ADVANCED MACROECONOMICS
UNIVERSIDAD DE MÁLAGA
Academic Year 2018-2019. Exercise 3 (Week 3-7 June 2019)

Consider an economy with household preferences given by:

$$U(C_t) = \log C_t \tag{1}$$

where the budget constraint is:

$$C_t + I_t = W_t + R_t K_t \tag{2}$$

and where the capital stock accumulation process is given by:

$$K_{t+1} = (1 - \delta)K_t + I_t \tag{3}$$

and where the technology is given by:

$$Y_t = AK_t \tag{4}$$

1. Solve the household's maximization problem and obtain the optimal consumption path.
2. Solve the firm's maximization problem.
3. Write the equations of the model economy.
4. Calculate the steady state.
5. Calculate the linear aproximation to the model equations.
6. Get the difference equations for consumption and capital stock.
7. Write the dynamic model in matrix notation.
8. Stability analysis.
9. Calculate the "jump" in consumption consistent with the saddle stable path.
10. Calibrate the model and obtain the numerical solution in Excel. Study the effects of an increase in Total Factor Productivity.

Once the results have been obtained, you must writte an assessment with all analytical calculus and plot the trajectories for the endogenous variables given the shock, following the 10 steps described for solving this type of models. All results must be collected in a file in "pdf" format, to be sent to the email: macroavanzada2@uma.es. The deadline for submitting the file is 23:59pm, 9 June 2019. All questions about this exercise will be resolved on Wednesday, June 5 from 9:30am.