In the name of God
Sharif University of Technology
Department of Economics
Macroeconomics 1 - Spring 2018

Problem Set 7

(Due: 1397/01/29 Wednesday, before TA session. Work in group seriously.)

No extra credit for the optional ones, unless notes.

1 Readings

1. Read Dr Nili’s book chapter 11,12


4. Skim Fisher(2003),The role of macroeconomic factors in growth. Summarize the findings in 250 words.

5. Read the Introduction and Skim all of the Parente,Prescott(1994)-Barriers to technology adoption and development. Summarize the findings in 250 words.

6. Read the Introduction of Parente,Prescott(1999), Monopoly rights,a barrier to riches. Summarize the findings in 250 words.

7. Skim Dani Rodrick(2009), Diagnostics Before Prescription. Summarize the findings in 250 words.

8. Read Lucas(1993), Making a miracle (Optional)
2 Uncertainty (Optional)

Consider the two-period model, where the household’s utility function is given by:

\[ U(c_1; c_2) = \log(c_1) + E[\beta \log(c_2)] \]

where \( c_1 \) and \( c_2 \) denote the consumption in periods one and two, respectively, and \( \beta < 1 \) is the discount factor. Household income is \( y_t = A_t k_t^\delta \). He starts with an endowment \( k_1 \) in period 1 and decides how much to consume \( c_1 \) or invest. For simplicity assume that the depreciation rate is \( \delta = 1 \). Household can also save \( s \) at a fixed rate \( r \).

Suppose \( A_1 = \tilde{A} \) but \( A_2 = \tilde{A} \) with probability \( p \) and \( A_2 = 0 \) with probability \( 1 - p \). (In other words, someone steals all of his capital or the government takes it)

1. Setup the household maximization problem and write down the FOCs accurately.

2. Solve the optimum household choice for \( c_1, c_2, k_1 \) and saving \( s \).

3. How do the household’s decisions depend on \( p \)?

3 A Neoclassical Growth Model with External Finance (Optional)

Consider a simple neoclassical growth model where the economy has access to foreign finance at a fixed interest rate \( \bar{r} \).

1. Setup the problem. (You should think deeply here on how to incorporate the oil in to your model. There is not necessarily one way to do it.)

2. Find the steady state allocation and discuss your results. Does the economy borrow a positive value in the long run?

3. Think deeply on how does the transition occurs. You may find it counter-intuitive at the beginning.
4. Now suppose you can have foreign direct investment but the return is at the marginal rate for capital. Now resolve the problem.