

# Replication Package for *Revisiting Oil Supply News Shocks: Proxy vs. Non-Gaussian Structural Vector Autoregressions*

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This replication package accompanies the working paper: Helmut Lütkepohl and Till Strohsal (2025): *Revisiting Oil Supply News Shocks: Proxy vs. Non-Gaussian Structural Vector Autoregressions*, DIW Discussion Paper No. 2146, DIW Berlin.

## Data Availability and Provenance Statements

### Statement about Rights

The authors have legitimate access to and permission to use all data employed in this study.

### Summary of Availability

All data used in the analysis are publicly available and included in the replication package.

### Details on Each Data Source

All raw and processed data originate from the publicly available replication package of Känzig (2021), available via <https://doi.org/10.3886/E122886V1>.

All additional CSV files contained in the present paper's replication package are derived from these original sources using the scripts described below. No proprietary or restricted-access data are used.

## Dataset List

Data file / Folder	Source	Notes
1_Kaenzig_replication/data	Känzig (2021)	Original replication archive
2_This_papers_replication/ Data/kaenzig_exports/	Generated	CSV exports from Känzig code
2_This_papers_replication/ Data/thispaper_exports/	Generated	CSV exports from this paper's code

## Folder Structure

The replication package is organized as follows:

- `1_Kaenzig_replication/`: Original replication package of Känzig (2021), including data, MATLAB code, and results.
- `2_This_papers_replication/`: Code, data exports, and outputs for the present study.
  - `Code/`: MATLAB and R scripts.
  - `Data/`: Generated CSV files.
  - `Output/`: Final tables and figures.
- `3_README/`: Documentation file.

## Description of Programs and Code

The replication workflow is organized in three stages. All final results are produced by the script `C1_make_paper_outputs.m`.

### A: MATLAB Scripts to replicate and store Känzig's results

- `A1_export_kaenzig_baseline.m`: Exports baseline results from Känzig's replication package.
- `A2_export_kaenzig_extensions.m`: Exports results from the extended models.
- `A3_export_structural_shocks_baseline_and_extensions.m`: Calculates and exports structural shocks from baseline and extended models.

## B: R Scripts to replicate and store this paper’s results

- `B1_nonGaussian_SVAR_baseline.R`: Estimates baseline non-Gaussian SVAR.
- `B2_nonGaussian_SVAR_extensions.R`: Estimates extended non-Gaussian SVARs.

## C: MATLAB Script to generate all results presented in this paper

- `C1_make_paper_outputs.m`: Generates all final tables and figures presented in this paper.

## Helper Libraries

Auxiliary MATLAB functions are contained in `A3_lib/` and `C1_lib/`.

# Computational Requirements

## Software Requirements

- MATLAB: Version 24.2 (R2024b) Update 3.
- Required MATLAB Toolboxes:
  - Econometrics Toolbox
  - Optimization Toolbox
  - Statistics and Machine Learning Toolbox
  - Global Optimization Toolbox
  - Symbolic Math Toolbox
- R: Version 4.5.2.
- Required R packages: `svars`, `vars`, `lmtest`, `urca`, `sandwich`, `zoo`, `MASS`, and dependencies.
- Operating System: Microsoft Windows 11 Enterprise LTSC (Build 26100).

## Memory and Runtime Requirements

**Summary:** A full replication takes approx. one day on a standard desktop computer.

**Details:**

- Memory requirements are moderate and do not exceed standard desktop capacities.
- The main computational bottleneck is the bootstrap procedure for the impulse responses in `B1_nonGaussian_SVAR_baseline.R`.

# Instructions to Replicators

Replication proceeds in three stages: A, B and C. During the third stage, all relevant numerical results are printed to the MATLAB command window and generated figures and tables are saved to disk as PDF or CSV files, respectively.

## Step A: Generate Känzig-Based Inputs (MATLAB)

Note that step A is already done and the results are included in this replication package. Step A is still described here so that replicators can, in principle, also replicate Känzig's results and save them to disk.

1. Set the working directory to `1_Kaenzig_replication/codes/`.
2. Run `s03_figures3_5.m`.
3. Set the working directory to `2_This_papers_replication/Code/`.
4. Run `A1_export_kaenzig_baseline.m`.
5. Set the working directory back to `1_Kaenzig_replication/codes/`.
6. Run `s06_figures6_8_9a_10_11.m`.
7. Set the working directory to `2_This_papers_replication/Code/`.
8. Run `A2_export_kaenzig_extensions.m`.
9. Run `A3_export_structural_shocks_baseline_and_extensions.m`.

## Step B: Estimate Non-Gaussian SVARs (R)

Step B estimates this paper's non-Gaussian SVARs and saves the results to disk.

1. Set the working directory to `2_This_papers_replication/Code/`.
2. Run `B1_nonGaussian_SVAR_baseline.R`.
3. Run `B2_nonGaussian_SVAR_extensions.R`.

## Step C: Generate Final Outputs (MATLAB)

In step C all results presented in this paper are summarized and presented. Numerical results are printed to the MATLAB command window; figures are exported as PDF files and tables as CSV files.

1. Set the working directory to `2_This_papers_replication/Code/`.
2. Run `C1_make_paper_outputs.m`.

## List of Tables, Figures, and In-Text Numbers

All tables and figures reported in the main paper and appendix are generated by `C1_make_paper_outputs.m` using intermediate outputs from scripts A1–A3 and B1–B2. Final outputs are stored in:

- `2.This.papers.replication/Output/figures/`
- `2.This.papers.replication/Output/tables/`

## Contact and Usage

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This replication package is provided for academic and non-commercial research purposes.

## References

- Känzig, D. (2021). “The Macroeconomic Effects of Oil Supply News: Evidence from OPEC Announcements.” *American Economic Review*, 111(4): 1092–1125. Replication data: <https://doi.org/10.3886/E122886V1>.