



Five frictions: Key labor market barriers to unlocking job growth in the green transition

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This review verifies the reproducibility of the exhibits included in the paper “*Five frictions: Key labor market barriers to unlocking job growth in the green transition*”.

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Main findings

- **Reviewers could only verify Figure 9 and it reproduced.**
- The code was successfully executed on a new computer after:
 1. Replicating the programming environment using the file environment.yml provided by the authors.
- The output demonstrates consistent stability across multiple runs. Specifically, executing the code two times consecutively yielded identical results.
- The code takes approximately 2 minutes to run.
- We conducted our reproducibility analysis based on the paper shared by the authors in the reproducibility package.
- **Verification Process and Data Handling:**
 - The reproducibility package relies on 3 types of data: open and restricted data (not available).
 - Open data is included in the public reproducibility package.
 - Reviewers did not use restricted data for the reproducibility verification; therefore, it is not included in the package. The verification was conducted only using the open data provided by the authors, which 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 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:** Some outputs could not be generated by code due to data restrictions and are therefore not 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

- **Table ES1** Does not analysis results
- **Table ES2** Does not analysis results
- **Table 1** Does not analysis results
- **Figure 1** Does not analysis results
- **Figure 2** Does not analysis results
- **Figure 3** Does not analysis results
- **Figure 4** Does not analysis results
- **Figure 5** Does not analysis results
- **Figure 6** Could not be verified due to data restrictions.
- **Figure 7** Does not analysis results
- **Figure 8** Sourced from Bucker et al. 2025
- **Figure 9a** Results reproduced The figure requires manual steps in Gephi from code output. These steps was virtually verified.
- **Figure 9b** Results reproduced The figure requires manual steps in Gephi from code output. These steps was virtually verified.
- **Figure 10** Could not be verified due to data restrictions.
- **Table 2** Does not analysis results
- **Table 3** Does not analysis results
- **Table 4** Does not analysis results
- **Table 5** Does not analysis results
- **Table 6** Does not analysis results

Reproduction Environment

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

- OS: Windows 11 Enterprise
- Processor: Intel(R) Core(TM) i5-1145G7 CPU @ 2.60GHz
- Memory available: 15.7 GB
- Software version: Python 3.13.5