Monetary and Financial Macroeconomics: Homework IV

UC3M 2019

Question 1

Please, read "Some Unpleasant Monetarist Arithmetic", Sargent and Wallace 1981. Consider the model described in the paper.

- 1. Write down the problem of the poor household. Write down the period 1 and period 2 budget constraint of the poor household using the notation introduced in class and the paper. Explain.
- 2. Write down the problem of the rich household. Explain.
- 3. Solve the poor household problem. Find the savings and consumption function.
- 4. Solve the rich household problem. Find total savings, consumption. Explain what is the rich agent going to do, under which condition savings of the rich will be in money and capital and bonds?
- 5. Assume that the return on money is larger than the return of capital. What should happen with the return of bonds? Which is the bond demand, money demand and capital demand?
- 6. Under the previous assumption, derive the equilibrium condition in the money market for two consecutive periods. Study the return on money.
- 7. From now on assume that the return on money is lower than the return on capital. Derive the demand for money. Compute equilibrium and derive and expression for the price level.
- 8. Consider the exercise studied in class. Suppose that the growth rate of money is θ until period T and after that the stock of money keeps the per capita level of debt constant. Derive the expression for $b_{\theta,T}$. Explain.
- 9. Show that the lower θ , the larger $b_{\theta,T}$. Explain.

Question 2

For the previous question. Assume the endowments for the poor agents are [100, 0], for the rich guy [1000, 0], the return on capital is 5%, $\theta = 0.0 n = 0.01$. Suppose that the government needs to finance a deficit of 50 goods every period.

- 1. Suppose the government runs a roll-over strategy. Compute the capital T in which the roll-over strategy gets to a limit.
- 2. Then, compute what would be the appropriate θ and inflation rates for periods T to T + 5. Discuss.
- 3. Suppose that $\theta = 0.01$ every period before T. Solve the two previous questions again. Discuss.

Question 3

Solve question 14.2 in Champ et al.

Question 4

Consider the policy games seen in class. Assume that $\lambda = 1$, $\sigma^2 = 1$ and $x^* = 0.5$.

- 1. Plot the loss function of the government for various values of p and x. What is the best possible allocation the government would like to implement if possible?
- 2. Compute the equilibrium under discretionarity. Discuss.
- 3. Compute the equilibrium under rule. Discuss.
- 4. Compute the equilibrium under a contingent rule as seen in class. Discuss.
- 5. Compare the expected losses under each arrangement. What should the government do?
- 6. Now consider this alternative rule and recompute previous point $p = \bar{k} + k\epsilon + \gamma \sigma^2$.