF). A concise abstract summarizing background, objectives, methodology, key findings, and policy implications is essential.

**Recommendation:** Add a structured abstract (150–250 words).

### Introduction

- **Strengths:**
  - Provides strong justification for studying PM2.5 in rural as well as urban areas.
  - Highlights both health implications and economic activity as contributors.
  - Well-cited with relevant references (EPA, WHO, CPCB, etc.).
- **Weaknesses:**
  - The introduction is lengthy and overlaps with the literature review.

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- Some parts (e.g., details about stubble burning, rural energy sources) could be shortened or shifted to the literature review.

**Recommendation:** Streamline introduction and make research gap more sharply defined.

### Literature Review

- **Strengths:**
  - Covers a wide range of studies: biomass burning, mining, stubble burning, household energy use, transboundary pollution.
  - Cites national and global research (Lancet, WHO, IHME, etc.).
- **Weaknesses:**
  - The review is descriptive; lacks a critical synthesis of existing literature.
  - Needs clearer articulation of how the present study builds upon gaps.

**Recommendation:** Include a comparative table summarizing earlier findings vs. present contribution.

### Research Objectives

- **Strengths:**
  - Objectives are clearly numbered and aligned with the study.
- **Weaknesses:**
  - Objective 3 (policy interventions) is ambitious and only partially addressed in the results/discussion.

**Recommendation:** Either expand policy analysis or narrow the objective.

### Methodology

- **Strengths:**
  - Data sources well explained (SHRUG, ICRISAT, Census of India, FSI).
  - Use of zone-wise categorization adds novelty.
  - Multivariate regression analysis framework is appropriate.
- **Weaknesses:**
  - Limited to secondary data of 2013; recent datasets not considered.
  - Exclusion of Northeast India and UTs reduces representativeness.

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- Regression equation described but not all diagnostic statistics reported (e.g.,  $R^2$ , multicollinearity tests).

### Recommendation:

- Justify choice of 2013 dataset.
- Provide model diagnostics and robustness checks.
- Discuss implications of excluded regions.

## Data Analysis and Findings

- **Strengths:**
  - Zone-wise analysis provides useful comparative insights.
  - Good use of quartile method for identifying high PM<sub>2.5</sub> districts.
  - Findings link economic activity with pollution patterns (agriculture, mining, forest loss, fuel use).
- **Weaknesses:**
  - Tables and figures are missing in the provided file (textual descriptions only).
  - Statistical outputs (coefficients, p-values, significance levels) are not fully presented.
  - Some findings are repetitive across zones.

### Recommendation:

- Insert tables/graphs for regression outputs and zone-wise results.
- Reduce redundancy in narrative.

## Discussion and Policy Implications

- **Strengths:**
  - Well connected with NCAP, CAMPA, and other national programs.
  - Highlights region-specific policy needs.
- **Weaknesses:**
  - Discussion is more descriptive than analytical.
  - Effectiveness of policies not critically assessed (only stated as “mixed evidence”).

### Recommendation:

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- Add critical evaluation of why certain policies failed/succeeded.
- Suggest realistic policy pathways (e.g., incentives, decentralized monitoring, community-based interventions).

## Conclusion

- **Strengths:**
  - Summarizes findings well, reinforcing rural contribution to PM2.5.
  - Calls for decentralized, region-specific strategies.
- **Weaknesses:**
  - Overlaps with discussion; needs sharper takeaways.

**Recommendation:** Shorten and focus on 3–4 core conclusions.

## References

- **Strengths:**
  - Recent and relevant sources (2013–2021).
  - Mix of international and Indian references.
- **Weaknesses:**
  - Some sources are repeated.
  - Reference formatting inconsistent (APA style not strictly followed).

**Recommendation:** Reformat in standard APA/Harvard style consistently.