



Labor Demand for Digital Skills in Post-2022 Ukraine: Evidence from Online Job Vacancy Data

Third Submission: RR_UKR_2026_702

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This review verifies the reproducibility of the exhibits included in the paper “*Labor Demand for Digital Skills in Post-2022 Ukraine: Evidence from Online Job Vacancy Data*”.

Contents in this review:

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

Main findings

- **Every exhibit in the main section of the paper and 10 randomly selected exhibits in the appendix were reproduced accurately**
- The code was successfully executed on a new computer after:
 1. Opening the R project "ukraine_skills.Rproj"
 2. Restoring the environment by running `renv::restore()` and following the prompts.
 3. Opening the `run_all.R` and running the code.
- 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 in the package.
- **Verification Process and Data Handling:**
 - The reproducibility package relies on 3 types of data: open, accessible (public but not included in the reproducibility package), and restricted data (available from the data owners).
 - Open data is included in the public reproducibility package.
 - Reviewers used accessible/restricted 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 accessible 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 Reproduced.** Exhibit verified against fig1b_digital_share_loess.png.
- **Figure 2 Reproduced.** Exhibit verified against acled_uk_weekly.png.
- **Figure 3 Reproduced.** Exhibit verified against smoothing_coefplot.png.
- **Figure 4 Reproduced.** Exhibit verified against almond_coefplot.png.
- **Figure 5 Reproduced.** Exhibit verified against fig1_digital_share_structural_break.png.
- **Figure 6 Reproduced.** Exhibit verified against fig4_its_fitted_vs_actual.png.
- **Table 1 Reproduced.** Exhibit verified against table_occ_digital.tex.
- **Table 2 Reproduced.** Exhibit verified against table_ols_combined.tex.
- **Table 3 Reproduced.** Exhibit verified against table_ols_events_combined.tex.
- **Table 4 Reproduced.** Exhibit verified against table_smoothing_ma.tex.
- **Table 5 Reproduced.** Exhibit verified against table_almon.tex.
- **Table 6 Reproduced.** Exhibit verified against table_its_robustness.tex.

Results in the Annex

For the Appendix, we did not review every exhibit. Instead, we randomly selected 10 exhibits from the remaining datasets to assess the appendix. Our review was based on those 10 exhibits. Since they were chosen randomly, we are operating under the assumption that if all randomly selected exhibits are reproducible, then the rest should be as well. The seed used to generate the random selection was [159913], the Stata version used was StataNow 19 MP, and the exhibits selected were: Table B2, Table B4, Table B7, Table B10, Table B12, Figure B2, Figure B4, Figure B5, Figure B6, Figure B7.

- **Table B2 Reproduced.** Exhibit verified against table_seasonality_tests.tex.
- **Table B4 Reproduced.** Exhibit verified against table_monthlyols_events.tex.
- **Table B7 Reproduced.** Exhibit verified against table_unit_roots.tex.

- **Table B10** *Reproduced*. Exhibit verified against table_detrended.tex.
- **Table B12** *Reproduced*. Exhibit verified against table_decomposition.tex.
- **Figure B2** *Reproduced*. Exhibit verified against fig_seasonal_means.png.
- **Figure B4** *Reproduced*. Exhibit verified against fig_acf_demeaned.png.
- **Figure B5** *Reproduced*. Exhibit verified against fig2_cusum_test.png.
- **Figure B6** *Reproduced*. Exhibit verified against fig3_supF_breakpoints.png.
- **Figure B7** *Reproduced*. Exhibit verified against fig_decomposition.png.

Reproduction Environment

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

- OS: Windows 11 Enterprise 25H2
- Processor: Intel(R) Xeon(R) Gold 6226R CPU @ 2.90GHz (2 processors)
- Memory available: 16.0 GB
- Software version: RStudio, R 4.6.1