Replication Files for "Algorithms for Inference in SVARs Identified with Sign and Zero Restrictions"

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The accompanying MATLAB files replicate the results presented in the paper and can be used to apply the algorithms described in the paper in other contexts. The results were obtained using MATLAB 2020b on a laptop with Windows 10, an Intel Core i7-6700HQ CPU @ 2.60 GHz with four cores, and 8 GB of RAM. Note that any computing times may differ to those reported in the paper depending on hardware specifications and may also vary somewhat across different runs of the replication files on the same computer. The files make use of the Econometrics and Optimization toolboxes.

- To compute the posterior probability that the identified set is empty under different sets of restrictions (presented in Table 1), run checkEmptyISAlgorithms.m. This script will also save the time taken to compute these probabilities and export them to sheet 'EmptyIS' in Results.xls.
- The script draqAlgorithms.m generates Figure 1. It also saves the computing times presented in columns 2 and 3 of Table 2 and exports them to sheet 'drawtimes' in Results.xls. The script needs to be run after checkEmptyISAlgorithms.m. This file was also used to determine the appropriate length of the burn-in sample and a suitable thinning parameter for the Gibbs sampler.
- The script robustAlgorithms.m generates the computing times presented in columns 4, 5 and 6 of Table 2, and exports them to sheet 'boundtimes' in Results.xls. The script also generates the first three plots in Figure 2.
- The script mainfile_shockRank.m generates the last plot of Figure 2.
- The script runall.m runs the above scripts in the described order. In total, these scripts took around 35 hours to run on the laptop described above.
- The script Qgibbs.m checks whether Algorithm 6.1 generates uniform draws over the space of orthonormal matrices satisfying the sign and zero restrictions

using a simple numerical example. This exercise is referred to in the paper but detailed results are not presented.

Other remarks:

- The data used in the empirical application are contained in data_ACR.csv. The data were obtained from the replication files for Arias et al. (2019a), which are available on Jonas Arias' website: `https://sites.google.com/site/jonasarias/` (Arias et al., 2019b).
- All outputs (figures, tabulated results and .mat files) are saved to the 'outputs' folder.
- The folder auxFunctions contains functions that are called by the scripts described above.

References

Arias, J. E., D. Caldara, and J. F. Rubio-Ramírez (2019a). The Systematic Component of Monetary Policy in SVARs: An Agnostic Identification Procedure. *Journal of Monetary Economics 101*, 1–13.

Arias, J. E., D. Caldara, and J. F. Rubio-Ramírez (2019b). Replication package for "The Systematic Component of Monetary Policy in SVARs: An Agnostic Identification Procedure". *Journal of Monetary Economics*. Obtained from Jonas Arias' website: `https://sites.google.com/site/jonasarias/home` (last accessed 26 January 2022).