

Readme File for The Simple ADS Example

There are two tabs in the Eviews Workfile ADS Example.wf1: Monthly and Quarterly. In the Quarterly tab Fred variable "gdpc1" is imported and GDP growth is computed using

$\text{genr gdp_growth} = 400 * \log(\text{gdpc1} / \text{gdpc1}(-1))$

In the monthly tab Fred variable "payems" is imported and Employment growth is computed using

$\text{genr emp_growth} = 1200 * \log(\text{payems} / \text{payems}(-1))$

Then gdp_growth is brought in to the monthly tab in a way where the monthly version is NA for all months except months 3, 6, 9, 12 (the last months of each quarter).

The dummy variable dum_no_first_m is created such that it is 0 for the first month of a quarter (months 1, 4, 7 and 10) and 1 otherwise. This keeps track of months that are not the first month of a quarter.

See the comments in the sspace object for details of how that object is created.

Estimate the sspace object with BFGS / Marquardt and tolerance 1e-6. As of the creation of this document (with data vintage of August 3, 2020) the following output is obtained:

Sspace: SSPACE

Method: Maximum likelihood (BFGS / Marquardt steps)

Date: 08/03/20 Time: 00:10

Sample: 1970M01 2019M12

Included observations: 600

Valid observations: 599

Partial observations: 400

Estimation settings: tol= 1.0e-06, derivs=accurate numeric

Initial Values: C(1)=0.90000, C(2)=0.00000, C(3)=0.00000,
C(4)=2.00000, C(5)=0.00000, C(6)=0.50000, C(7)=2.00000,
C(8)=0.10000, C(9)=0.50000

Convergence achieved after 116 iterations

Coefficient covariance computed using outer product of gradients

	Coefficient	Std. Error	z-Statistic	Prob.
C(1)	1.572122	0.102267	15.37268	0.0000
C(2)	0.206882	0.124220	1.665448	0.0958
C(3)	1.627307	0.093072	17.48441	0.0000
C(4)	1.855872	0.538866	3.444034	0.0006
C(5)	0.936730	0.087305	10.72942	0.0000
C(6)	-0.219858	0.050988	-4.311915	0.0000
C(7)	3.058988	0.561729	5.445670	0.0000
C(8)	1.195354	0.125576	9.518967	0.0000
C(9)	-0.118359	0.052879	-2.238272	0.0252
	Final State	Root MSE	z-Statistic	Prob.
X_USE	0.033610	0.493831	0.068059	0.9457
CUM	0.150530	0.869617	0.173100	0.8626
Log likelihood	-1622.644	Akaike info criterion	5.447893	
Parameters	9	Schwarz criterion	5.513932	
Diffuse priors	2	Hannan-Quinn criter.	5.473602	

These estimated parameters imply AR(1) parameters for the factor, employment growth and GDP growth of 0.917, -0.216 and -0.118, respectively. The factor loadings for employment growth and GDP growth are 2.55 and 1.20, respectively.

Once the estimation is completed one can create smoothed factors using Procs / Make State Series.

The extracted smoothed factor (x_usef) looks like this (stored in graph01)

