

Instructions for Using the Matlab Programs

1. CONSTANT-PARAMETER BVAR MODEL (MATLABCODE.ZIP)

Many M files are auxiliary files to be called by the following M files.

- The data are contained in the file `data_macroswitching.prn`.
- Run `bfacid.m` to get the marginal data density.
- Modify `szemldata_a_setup.m` as needed and run `szemldata_a.m` to generate an input data file for regime-switching BVAR models. For example,

`datainp2_a_case2p2_divisia_lp5011_d95025.prn`

will be used as input data for the following C programs for the 2-state variance-only model.

Instructions for Using the C Programs

2. REGIME-SWITCHING BVAR MODELS (CPROGRAMS.ZIP)

The C source codes provided here call two third-party proprietary libraries: Intel MKL and IMSL. You must have the most recent Intel MKL because an earlier version has bugs in some LAPACK functions. You need these two libraries and a modern C/C++ compiler to compile the C source codes specified below. Note that it is easier to compile all the source files under the Linux Operating System. The input data file from Matlab will be used in every step of the following procedures.

The following sequential steps must be taken to get the posterior estimates of the model parameters.

- (1) Compile `szeml.a.c` and execute the shell file `runszeml.a.sh`. This program will export the data file
`datainp2_b_case2p2_divisia_lp5011_d95025.prn`,
which in turn will be used by the following step.
- (2) Compile `szeml.b.c` and execute the shell file `runszeml.b.sh`. This program will export the data file
`datainp2_c_case2p2_divisia_lp5011_d95025.prn`,
which in turn will be used by the following step.
- (3) Compile `szeml.c.c` and execute the shell file `runszeml.c.sh`. This program will export the data file
`datainp2_d_case2p2_divisia_lp5011_d95025.prn`,
which in turn will be used by the following step.
- (4) Compile `szeml.d.c` and execute the shell file `runszeml.d.sh`. This program will export the data file
`datainp2_est_mat_case2p2_divisia_lp5011_d95025.prn`,
which in turn will be used by the following step.

- (5) Compile `szestimate.c` and execute the shell file `runszestimate.sh`. This program will export the data file

`dataout2_est_case2p2_divisia_lp5011_d95025.prn`

which reports all the estimates.

It will also export the data file

`datainp2_prob_case2p2_divisia_lp5011_d95025.prn`,

which in turn will be used by all the steps for the remaining instructions.

To get the historical decomposition and error bands, do the following.

- Compile `szprob.c` and execute the shell file `runszprob.sh`. This program will export the following data files:

`dataout2_prob_case2p2_divisia_lp5011_d95025.prn`,

`datainp2_ctfals_case2p2_divisia_lp5011_d95025.prn`,

`datainp2_imfs_case2p2_divisia_lp5011_d95025.prn`.

The first file reports all the relevant error bands. The second file prints out the counterfactual paths. The third gives the impulse responses.

To compute the marginal likelihood using the method of Chib and Jeliazkov (2001), follow the following procedure.

- (1) Compile `szbden_a.c` and execute the shell file `runszbden_a.sh` by choosing `/c 1` or `/c 0` accordingly. This program will export the data file:

`datainp2_bfden_gbeta_case2p2_divisia_lp5011_d95025.prn`,

which will be used by the following step.

- (2) Compile `szbden_gbeta.c` and execute the shell file `runszbden_gbeta.sh`.

This program will export the data file:

`dataout2_bfden_gbeta_case2p2_divisia_lp5011_d95025.prn`,

which reports all the related information.

To compute the marginal likelihood using the modified harmonic means method, follow the following step.

- Compile `szbfmhm.c` and execute the shell file `runszbfmhm.sh`. This program will export the data file:

`dataout2_bfmhm_case2p2_divisia_lp5011_d95025.prn`,

which reports all the related information. This file is enclosed here so that the user will know what the output format looks like.