Universidad de San Andrés - Master in Economics
Macroeconometrics (J. García-Cicco)
Problem Set 4

Bayesian VAR Estimation, Forecasting and Analysis

1. Retrieve yet again with R the series p^{com}, er and p^c from the previous problem sets.

2. Define $y_t = (p_t^{com}, er_t, p_t^c)'$ and estimate a Bayesian VAR for $\Delta \log y_t$. Use only an effective sample starting in January 2004 and ending in December 2019. Define a lag order for your VAR and use a Minnesota prior to incorporate the uncertainty stemming from your choice. Concentrate on the coefficients for the $\Delta \log p_t^c$ equation and plot the resulting distributions. Comment on the results.

3. Forecast two years into the future using the VAR estimated above. Plot and discuss the results.

4. Assume an specific path for $\Delta \log er_t$ for the year 2020. Construct a forecast for two years into the future, conditional on your assumed path. Compare this scenario with **3** and analyze the implications.

5. Using a short-run recursive identification strategy, recover the distribution of the IRFs and FEVDs implied in your Bayesian Structural VAR. Additionally, retrieve the distribution of the historical decompositions of the two variables. Plot the median along a credible interval for each parameter of interest.

6. Compute the exchange rate pass-through to consumer prices with the formula in the **problem set 2** using the structural model in **5** and provide a credible interval for your estimates.

7. Whenever possible, repeat all of the above with the model in log. levels instead. Modify your prior beliefs accordingly and contrast the results with the model in log. differences.

Estimating a Bayesian VAR with Sign Restrictions

1. Reproduce Uhlig's results as seen in class with a Bayesian VAR with sign restrictions. In particular, make sure to impose the sign restrictions on the monetary policy shock.