14.02 Principles of Macroeconomics

Problem Set 9 - GROWTH
Posted: Wednesday, November 28, 2001
Due: Monday, December 10, 2001

PART I (TRUE or FALSE)

1. FALSE. Although money is endogenous — and therefore interest rates are determined by the interest rate parity condition— an increase in Prices will bring about a real appreciation. This will cause a loss in competitiveness that will reduce demand shifting the IS to the left. I.e. the new output equilibrium will be smaller.

2. FALSE. It will cause an increase in today's exchange rate (gain in competitiveness) that will shift aggregate demand to the right.

3. FALSE. It will increase interest rates and lower investment that will shift aggregate demand to the left.

4. FALSE. Under classical assumptions, an increase in A will decrease the natural rate of unemployment.

5. FALSE. The level of output will depend on savings rate (but not its rate of growth).

6. FALSE. Conditional convergence states that the rate of growth of output per capita will be higher in poor countries rather than in rich countries.

7. FALSE. Savings rate will not affect the rate of growth in the long run.

8. FALSE. The Oil crisis (1973) generated a world recession that affected all countries.

9. FALSE. If s is smaller that s_{GR} then an increase in s will reduce consumption for people today therefore, although people in the future will be better off (consume more), it is not the case that consumers in general will be better off.

10. FALSE. Constant returns refers to an increase of all factors of production keeping ratios constant. Anything can happen if you change those ratios.

PART II SOLOW MODEL

1. $\dot{k} = sfk - (\delta + n)k$.

2. $\dot{k} = s(1-t)fk - (\delta + n)k$.

3. $\dot{k} = (s(1-t)+t)fk - (\delta + n)k$.

4. $\dot{k} = (f'(k) - \delta)f(k) - \delta k = f'(k)f(k) - 2\delta k$

5. $f'(k)k = \alpha f(k)$, i.e. $s = \alpha$.

6. look at the graph.

7. Capital per capita will go down. Depending on how much it decreases it will either go back to the initial equilibrium or, in case of a huge decrease, it will converge to the 'bad equilibrium' (poverty trap).