



How Public Financial Management Shapes Education and Health Outcomes: A Configurational Perspective

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This review verifies the reproducibility of the exhibits included in the paper “*How Public Financial Management Shapes Education and Health Outcomes: A Configurational Perspective*”.

Contents in this review:

1. Main findings
2. List of exhibits and reproducibility status
3. Reproduction Environment

Main findings

- **Every exhibit of the paper has been reproduced accurately. 8 exhibits were verified virtually.**
- The code was partially reproduced on a new computer. The fsQCA V4.1 (fuzzy-set Qualitative Comparative Analysis) component relies on a point-and-click interface and cannot be executed programmatically. The fsQCA steps were demonstrated virtually by the authors. See below for more details.
- The following steps were executed on a new computer:
 1. Restoring the environment in "environment.txt"
 2. Running the scripts "fsqca_bayesian_check_replicationcodes.ipynb" and "PFM_Paper_Figures1_2_3.ipynb"
- The output demonstrates consistent stability across multiple runs. Specifically, executing the code two times consecutively yielded identical results.
- The code takes approximately 5 minutes to run.
- We conducted our reproducibility analysis based on the paper shared by the authors.
- **Verification Process and Data Handling:**
 - The reproducibility package relies on 1 type of data: open.
 - Open data is included in the public reproducibility package.
 - The fsQCA component was not independently executed by the replicators as the software does not support scripted execution. Instead, the authors demonstrated the fsQCA steps virtually, producing the intermediate datasets required for the Python component. The replicators used these outputs to run and verify the Python code. All steps are documented in the README and 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 open data independently 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** Reproduced.
- **Figure 2** Reproduced.
- **Figure 3** Reproduced.
- **Figure 4** Does not apply. The exhibit is not an analytical output.
- **Figure 5** Reproduced.
- **Figure 6** Reproduced.
- **Figure 7** Reproduced.
- **Figure 8** Reproduced.
- **Table 1** Does not apply. The exhibit is not an analytical output.
- **Table 2** Reproduced. The table was created manually in the fsQCA software and was verified virtually.
- **Table 3** Reproduced. The table was created manually in the fsQCA software and was verified virtually.
- **Table 4** Reproduced.
- **Table 5** Reproduced. The table was created manually in the fsQCA software and was verified virtually.
- **Table 6** Reproduced. The table was created manually in the fsQCA software and was verified virtually.
- **Table 7** Reproduced.

- **Table 8** *Reproduced*. The table was created manually in the fsQCA software and was verified virtually.
- **Table 9** *Reproduced*. The table was created manually in the fsQCA software and was verified virtually.
- **Table 10** *Reproduced*.
- **Table 11** *Reproduced*. The table was created manually in the fsQCA software and was verified virtually.
- **Table 12** *Reproduced*. The table was created manually in the fsQCA software and was verified virtually.
- **Table 13** *Reproduced*.

Results in the Annex

- **Figure A1** *Reproduced*.
- **Table A1** *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: 32.0 GB
- Software version: Python 3.11.15