



Weather Shocks and Unintended Fertility in Sub-Saharan Africa

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This review verifies the reproducibility of the exhibits included in the paper “*Weather Shocks and Unintended Fertility in Sub-Saharan Africa*”.

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Main findings

- **Every exhibit of the paper has been reproduced accurately.**
- The code was successfully executed on a new computer after:
 1. Updating the working directory in do-files dofile/Main and replicate_mechanisms/dofile/Main_Mechanisms.
- The output demonstrates consistent stability across multiple runs. Specifically, executing the code two times consecutively yielded identical results.
- The code takes approximately 6 hours to run.
- We conducted our reproducibility analysis based on the paper shared by the authors on March 16th, 2026.
- The geospatial data processing steps are performed in ArcGIS and require manual execution prior to running the main analysis. Reviewers used the intermediate datasets prepared by the authors for this purpose. Users should follow the detailed instructions provided in the README file (‘Construction of Geospatial Variables Using ArcGIS and Stata’) to recreate these datasets.
- **Verification Process and Data Handling:**
 - The reproducibility package relies on 2 types of data: open, and limited-access (available after putting in a request for the datasets).
 - Open data is included in the public reproducibility package.
 - Reviewers used the limited-access data provided directly by the authors to conduct the reproducibility verification, and this is not 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:** Some data is limited-access 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:** Some outputs are not generated by code (created manually in Excel, ArcGIS, etc) but instructions for producing these outputs are included in the README file.
 - **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** Reproduced. The map was manually prepared in ArcGIS.
- **Table 1** Reproduced. For Benin, the code output reports three years (2001, 2012, 2017), whereas the manuscript itself only includes two years (2001, 2017).
- **Table 2** Reproduced.
- **Table 3** Reproduced.
- **Table 4** Reproduced.
- **Table 5** Reproduced.
- **Table 6** Reproduced.
- **Table 7** Reproduced.
- **Table 8** Reproduced.
- **Table 9** Reproduced.
- **Table 10** Reproduced.

Results in the Annex

- **Table A1** Reproduced.
- **Table A2** Reproduced.

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 (2 processors)
- Memory available: 32 GB
- Software version: Stata 18.0 MP; ArcGIS 3.5.3