Package Name: ThSVAR[1]
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Date: 2015.03.23

Default Proc Name: ThSVAR
Default Menu Text: Threshold SVAR
Interface: Dialog and command line

Description

This add-in allows you to perform the estimation and the generilised impulse response function of Threshold Structural Vector Auto Regression (ThSVAR) models (see more details in seminal paper of Balke 2000).

To illustrate the main idea of this add-in, consider the following "structural" threshold VAR model:

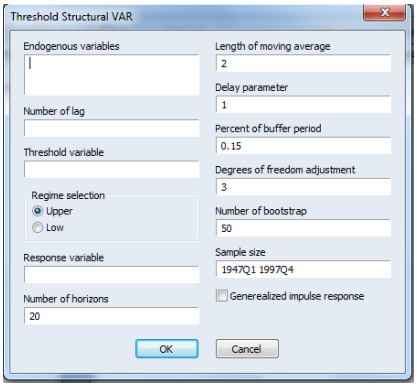
$$Y_t = A^1 Y_t + B^1(L)Y_{t-1} + (A^2 Y_t + B^2(L)Y_{t-1})I(c_{t-d} > \gamma) + U_t$$

where Y_t is an $n \times 1$ vector of endogenous variables; $B^1(L)$ and $B^2(L)$ are lag polynomial matrices; U_t are structural disturbances; c_{t-d} is the threshold variable that determines which regime the system is in and $I(c_{t-d} > \gamma)$ is an indicator function that equals 1 when $c_{t-d} > \gamma$, and 0 otherwise. A^1 and A^2 reflect the structural contemporaneous relationships in the two regimes respectively and are assumed to have a recursive structure.

In order to test threshold value, the threshold model is estimated by least squares for all possible threshold values. Three separate test statistics were calculated: sup-Wald, avg-Wald, exp-Wald. The simulation method of Hansen (1996) was used to conduct inference. The estimated threshold value is one that maximized the log determinants of the structural residuals.

Dialog

Upon running the add-in from the menus, a dialog will appear:



[1] I would like to thank Prof. Nathan Balke for kindly providing me with his computer codes. Whenever you use this add-in, you should cite his seminal paper (Balke 2000).

The first box lets you specify endogenous variables for Threshold SVAR while the second box specify a number of lags. On the next box enter threshold variable. On the fourth box enter response variable for impulse response analysis. Other boxes specifies some optional inputs.

References:

Balke, N.S. (2000): "Credit and Economic Activity: Credit Regimes and Nonlinear Propagation of shocks", *The Review of Economics and Statistics*, vol82, 344-349

Hansen, B. (1996): "Inference When a Nuisanse Parameter is not identified Under The Null Hypothesis," *Econometrica*, vol64, 413-430

Command line:

Syntax: thsvar(options) lags threshold_var response_var @ endogenous variables

E.g. tvsvar(girf=1, sample="1959q1 1997q3") 4 cpbill1 d1gdp @ d1gdp d1pgdp fyff cpbill1

Options:

argument	***explanations***
horizon	number of steps for impulse response function
length	length of moving average
delay	lag number of threshold variable
ob	percent of buffer period
dfa	degrees of freedom adjustment
simrep	number of Bootstrap replication
sample	sample size
regime	1 for upper regime, 0 for lower regime
girf	1 for estimation of generilised impulse response functions