

Assignment 3

Last Name _____

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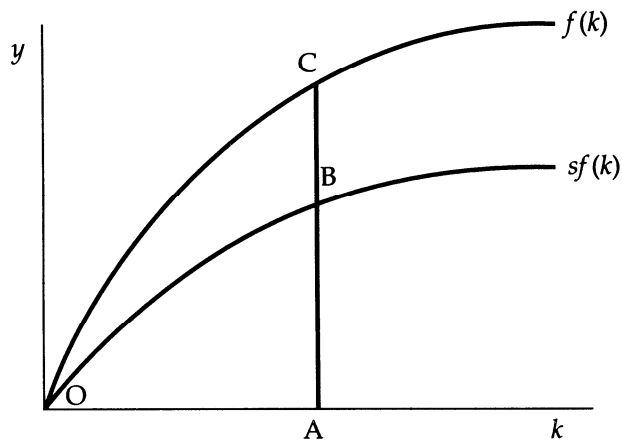
Chapter 7					Chapter 8				
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Chapter 7

- In the Solow growth model, the assumption of constant returns to scale means that:
 - all economies have the same amount of capital per worker.
 - the steady-state level of output is constant regardless of the number of workers.
 - the saving rate equals the constant rate of depreciation.
 - the number of workers in an economy does not affect the relationship between output per worker and capital per worker.

- In this graph, when the capital-labor ratio is OA, AB represents:

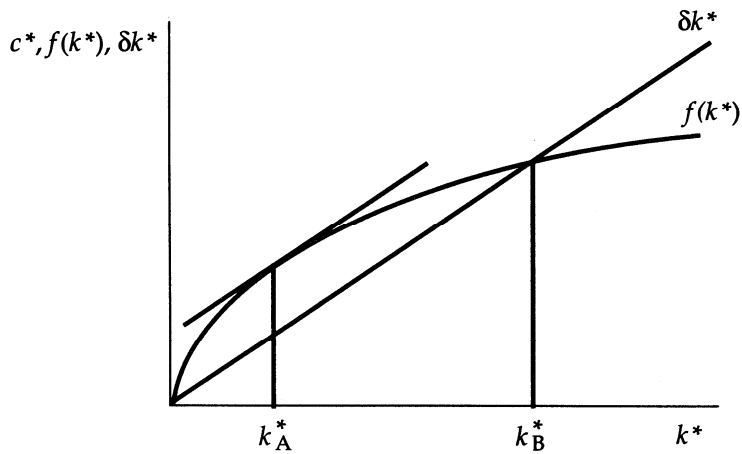
Exhibit: Output, Consumption, and Investment



- investment per worker, and AC represents consumption per worker.
 - consumption per worker, and AC represents investment per worker.
 - investment per worker, and BC represents consumption per worker.
 - consumption per worker, and BC represents investment per worker.
- In the Solow growth model, if investment exceeds depreciation, the capital stock will _____ and output will _____ until the steady state is attained.
 - increase; increase
 - increase; decrease
 - decrease; decrease
 - decrease; increase
 - If the per-worker production function is given by $y = k^{1/2}$, the saving rate (s) is 0.2, and the depreciation rate is 0.1, then the steady-state ratio of capital to labor is:
 - 1.
 - 2.
 - 4.
 - 9.

5. The Solow model shows that a key determinant of the steady-state ratio of capital to labor is the:
- level of output.
 - labor force.
 - saving rate.
 - capital elasticity in the production function.
6. The formula for steady-state consumption per worker (c^*) as a function of output per worker and investment per worker is:
- $c^* = f(k^*) - \delta k^*$.
 - $c^* = f(k^*) + \delta k^*$.
 - $c^* = f(k^*) \div \delta k^*$.
 - $c^* = k^* - \delta f(k^*)$.

