Long-Run Economic Growth

Additional Homework Problems

ECON 3133

Dr. Keen

1.

   a. The labor supply function is given by $N = 1{,}000 + 12\times(W/P)$ and labor demand is $N = 2{,}000 - 8\times(W/P)$. Draw a diagram showing these schedules. Find the equilibrium level of employment and the real wage.

   b. Given existing technology and the capital stock, output is given by the production function $Y = 100\times N^{1/2}$. Graph the production function. Does the production function exhibit diminishing marginal product of labor?

   c. Using the labor market from part a and the production function from part b, determine the equilibrium level of output.

2. Suppose that the production function is $Y = A\times K^{1/2}\times N^{1/2}$.

   a. If capital $K = 900$, labor $N = 400$, and technology $A = 1$, what is output Y and output per worker Y/N?

   b. If capital and labor are increased by 50 percent while technology is held constant, how are output Y and output per worker Y/N affected?

   c. If capital is increased by 50 percent, labor is increased by 25 percent, and technology is held constant, how are output Y and output per worker Y/N affected?

3. Explain the relationship between the following terms: equilibrium employment, the natural rate of unemployment, and potential GDP.

4. Suppose that GDP per capita is $100 billion in 2000 and $164 billion in 2025 and the growth rate is constant. What is the balanced growth rate?

5. Consider a Solow growth model where output-to-labor ratio equals $Y/N = (K/N)^{1/2}$, the savings rate equals 4% and the labor force growth rate equals 1%. What is the balanced growth capital-to-labor ratio, $(K/N)^*$?