Reproducible Research Repository

Climate Risk Scorecard Vision Indicator 2021

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This review verifies the reproducibility of the database *"Climate Risk Scorecard Vision Indicator 2021"*.

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Main findings

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

  1. For the R part, opening the project, restoring the environment using renv::restore, and running the main 00_MASTER.R

  2. For the Stata part, changing the file paths in the computer, and running the master do.

- The output shows consistent stability across multiple runs. Running the code twice in succession produced identical results. However, please note that we did not run the 2.3 do-file, which creates the simulation, twice. All other files were run twice, producing the same results each time.

- The code takes approximately 48 hours to run.

- We conducted our reproducibility analysis based on the database shared by the authors on September 3rd.

- Access to some input spatial datasets is restricted, and processing this data is highly resource-intensive (taking over 14 days, with 1 TB of storage recommended). Therefore, the authors provided intermediate spatial data to the replicators to make the replication process feasible. These intermediate files are located at `03.intermediate/Hazard/dou_haz4_2020_3arcsec.tif` and `03.intermediate/RAI/GHS-POP2020_SDSN-RAI_3arcsec.tif`. Instructions for accessing the input data files are available in the README file, and all the code used for processing is included in the package.

- The replicators did not run the package from raw data. Instead, they used the intermediate data provided by the authors to run the replication package. The intermediate data could not be included in the published package because it contains restricted information that cannot be republished.

- The database has been reproduced accurately.

- **Reproducibility Summary**:

  - **Data**: Some data is restricted and has not been included in the reproducibility package. For more details, please refer to the README file.

  - **Code**: All code files (from cleaning to analysis) are included in the reproducibility package.

  - **Outputs**: All outputs are generated by code included in the reproducibility package.

  - **Reproducibility verification**: Reviewers used data provided directly by the authors to conduct the reproducibility verification, and not all are included in the public reproducibility package. The reviewers did not verify if publicly available data matches the data provided by the authors for all the sources.

  - **Dependencies environment**: The reviewers created a new environment for dependencies using the latest versions available for each dependency at the moment of the review.

List of exhibits and reproducibility status

Results in the Database

- **Tables_Country.xlsx** Reproduced. There were minimal differences for some countries and indicators, but all were less than the threshold of 0.01, so this output is considered fully reproducible.

- **Tables_CSC.xlsx, Sheet: Country level** Reproduced. There were minimal differences for some countries, but all were less than the threshold of 0.01, so this output is considered fully reproducible.

- **Tables_CSC.xlsx, Sheet: agg_level** Reproduced. There were minimal differences for some countries, but all were less than the threshold of 0.01, so this output is considered fully reproducible.

- **Tables_CSC.xlsx, Sheet: format** Reproduced. There were minimal differences for some countries, but all were less than the threshold of 0.01, so this output is considered fully reproducible.

Reproduction Environment

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

  - OS: Windows 10 Enterprise

  - Processor: Intel(R) Xeon(R) Gold 6226R CPU @ 2.90GHz, 2900 Mhz, 16 Core(s), 16 Logical Processor(s)

  - Memory available: 88.7 GB

  - Software version: Stata version 18 MP, R version 4.3.2