7. Exhibit: Steady-State Consumption I

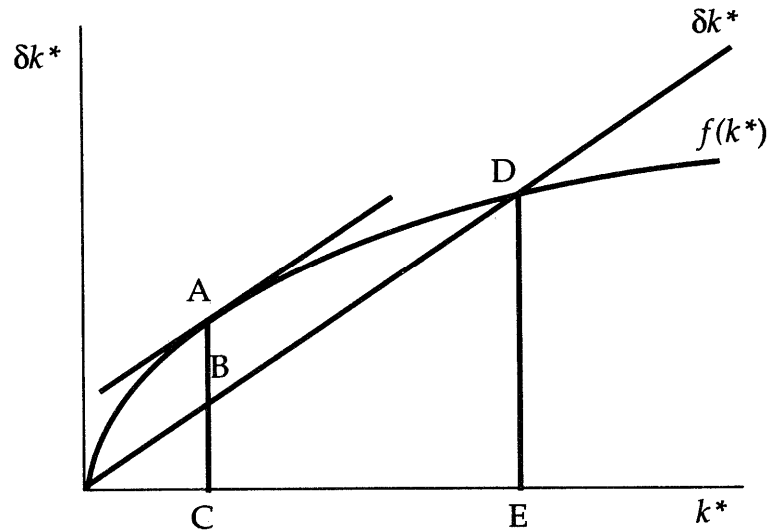


The Golden Rule level of the capital-labor ratio is:

- k_A^* .
- above k_A^* but below k_B^* .
- k_B^* .
- above k_B^* .

Use the following to answer question 8:

Exhibit: Steady-State Consumption II



8. (Exhibit: Steady-State Consumption II) The Golden Rule level of steady-state consumption per worker is:
- AC.
 - AB.
 - BC.
 - DE.
9. If an economy with no population growth or technological change has a steady-state *MPK* of 0.125, a depreciation rate of 0.1, and a saving rate of 0.225, then the steady-state capital stock:
- is greater than the Golden Rule level.
 - is less than the Golden Rule level.
 - equals the Golden Rule level.
 - could be either above or below the Golden Rule level.
10. If an economy is in a steady state with no population growth or technological change and the capital stock is above the Golden Rule level and the saving rate falls:
- output, consumption, investment, and depreciation will all decrease.
 - output and investment will decrease, and consumption and depreciation will increase.
 - output and investment will decrease, and consumption and depreciation will increase and then decrease but finally approach levels above their initial state.
 - output, investment, and depreciation will decrease, and consumption will increase and then decrease but finally approach a level above its initial state.

11. When an economy begins above the Golden Rule, reaching the Golden Rule:
- A) produces lower consumption at all times in the future.
 - B) produces higher consumption at all times in the future.
 - C) requires initially reducing consumption to increase consumption in the future.
 - D) requires initially increasing consumption to decrease consumption in the future.
12. If an economy is in a steady state with no population growth or technological change and the capital stock is below the Golden Rule level:
- A) a policymaker should definitely take all possible steps to increase the saving rate.
 - B) if the saving rate is increased, output and consumption per capita will both rise, both in the short and long runs.
 - C) if the saving rate is increased, output per capita will at first decline and then rise above its initial level, and consumption per capita will rise both in the short and long runs.
 - D) if the saving rate is increased, output per capita will rise and consumption per capita will first decline and then rise above its initial level.
13. The formula for the steady-state ratio of capital to labor (k^*) with population growth at rate n but no technological change, where s is the saving rate, is s :
- A) divided by the sum of the depreciation rate plus n .
 - B) multiplied by the sum of the depreciation rate plus n .
 - C) divided by the product of $f(k^*)$ and the sum of the depreciation rate plus n .
 - D) multiplied by $f(k^*)$ divided by the sum of the depreciation rate plus n .
14. In the Solow growth model, an economy in the steady state with a population growth rate of n but no technological growth will exhibit a growth rate of total output at rate:
- A) 0.
 - B) n .
 - C) $\frac{\Delta Y}{Y}$.
 - D) $(n + \frac{\Delta Y}{Y})$.

15. In the Solow growth model, if two countries are otherwise identical (with the same production function, same saving rate, same depreciation rate, and same rate of population growth) except that Country Large has a population of one billion workers and Country Small has a population of ten million workers, then the steady-state level of output per worker will be _____ and the steady-state growth rate of output per worker will be _____.
- A) the same in both countries; the same in both countries
 - B) higher in Country Large; higher in Country Large
 - C) higher in Country Small; higher in Country Small
 - D) higher in Country Large; higher in Country Small
16. In the Solow growth model of an economy with a given production function, depreciation rate, saving rate, and no technological change, higher rates of population growth produce:
- A) higher steady-state ratios of capital per worker.
 - B) higher steady-state growth rates of output per worker.
 - C) higher steady-state growth rates of total output.
 - D) higher steady-state levels of output per worker.
17. In the Solow growth model of an economy with population growth but no technological progress, increases in capital have a positive impact on steady-state consumption per worker by _____, but have a negative impact on steady-state consumption per worker by _____.
- A) increasing the capital to worker ratio; reducing saving in the steady state
 - B) reducing investment required in the steady state; increasing saving in the steady state
 - C) increasing output; increasing output required to replace depreciating capital
 - D) decreasing the saving rate; increasing the depreciation rate

Chapter 8

1. The *efficiency of labor* is a term that does not reflect the:
 - A) high output that comes from labor cooperating with a large amount of capital.
 - B) health of the labor force.
 - C) education of the labor force.
 - D) skills of the labor force acquired through on-the-job training.

