



Counteracting the impact of societal aging on income inequality: a case study of Malaysia

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This review verifies the reproducibility of the exhibits included in the paper “Counteracting the impact of societal aging on income inequality: a case study of Malaysia”.

Contents in this review:

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Main findings

- **Every exhibit in the main section of the paper and the appendix were reproduced accurately.**
- The code was successfully executed on a new computer after:
 1. Changing the path in the main do file.
 2. 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 9.5 hours to run.
- We conducted our reproducibility analysis based on the paper shared by the authors by email on February 27, 2026.
- **Verification Process and Data Handling:**
 - The reproducibility package relies on 2 types of data: open and restricted data.
 - Open data is included in the public reproducibility package.
 - Reviewers used 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 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 are included in the reproducibility package but operate from intermediate data, not raw data.
- **Outputs:** All outputs are generated by code included in the reproducibility package.
- **Dependencies environment:** The reviewers reproduced an existing environment for dependencies using dependency files or an environment metadata file provided by the authors.

List of exhibits and reproducibility status

Results in the Main Section of the Paper

- **Figure 1 Reproduced.** Compared against fig1_ineq_pop_incds134.png in the output folder of the package.
- **Figure 2 Reproduced.** Compared against fig2_agegroup_size_wpp.png in the output folder of the package.
- **Figure 3 Reproduced.** Compared against fig3_contrib_cat.png in the output folder of the package.
- **Figure 4 Reproduced.** Compared against fig4_epf_stats.png in the output folder of the package.
- **Figure 5 Reproduced.** Compared against fig5_empl_rate50_74.png in the output folder of the package. Formatting slightly differs, but this does not affect reproducibility.
- **Figure 6 Reproduced.** Compared against fig6_soc_ass_share.png in the output folder of the package. Formatting slightly differs, but this does not affect reproducibility.
- **Figure 7 Reproduced.** Compared against fig7_coh_sample_wi_incd3_1.png in the output folder of the package.
- **Figure 8 Reproduced.** Compared against fig8_lorenz60_alldefs.png in the output folder of the package. Formatting slightly differs, but this does not affect reproducibility.
- **Figure 9 Reproduced.** Compared against fig9_bars_scen_grp5.png in the output folder of the package. Formatting slightly differs, but this does not affect reproducibility.
- **Figure 10 Reproduced.** Compared against fig10_proj60_std_allge.png in the output folder of the package.
- **Figure 11 Reproduced.** Compared against fig11_pov_reversebar_v2_combined.png in the output folder of the package. Formatting slightly differs, but this does not affect reproducibility.
- **Table 1 Results reproduced, but table includes manual changes from code output** Compared against tbl1_decomp sheet in the tables_aging.xlsx file in the output folder of the package.
- **Table 2 Results reproduced, but table or figure includes manual changes from code output** Compared against tbl2_proj_baseline sheet in the tables_aging.xlsx file in the output folder of the package.

- **Table 3** Results reproduced, but table or figure includes manual changes from code output Compared against tbl3_pension_param sheet in the tables_aging.xlsx file in the output folder of the package.

Results in the Annex

- **Figure 12** Reproduced. Compared against fig12_subgr_weights.png in the output folder of the package.
- **Figure 13** Reproduced. Compared against fig13_coh_sample_wi_incd4.png in the output folder of the package.
- **Figure 14** Reproduced. Compared against fig14_agegroup_wi_incd3.png in the output folder of the package.
- **Figure 15** Reproduced. Compared against fig15_bars_scen_grpo.png in the output folder of the package.
- **Figure 16** Reproduced. Compared against fig16_projections_std_allge_allincd.png in the output folder of the package.
- **Table 4** Results reproduced, but table or figure includes manual changes from code output Compared against tbl4_ineq_reduc sheet in the tables_aging.xlsx file in the output folder of the package.
- **Table 5** Results reproduced, but table or figure includes manual changes from code output Compared against tbl5_pov_table sheet in the tables_aging.xlsx file in the output folder of the package.

Reproduction Environment

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

- OS: Windows 11 Enterprise
- Processor: Intel(R) Xeon(R) Gold 5218 CPU @ 2.30GHz (2.30 GHz) (2 processors)
- Memory available: 5.63 GB
- Software version: Stata 19.5 MP