



Cheap Energy Might Not Be Enough: A Trade Model of AI Compute Services

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This review verifies the reproducibility of the exhibits included in the paper "*Cheap Energy Might Not Be Enough: A Trade Model of AI Compute Services*".

Contents in this review:

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Main findings

- **Every exhibit of the paper has been reproduced accurately.**
- The code was partially reproduced on a new computer. The Python component (Part 1) was not executed due to a proprietary input that could not be shared. The replicators instead used pre-processed outputs provided by the authors to run and verify the Stata component (Part 2). See below for more details.
- The following steps were executed on a new computer:
 1. Updating the working directory in line 40 of the do-file "run_all.do", and running it.
- The output demonstrates consistent stability across multiple runs. Specifically, executing the code two times consecutively yielded identical results.
- The code takes approximately 9 minutes to run.
- We conducted our reproducibility analysis based on the paper shared by the authors by email on June 14th.
- **Verification Process and Data Handling:**
 - The reproducibility package relies on 2 type of data: open and restricted data.
 - Due to a proprietary input required by the Python component, that portion of the code was not executed by the replicators. All steps are documented in the README. The authors shared the pre-processed outputs from the Python component, and the replicators used these to execute and verify the Stata component.
 - *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 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.
- **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** Does not apply. Exhibit is a non-analytical output.
- **Table 1** Does not apply. Exhibit is a non-analytical output.
- **Table 2** Reproduced.
- **Table 3** Reproduced.

Results in the Annex

- **Table A.1** Reproduced.
- **Table A.2** Reproduced.
- **Table A.3** Reproduced.
- **Table A.4** Reproduced.
- **Table A.5** Reproduced.
- **Table A.6** Reproduced.
- **Table A.7** Reproduced.
- **Table A.8** Does not apply. Exhibit is a non-analytical output.

Reproduction Environment

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

- OS: Windows 11 Enterprise
- Processor: Intel(R) Xeon(R) Gold 6226R CPU @ 2.90GHz (2.90 GHz) (2 processors)
- Memory available: 16.0 GB
- Software version: Stata 19.0 MP