

Advanced Macroeconomics I - CAEN/UFC - March/19

Samuelson's Oscillator

Consider the Samuelson's accelerator model (backward looking model)

$$\begin{aligned} C_t &= \beta Y_{t-1} & G_t &= \rho G_{t-1} + (1 - \rho)\bar{G} + \eta_t \\ I_t &= \alpha(C_t - C_{t-1}) & Y_t &= C_t + I_t + G_t \end{aligned}$$

- Consumption is 80% of income
- Government spending have a strong persistence (0.9)
- $\bar{G} = 1$
- Investment in period t equals 5% more than the variation in consumption between t and $t - 1$
- $\eta_t \sim iid N(0, 0.02^2)$.

Endogenous, exogenous variables, and parameters of the model

- Variables: C_t, I_t, Y_t, G_t
- Exogenous Variable: η_t
- Parameters: $\alpha, \beta, \rho, \sigma$

Questions:

1. Write the Dynare code to perform a stochastic simulation of this model for 2000 periods and generate impulse response functions for the endogenous variables for 60 periods. Briefly explain.
2. Present the matrix of correlation coefficients of the endogenous variables. Briefly explain.
3. (make sure the model is stable!) Try run the code with $\beta = 2$. Report your findings.

Submission Instructions

Each group (3-4 students) must prepare (using LaTeX; template to be provided) and submit a 2 page report with answers to Questions 1 -3, along with its Dynare code. A group leader should send the files to marcelo.aarestrup.arbex@gmail.com by March 29th, 2019; CC: other group members.