Reproducible Research Repository

"Comparative Analysis of AI-Predicted and Crowdsourced Food Prices in an Economically Volatile Region"

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This review verifies the reproducibility of the exhibits included in the paper *"Comparative Analysis of AI-Predicted and Crowdsourced Food Prices in an Economically Volatile Region"*.

Contents in this review:

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Main findings

- The code was successfully executed on a new computer after:

  1. Changing the file paths in the Scripts.
  2. Following the instructions in the README file regarding the running order of the scripts.

- The output demonstrates consistent stability across multiple runs. Specifically, executing the code two times consecutively yielded identical results.

- The code takes approximately 20 minutes to run.

- We conducted our reproducibility analysis based on the paper available here and a later submission by the authors on May 7th.

- Every exhibit has been reproduced accurately.

- **Reproducibility Summary**:

  - **Data**: All data sources are publicly available and included in the package.
  - **Code**: All code files (from cleaning to analysis) are included in the package.
  - **Outputs**: Some outputs are not generated by code (created manually in Excel, ArcGIS, etc) but instructions for producing these outputs are included in the readme.
  - **Reproducibility verification**: Reviewers had access to the same materials in the public package.

List of exhibits and reproducibility status

Results in the Main Section of the Paper

- **Figure 1** Does not show nalaysis results.

- **Figure 2a** Reproduced but requires manual steps.

- **Figure 2b** Reproduced.

- **Figure 2c** Reproduced.

- **Table 1** Reproduced. The calculation of this table is performed in the last part of the script Final_WB_FPCA_Code.R (columns 5-8) and Raw_crowd_ref_analysis_v1 (columns 1-4).

- **Figure 3a** Reproduced.

- **Figure 3b** Reproduced but requires manual steps. The computations for R, r^2, and p-values are included in the script. The README file specifies which lines of the script contain these computations, guiding the user to the relevant sections for manual verification.

- **Figure 4a** Reproduced.

- **Figure 4b** Reproduced but requires manual steps. The computations for R, r^2, and p-values are included in the script. The README file specifies which lines of the script contain these computations, guiding the user to the relevant sections for manual verification.

- **Figure 5a** Reproduced but requires manual steps. The computations for R, r^2, and p-values are included in the script. The README file specifies which lines of the script contain these computations, guiding the user to the relevant sections for manual verification. results_table_mze.

- **Figure 5b** Reproduced but requires manual steps. The computations for R, r^2, and p-values are included in the script. The README file specifies which lines of the script contain these computations, guiding the user to the relevant sections for manual verification.

  ### Results in the Annex

- **Appendix 1a** Reproduced.

- **Appendix 1b** Reproduced.

- **Appendix 2a** Reproduced.

- **Appendix 2b** Reproduced but requires manual steps. The computations for R, r^2, and p-values are included in the script. The README file specifies which lines of the script contain these computations, guiding the user to the relevant sections for manual verification.

- **Appendix 3** Reproduced but requires manual steps. The computations for R, r^2, and p-values are included in the script. The README file specifies which lines of the script contain these computations, guiding the user to the relevant sections for manual verification. results_table_rice.

Reproduction Environment

- Paper exhibits were reproduced in a computer with the following specifications:

  - OS: Windows 11 Enterprise

  - Processor: Intel(R) Core(TM) i5-1145G7 CPU @ 2.60GHz

  - Memory available: 15.7 GB

  - Software version: R 4.2