Nanyang Technological University
School of Social Sciences

HE2002 Macroeconomics II

Tutorial

Chapter 10, Q2. Answer

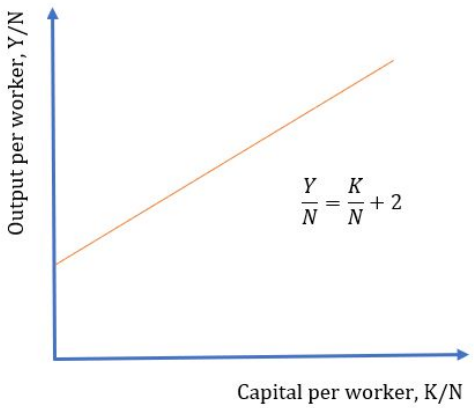
1. The Japanese consumption per student = 600 60 + 170 80 = 49,600.
2. The Chinese consumption per student = RMB 15 50 + RMB 3 100 = RMB 1,050.
3. With the exchange rate of 17 yen being equal to one yuan, the Chinese consumption per student is: RMB 1,050 17 = 17,850. It is lower than consumption in Japan.
4. Using the purchasing power parity method, the Chinese consumption per student is: 600 50 + 170 100 = 47,000.
5. Therefore, the standard of living of students in China is lower than those in Japan. The Chinese students standard of living relative to that of the Japanese student is 0.36 using the exchange rate method, while it is 0.95 using the purchasing power parity method.

Chapter 10, Q3. Answer

1. $Y = 10 + 20 * 2 = 50$
2. $Y = 30 + 60 * 2 = 150$
3. This function has constant returns to scale since Y triples.
4. $Y/N = K/N + 2$
5. $Y/N = 2 + 2 = 4$
   No. When $K/N = 4$, $Y/N = 4 + 2 = 6$
6. No. The relation between output per worker and capital per worker has decreasing returns.
7. The output per worker function ($Y/N = K/N + 2$) represent decreasing returns to capital, whereas the production function ($Y = K + 2N$) represents constant returns to scale.
8. There is a linear relationship between output per worker and output per output, compared with Figure 10-4.

Chapter 10, Q4. Answer

1. $\Delta Y/Y = 0.5 * \Delta K/K$, growth rate of output = 1/2 *growth rate of capital.
2. 4% per year.
3. K/Y increases.
4. No. Since capital is growing faster than output, the saving rate will have to increase to maintain the same pace. Eventually, the required saving will exceed output. Capital must grow faster than output because there are decreasing returns to capital in the production function.


Output per worker, Y/N
$\frac{Y}{N} = \frac{K}{N} + 2$
Capital per worker, K/N