

Intermediate Macroeconomic Theory

Economics 232-002

Summer, 2008

Assignment #9

1) Suppose that the production function for output depends only on the amount of capital (K), and TFP (z). Assume that it can be characterized as follows:

$$F(K) = (1.2)K - (.025)K^2$$

Suppose that the depreciation rate is 10%, and the real interest rate is also 10%. The firm had 10 units of capital last period, before depreciation. Determine the optimal quantity of the i) desired capital stock, ii) net investment, iii) gross investment.

2) Now suppose the production function has “improved”, so that it is now written as follows:

$$F(K) = (1.4)K - (.025)K^2$$

Determine the optimal quantity of the i) desired capital stock, ii) net investment, iii) gross investment.

3) Suppose that the production function is as written in part 1), but that the interest rate has risen to 20%. Determine the optimal quantity of the i) desired capital stock, ii) net investment, iii) gross investment.

4) Re-do problem 1) assuming that the production function is written as follows:

$$F(K) = K^{0.5} = \sqrt{K}$$

5) Do question #1 from Chapter 9, on page 358.

6) Do question #8 from Chapter 9, on page 359.

7) Do question #12 from Chapter 9, on page 359.