

This is the replication package for the empirical results in "Identifying Oil Price Shocks with Global, Developed, and Emerging Latent Real Economy Activity Factors" by Antoine A. Djogbenou. The following folders contain all data files and associated Matlab codes.

1. Data

This folder contains all the data.

oil.xls – Contains the two oil variables from 1996Q3 to 2019Q4 presented in Section 3 of the main paper. The data used are publicly available and collected from Federal Reserve Economic Data (St. Louis Federal Reserve) and the International Energy Agency data.

developed.xls – Contains the 39 series real activity variables from 1996Q3 to 2019Q4 for developed economies presented in Section 3 of the main paper and the Online Appendix B. The data used are publicly available and collected from the Global Economic Monitor DataBank.

emerging.xls – Contains the 58 series real activity variables from 1996Q3 to 2019Q4 for emerging economies presented in Section 3 of the main paper and the Online Appendix B. The data used are publicly available and collected from the Global Economic Monitor DataBank.

abt_factors.xls – Contains quarterly developed and emerging economy activity factors applying the approach of Aastveit, Bjornland, and Thorsrud (2015) to our data. Their code is available in the *Journal of Applied Econometrics* (JAE) data archive.

dcfg_factor.xls – Contains monthly global factor from 1981M1 to 2020M3 estimated by Delle Chiaie, Ferrara, and Giannone (2022). Their code and data to obtain the factor can be found in the JAE data archive.

kilian_data.xls – Contains monthly data on the Kilian factor from 1996M7 to 2019M6 extracted from data used by Delle Chiaie, S., L. Ferrara, and D. Giannone (2022) for comparison. The data can be found in the JAE data archive.

inv.xls – Contains monthly data on inventories from 1996M7 to 2018M8 extracted from data used by Kilian and Zhou (2020). The data can be found in the JAE data archive.

2. Recursive Restrictions

This folder contains the codes needed to replicate the results based on the recursive identification strategy. The main code is main_recursive_September_22_2023.m. It produces Figures 1-7 and Tables 1 - 2 in the main paper and Figures C1 - C17 in the Online Appendix. The needed functions are:

data_import.m – Import data on real economic activity and oil market.

data_import_more.m – Import data on abt factors, dcfg factor, and Kilian factor.

favar_estimation.m – Estimate FAVAR model.

favar_irf.m – Compute impulse response functions.

forecast_variance_decomposition.m – Produce variance decompositions.

identification.m – Identification with zero restrictions.

ols.m – OLS estimation.

lrcovb.m – HAC variance estimation.

spce.m – Sequential principal component estimation.

plot_estimated_factors_and_more.m – Plot Figures 1 - 4 in the main paper and Figure C1 in the Online Appendix C.

color_range.m – Shade time intervals with important events.

plot_IRF_Z.m – Plot Figures 4 - 7 in the main paper.

favar_irf_nested_specific_factors_dcfg.m – Plot Figures C2 - C5 in the Online Appendix C.

favar_irf_nested_specific_factors_kilian.m – Plot Figures C6 - C9 in the Online Appendix C.

plot_IRF_Z_lag3.m – Plot Figures C10 - C13 in the Online Appendix C.

plot_IRF_Z_lag5.m – Plot Figures C14 - C17 in the Online Appendix C.

3. Sign Restrictions

This folder contains the codes needed to replicate the results incorporating sign restrictions. The main code is main_sign_September_22_2023.m It produces Figures C18 - C21 in Online Appendix C. The needed functions are:

data_import.m – Import the needed data.

favar_estimation.m – Estimate FAVAR model.

favar_irf.m – Compute impulse response functions.

favar_irf_median_response.m – Find median impulse responses.

identification.m – Identification with zero restrictions.

identification_with_sign_restrictions.m – Identification with sign restrictions.

spce.m – Sequential principal component estimation.

4. Sign Restrictions and Inventories

This folder contains the codes needed to replicate the results based on sign restrictions and including inventories. The main code is main_Sign_Inventories_September_22_2023.m. It produces Figures C22 - C25 in Online Appendix C. The needed functions are:

data_import_inventory.m – Import the needed data.

favar_estimation.m – Estimate FAVAR model.

favar_irf.m – Compute impulse response functions.

favar_irf_median_response_inventory – Find median impulse responses.

identification_with_sign_restrictions_and_inventory.m – Identification with sign restrictions and inventories.

spce.m – Sequential principal component estimation.

plot_IRF_Z_with_inventory.m – Plot Figures C22 – C25.

Reference

Aastveit, K. A., H. C. Bjørnland, and L. A. Thorsrud (2015). What drives oil prices? emerging versus developed economies. *Journal of Applied Econometrics* 30, 1013–1028.

Delle Chiaie, S., L. Ferrara, and D. Giannone (2022). Common factors of commodity prices. *Journal of Applied Econometrics* 37 (3), 461–476.

Kilian, L. and X. Zhou (2020). Does drawing down the us strategic petroleum reserve help stabilize oil prices? *Journal of Applied Econometrics* 35 (6), 673–691.