



The economics of water scarcity

Fifth Submission: RR_WLD_2025_440

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This review verifies the reproducibility of the exhibits included in the paper “*The economics of water scarcity*”.

Contents in this review:

1. Main findings
2. List of exhibits and reproducibility status
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Main findings

- **Every exhibit in the main section of the paper has been reproduced accurately.**
- The code was successfully executed on a new computer after:
 1. Updating the working directory.
- The output demonstrates consistent stability across multiple runs. Specifically, executing the code two times consecutively yielded identical results.
- The code takes approximately 45 minutes to run.
- We conducted our reproducibility analysis based on the paper shared by the authors by email.
- **Verification Process and Data Handling:**
 - The reproducibility package relies on open data.
 - Open data is included in the public reproducibility package.
 - Reviewers used the data provided directly by the authors to conduct the reproducibility verification, and this is included in the public reproducibility package.
 - *data_hash_report.csv* lists the SHA256 hashes of all files in the Data folder to support data integrity checks. Users who acquire the forthcoming/accessible/limited-access/restricted data can use this file to verify that the data has not been altered.
- **Reproducibility Summary:**
 - **Data:** All data sources are publicly available and included in the reproducibility package.
 - **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.
 - **Dependencies environment:** The reviewers created a new environment using the latest versions of dependencies available at the moment of the review.

List of exhibits and reproducibility status

Results in the Main Section of the Paper

- **Figure 1** Results reproduced, but table or figure includes manual changes from code output.
- **Figure 2** Results reproduced, but table or figure includes manual changes from code output. The exhibit was compared against *Fig2_daily_water_use_per_capita.png*.
- **Figure 3** Results reproduced, but table or figure includes manual changes from code output. The exhibit was compared against *Fig3vs1_WaterStress_Sectors.png*.
- **Figure 4** Results reproduced, but table or figure includes manual changes from code output. The exhibit was compared against *Fig4_WaterStress_WB.png*.
- **Figure 5** Results reproduced, but table or figure includes manual changes from code output. The exhibit was compared against *Fig5_WaterStress_2000_2020_WB.png*.
- **Figure 6** Does not apply.
- **Figure 7** Does not apply.
- **Table 1** Results reproduced, but table or figure includes manual changes from code output. The exhibit was compared against *Water_pop_gdp.xls* and *Water_demand_2050.xlsx*.
- **Table 2** Reproduced. The exhibit was compared against *SummaryStats.xls*.
- **Table 3** Results reproduced, but table or figure includes manual changes from code output. The exhibit was compared against *GDPgr.xls*.
- **Table 4** Results reproduced, but table or figure includes manual changes from code output. The exhibit was compared against *Investment.xls*.
- **Table 5** Results reproduced, but table or figure includes manual changes from code output. The exhibit was compared against *GDPgr.xls*.
- **Table 6** Results reproduced, but table or figure includes manual changes from code outputs. The table was verified against *Table6.smcl*.
- **Table 7** Results reproduced, but table or figure includes manual changes from code output. The exhibit was compared against *Agr_Ind_Services_gr.xls*.
- **Table 8** Results reproduced, but table or figure includes manual changes from code outputs. The exhibit was compared against *IIP_gr.xls* and *Automotive_gr.xls*.

Results in the Annex

For the Appendix, we reviewed all 9 exhibits.

- **Figure A1** Results reproduced, but table or figure includes manual changes from code outputs. The exhibit was compared against *FigA1_USDm3.png*.

- **Figure A2** Results reproduced, but table or figure includes manual changes from code outputs. The exhibit was compared against *FigA2_USDm3_Sectors.png*:
- **Table A1** Reproduced. The exhibit was verified against *ListCountries_Water.xlsx*
- **Table A2** Results reproduced, but table or figure includes manual changes from code outputs. The table was verified against *TableA2.smcl*
- **Table A3** Reproduced. The exhibit was verified against *Freshwater_Prices.xls*.
- **Table A4** Reproduced. The exhibit was verified against *GDPgr_QR25.xls*, *GDPgr_QR50.xls*, *GDPgr_QR75.xls*.
- **Table A5** Reproduced. The exhibit was verified against *Investment_QR25.xls*, *Investment_QR50.xls*, *Investment_QR75.xls*.
- **Table A6** Reproduced. The exhibit was verified against *Investment_QR25.xls*, *Investment_QR50.xls*, *Investment_QR75.xls*.
- **Table A7** Reproduced. The exhibit was verified against *Electricity.xls*

Reproduction Environment

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

- OS: Windows 11 Enterprise
- Processor: INTEL(R) XEON(R) PLATINUM 8562Y+ 2.80 GHz (4 processors)
- Memory available: 32.0 GB
- Software version: Stata 18.0 MP