EC1010: Tutorial Questions 2

January 29, 2010

1. Between 1950 and 1970, real GDP in Japan grew on average at 7.2 percent a year. At this rate, approximately how long does it take for real GDP in the economy to double?
2. If one closed economy has higher *national savings* than another closed economy, what do we know about the respective levels of investment in each economy?
3. The idea behind *minimum wage* legislation is to ensure workers attain a certain standard of living. The minimum wage in Ireland is 8.65 euros an hour, but recently a number of businesses have argued that the minimum wage is too high. By considering the concept of a *real wage*, is there currently an economic argument for reducing the minimum wage?
4. Explain how each of the following changes would affect the production function $Y = AK^{\alpha}L^{1-\alpha}$:
   (a) Suppose everyone in an economy worked longer hours. (Can this development generate sustained growth in Y?)
   (b) Suppose a government introduces a law that prohibits firms from growing too large. By doing this, the law makes it difficult for firms to attain *economies of scale*.
   (c) People in a country consume less each year and spend more on research and development.
5. Suppose the production function takes the form $Y = AK^{\frac{1}{2}}L^{\frac{1}{2}}$; i.e., $\alpha = \frac{1}{2}$. Suppose A and L are constant. To attain a doubling of output, by what proportion does K have to increase? What would your answer be if the production function was $Y = AK$? Explain the reasoning for the difference. In which case is capital more important?
6. Is it possible for a *growth accounting* analysis to show positive real GDP growth, together with falling L and K? Explain.
7. Consider the growth model derived in class. Draw the three lines describing the economy.
   (a) Illustrate the steady state level of K and Y. What is the growth rate of Y in *steady state*? What is the growth rate of income per capita in steady state?
   (b) Show what happens to the steady state value of K if the rate of depreciation δ rises permanently to a higher level δ'.
8. By using the capital accumulation equation, $\Delta K_t = sY_t - \delta K_t$, show that the value of $\frac{K}{Y}$ in steady state is $\frac{s}{\delta}$.