# 1 A note for Svar function in Matlab

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SVAR verifies the identification conditions for a given structural form to be imposed on an estimated VAR model. The require inputs are the set of constraints to be placed on the elements of the A and B matrices so that

$$\begin{aligned} Vec(A) &= s_A \cdot \gamma_A + d_A \\ Vec(B) &= s_B \cdot \gamma_B + d_B. \end{aligned} \tag{1}$$

Here is an example.

Consider a 2 variables VAR and suppose you want Choleski identification:

$$A = \begin{bmatrix} 1 & 0 \\ a_{21} & 1 \end{bmatrix}, B = \begin{bmatrix} b_{11} & 0 \\ 0 & b_{22} \end{bmatrix}. \tag{2}$$

Using 1 the constraints can be rewritten as follows:

$$\begin{bmatrix} 1 \\ a_{21} \\ 0 \\ 1 \end{bmatrix} = \begin{bmatrix} 0 \\ 1 \\ 0 \\ 0 \end{bmatrix} \cdot [a_{21}] + \begin{bmatrix} 1 \\ 0 \\ 0 \\ 1 \end{bmatrix} \tag{3}$$

$$\begin{bmatrix} b_{11} \\ 0 \\ 0 \\ b_{22} \end{bmatrix} = \begin{bmatrix} 1 & 0 \\ 0 & 0 \\ 0 & 0 \\ 0 & 1 \end{bmatrix} \cdot \begin{bmatrix} b_{11} \\ b_{22} \end{bmatrix} + \begin{bmatrix} 0 \\ 0 \\ 0 \\ 0 \end{bmatrix}. \tag{4}$$

After creating $s_A, d_A, s_B, d_B$ the SVAR procedure is run with

```
[a,b,a_se,b_se]=svar1(results,sa,sb,da,db,afree,bfree)
```

where `results` is a VARE structure, `sa`,`sb`,`da`,`db`, are the constraints and `afree` and `bfree` are the number of free parameters in $A$ and $B$ matrices.

The demo file *svar_d.m* gives an example of SVAR procedure for a 5 variables VAR.

The interested reader can find details about identification and estimation of a structural VAR models in Amisano and Giannini (1997). A good reference for alternative identification schemes and their application to monetary policy analys is Favero (2000).

# 2 References

Amisano, G., and Giannini, C., (1997). *Topics in structural var econometrics*. Second edition, Springer Verlag, New York.

Favero, C. A., (2000). Applied Macroeconometrics. Oxford University Press, Oxford.