SGPE ECNM11049

Advanced Time Series Econometrics

Computer Tutorial 3

The Principal component analysis and factor-augmented VARs

SCOTTISH GRADUATE PROGRAMME IN ECONOMICS

Semester 2 Options

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The file *Lab3data.csv* contains monthly data set for the US from January 1980 to December 2019. The data set includes year-on-year (y-o-y) consumer price inflation (CPIAUCSL), the federal funds rate (FEDFUNDS), and y-o-y growth rates for seven different industrial production measures.

The ECNM11049-Lab3.html provides the codes on the two tasks below.

1. The Principal component analysis (PCA)

(a) Carry out a principal components analysis;

(b) Make a scree plot and use it to decide how many of the components should be retained.

2. Digression: The factor augmented VAR based on PCA

(a) Use the factors extracted above and estimate a FA-VAR model;

(b) Compute impulse response functions (IRFs) to analyse the dynamic response over time of endogenous variables to a monetary policy shock. If you do not know what IRFs are, do not worry. Carefully read the brief review on IRFs in the html file;

(c) Change the number of lags, do your IRFs change? Use an information criterion to decide on the lag length.