

Read-Me file for: Martin Feldkircher and Florian Huber: The International Transmission of US Shocks – Evidence from Global Vector Autoregressions

- The zip file contains the data for the country models (**data.RData**), the weighting matrices (**weights.RData**) and the corresponding country dummies (**dummies.RData**). The following script files are used to estimate the model and perform innovation accounting
 - **bvar_estimation.R** - This function estimates the country-specific models under a SSVS prior using Gibbs sampling as in George, Sun & Ni (2008) as implemented in Koop and Korobilis (2012). Adjustments of the hyperparameters can be done within this function (especially line 309 and 310, where the scaling factor for the mixture normals can be chosen)
 - **impulse_response.R** - Consists of two functions used to perform structural impulse response analysis. The function `get_rot.R` searches for orthonormal rotation matrices using parallel computing (useful if the number of restrictions is large).
 - **fevd.R** - Function to calculate Structural Generalized Forecast Error Variance Decompositions
 - **solve_gvar.R** - Estimates the GVAR model using MCMC and reports posterior mean estimates of the parameters of the global model. Can be used to perform quick analysis based on the posterior mean.
 - **auxilliary_functions.R** - Contains several small helper functions used in the estimation stage. The only important function is the function **get_weights.R**. This function computes the weighting matrices used in the local estimation, `nr` = country index, `mixed=1` if mixed weights are used, `real` and `fin` correspond to the $N + 1 \times N + 1$ weighting matrices (trade and financial based) and `Data` corresponds to the data list.
 - **replication_script.R** - Is the replication script that loads in the data, weights and dummies and then proceeds by constructing a list object containing the appropriate country-specific weighting matrices. In the next part estimation of the local model takes place. Finally, the impulse response functions are sampled from the global posterior using Monte Carlo integration. The final part estimates the FEVDs.

Replication step-by-step

1. Unzip the zip folder in a given directory and start R.
2. Within R, change the working directory by typing `setwd("your directory")` to the folder created in step (1)
3. Then simply type `source(replication_script.R)` to start the replication script. Due to the fact that the code depends on some R packages readily available on CRAN the end-user might have to install some of them. This can be done either manually or by simply un-commenting line 4 in the replication script

IMPORTANT: Estimation takes a lot of time and makes use of parallel computing. The program assumes that the computer used has four CPU units available.

Data overview

- **data.RData** is a R list objects consisting of 43 elements for each country. A detailed account of the time series included can be found in the paper. **weights.RData** is a list object consisting of several weighting schemes used in the estimation of the model and especially in the section on the uncertainty related to the W specification. Finally, **dummies.RData** is a matrix consisting of the country-specific dummies.