

Final Assignement Macroeconometrics pt.1

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Instructions

The project deals with the estimation of the models seen in class and during the practices. In particular you are asked to estimate models using both a Classical and a Bayesian estimation technique.

- The due date is the same day of your final exam
- The main deliverable must be a ZIR (or a RAR) file that has to contain:
 - A report in a Pdf file form with the main results and comments. The author should comment the exercise and the source code.
 - Codes and functions used to carry out the project.
- The name of the report file should follow the following form: ME_Project_Surname_Name.pdf

Exercise 1

Download from the FRED website, one (or more) time series of your choice between GDP, Inflation and Unemployment.

- 1) Fit a Local Level Model for the Trend component using Maximum likelihood estimation (be careful on what series you should use). Plot the Filtered and Smoothed estimates. Extract the Cycle and comments the model.
- 2) Fit a Local Level Model for the Trend component using a Bayesian approach with the Gibbs sampler.

For each case, report and comment the parameters results, plots etc...

Exercise 2

Using the previous series (Inflation, Unemployment, GDP) do the following:

- 1) Fit a Bayesian VAR model with one and then four lags (VAR(1) and VAR(4)):

- Normal-Wishart Priors.
- Minnesota Priors

Report the difference, if any, in the estimated parameters.

- 2) Fit a Time Varying VAR model with Gibbs sampler approach, using a Normal-Wishart Priors.

For each of these estimations make plots and shortly comments.

Exercise 3. (Only for PhD Students)

Fit a DSGE model, such as Smets and Wouters (2007) using the techniques that we saw in class. Please comment the estimation procedure.