2. In a steady-state economy with a saving rate s , population growth n , and labor-augmenting technological progress g , the formula for the steady-state ratio of capital per effective worker (k^*), in terms of output per effective worker ($f(k^*)$), is (denoting the depreciation rate by δ):
 - A) $sf(k)/(n + g)$.
 - B) $s/((f(k))(n + g))$.
 - C) $f(k)/((s)(n + g))$.
 - D) $(s - f(k))/(n + g)$.

3. According to the Solow model, persistently rising living standards can only be explained by:
 - A) population growth.
 - B) capital accumulation.
 - C) saving rates.
 - D) technological progress.

4. In the Solow model with technological progress, the steady-state growth rate of output per effective worker is:
 - A) 0.
 - B) g .
 - C) n .
 - D) $n + g$.

5. The balanced-growth property of the Solow growth model with population growth and technological progress predicts which of the following sets of variables will grow at the same rate in the steady state?
 - A) output per effective worker, capital per effective worker, real wage
 - B) output per worker, capital per worker, real wage
 - C) real rental price of capital, real wage, output per worker
 - D) capital-output ratio, output per worker, capital per worker

6. If two economies are identical (including having the same saving rates, population growth rates, and efficiency of labor), but one economy has a smaller capital stock, then the steady-state level of income per worker in the economy with the smaller capital stock:
- A) will be at a lower level than the steady state of the high capital economy.
 - B) will be at a higher level than the steady state of the high capital economy.
 - C) will be at the same level as the steady state of the high capital economy.
 - D) will be proportional to the ratio of the capital stocks in the two economies.
7. Empirical investigations into whether differences in income per person are the result of differences in the quantities of the factors of production available or differences in the efficiency with which the factors are employed typically find:
- A) a negative correlation between the quantity of factors and the efficiency of use.
 - B) a positive correlation between the quantity of factors and the efficiency of use.
 - C) no correlation between the quantity of factors and the efficiency of use.
 - D) large gaps between the quantity of factors accumulated and the efficiency of use.
8. Empirical evidence supports the theory that free trade:
- A) increases economic growth.
 - B) decreases economic growth.
 - C) increases imports, but decreases exports because of greater global competition.
 - D) increases both imports and exports, but does not contribute to overall economic growth.
9. The analysis in Chapter 8 of the current capital stock in the United States versus the Golden Rule level of capital stock shows that the capital stock in the United States is:
- A) well above the Golden Rule level.
 - B) about equal to the Golden Rule level.
 - C) well below the Golden Rule level.
 - D) slightly above the Golden Rule level.
10. The type of legal system in a country and the level of corruption in a country have been found to be:
- A) unrelated to the rate of economic growth in a country.
 - B) significant determinants of the rate of economic growth in a country.
 - C) important topics for political discussion, but not economic explanations of growth.
 - D) important variables explaining the Golden Rule level of capital.

11. The productivity slowdown that began in the 1970s has been attributed, at least partly, to each of the following *except*:
- A) running out of new ideas about how to produce.
 - B) a deterioration in the quality of education.
 - C) a decline in the number of workers in the labor force.
 - D) a lower average level of experience among workers.
12. In the Solow growth model, capital exhibits _____ returns. In a basic endogenous growth model, capital exhibits _____ returns.
- A) constant; diminishing
 - B) constant; constant
 - C) diminishing; constant
 - D) diminishing; diminishing
13. If Y is output, K is capital, u is the fraction of the labor force in universities, L is labor, and E is the stock of knowledge, and the production $Y = F(K, (1-u)EL)$ exhibits constant returns to scale, then output (Y) will double if:
- A) K is doubled.
 - B) K and u are doubled.
 - C) K and E are doubled.
 - D) L is doubled.
14. In the two-sector endogenous growth model, income growth persists because:
- A) the production function shifts exogenously.
 - B) the saving rate exceeds the rate of depreciation.
 - C) the creation of knowledge in universities never slows down.
 - D) the fraction of the labor force in universities is large.

Answer Key

1. D
2. C
3. A
4. C
5. C
6. A
7. A
8. B
9. B
10. D
11. B
12. D
13. D
14. B
15. A
16. C
17. C