Guide to The Structural Smooth Transition Vector Auto-Regression (SSTVAR) Matlab Toolkit

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The SSTVAR Toolkit routines do the following:

1. **Test for Non-Linearities in VAR arranged Data**
   - `opt_lag_translag.m`: will print out Lagrange Multiplier (LM) and Likelihood Ratio Tests for Non-Linearities in the Data. It will perform this by taking each variable in the dependent variable system for the specified total lags.
   - `opt_lag_translag_accel.m`: does the same estimation as `opt_lag_translag.m` but instead it will take the acceleration of each dependent variable a transition variable.
   - `opt_lag_table.m, stvar_tests.m, stvar_tests_accel`: are internal routines used by both the previous codes

2. **Estimate optimal smooth transition parameters for a Vector Autoregression**
   - `opt_smooth.m`: will search for the optimal threshold level of the estimation and smoothness parameter given that transition variables and transition variable lags have already been chosen. The routine plots the results of the Grid Search performed to obtain this results.
   - `opt_smooth_accel.m`: does the same estimation as `opt_smooth.m` but instead it will take the acceleration of each dependent variable a transition variable.
   - `stvar_tests_gfunc.m, stvar_tests_gfunc_accel`: are internal routines used by both the previous codes

3. **Estimate Structural Smooth Transition VAR (SSTVAR)**
   - `sstvar.m`: will perform the recursive estimation, structural estimation, non-linearity tests and compute Generalized Impulse Response funtions as performed by the papers of Weise (1999) and Koop et al. (1996). The user must supply the structure of the VAR for this code.
• stvar.m, stvar_accel.m: do the same but for a Cholesky decomposition. Only the order must be respected. stvar_accel.m does the same but when the transition variable enters as in its acceleration rate.

• stvar_tests.m, vare2.m, equal.m, bootstrp.m: are the basic routines used to perform this estimation

4. Print out a resume of Impulse Response Functions dependent on Size, Sign and State and Fan-Chart Impulse Responses dependent on State:

• sstvar_driver_graphs.m: uses all the sstvar related routines to plot, in a single draw, Generalized Impulse Response Functions dependent on Sign, Size, and the State of the Economy. It will perform the State of the Economy GIRF’s in their Fan-Chart version. The results will be printed into PostScript documents.

• sstvar_fanchart.m: is used to plot the fanchart impulse response functions. sstvar_sign.m, sstvar_sign_mode.m, sstvar_size.m, sstvar_size_mode.m are used by sstvar_driver_graphs.m to perform graphs.

• stvar_sim.m: is an example of data generated by the SSTVAR process.

NOTE: The internal Help Guides of each code will guide the user to run the routines. This toolbox only works with the use of LeSage’s Econometric Toolbox and Matlab v.7. It’s appropriate work in older versions is not guaranteed.

References
