ECON 302
Spring 2014
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Practice Midterm 1 Exam[1]

Multiple Choices Questions

1. The national income and product accounts identity states:
    a. Expenditure = Production = Income
    b. Expenditure = Production + Income
    c. Expenditure = Production – Income
    d. Expenditure = Income – Production

2. In the Solow growth model, an increase in depreciation rate, holding everything else constant, leads to _____ at the new steady state.
    a. an increase in capital stock per worker
    b. an ambiguous effect of output per worker
    c. a decrease in output per worker
    d. an ambiguous effect of capital stock per worker

3. Which of following statements is true?
    a. In the Solow growth model with positive population growth rate *n*, output per worker grows forever at the rate *n* in the steady state.
    b. In both Solow and endogenous growth models, the higher the saving rate, the higher the growth rate of output.
    c. In the endogenous growth model, output grows forever.
    d. None of the statements a., b., and c. are true.

4. Ricardian equivalence concerns with _____.
    a. the irrelevance of timing of taxation
    b. the irrelevance of the total amount of income tax to each person
    c. the irrelevance of the amount of income received over lifetime
    d. the irrelevance of timing of income received over lifetime

5. Which of the following scenario would result in the chain-weighting method to increase the precision in measuring the real GDP?
    a. Seasonal fluctuation in fruits and vegetables prices
    b. Technological invention in computer-related products
    c. Frequent discount in grocery stores
    d. World market fluctuation and volatility in energy prices

[1] This practice midterm exam is NOT a representative of the difficulty level of the actual exam.

6. Consider an economy with 500 people in the labor force. At the beginning of every month, 5 people lose their jobs and remain unemployed for exactly one month; one month later, they find new jobs and become employed. Furthermore, on January 1 of each year, 20 people lose their jobs and remain unemployed for six months before finding new jobs. Finally, on July 1 of each year, 20 people lose their jobs and remain unemployed for six months before finding new jobs.
   What is the average duration of an unemployment spell?
   a. 60 percent
   b. 3 months
   c. 40 percent
   d. 3.5 months

7. According to our two-period consumption-saving model, a decrease in interest rate to someone who is currently a lender leads to an ambiguous total effect. The substitution effect leads to a(n) _____ in lending, which is opposite of the income effect. This lender _____.
   a. decrease; still lends
   b. increase; still lends
   c. decrease; may lend or borrow
   d. increase; may lend or borrow

8. In the Solow growth model, suppose initially that the economy is in its steady state, in which the saving rate is lower than the golden-rule saving rate. Suppose the saving rate is changed to the golden-rule saving rate, which of the following is true for the effect on consumption per worker?
   a. Consumption per worker is always higher than the initial steady-state level of consumption in both transition path and the new steady state.
   b. Consumption per worker is always lower than the initial steady-state level of consumption in both transition path and the new steady state.
   c. Consumption per worker may be higher or lower than the previous steady-state level of consumption on the transition path, but the new steady state level of consumption is higher.
   d. Consumption per worker may be higher or lower than the previous steady-state level of consumption on the transition path, but the new steady state level of consumption is lower.

9. In large open economy settings with two countries – Home and Foreign, an increase in capital income tax in Home country leads to a(n) _____ in current account of Foreign country as a result of a(n) _____ world real interest rate.
   a. increase; increase
   b. increase; decrease
   c. decrease; increase
   d. decrease; decrease

10. Which of the following cases would result in increased total output but a higher unemployment rate?
    a. With constant average productivity, the labor force increases, but employment increases more slowly than unemployment.
    b. With falling average productivity, the labor force increases, and unemployment increases faster than employment.
    c. With constant average productivity, the labor force increases, but unemployment increases more slowly than employment.
    d. With falling average productivity, the labor force decreases, and unemployment increases faster than employment.

11. Which of the following scenario leads to the level of GDP being larger than GNP for the country where goods and services are produced?
    a. General Motors retains its sales profit from its production plant in Thailand.
    b. Filipino domestic care workers working in Hong Kong send their money back to the Philippines.
    c. Boeing Corporation sells 200 examples of Boeing 787 airliner to various Chinese airline companies.
    d. Intel Corporation builds microprocessor production plants in Malaysia.

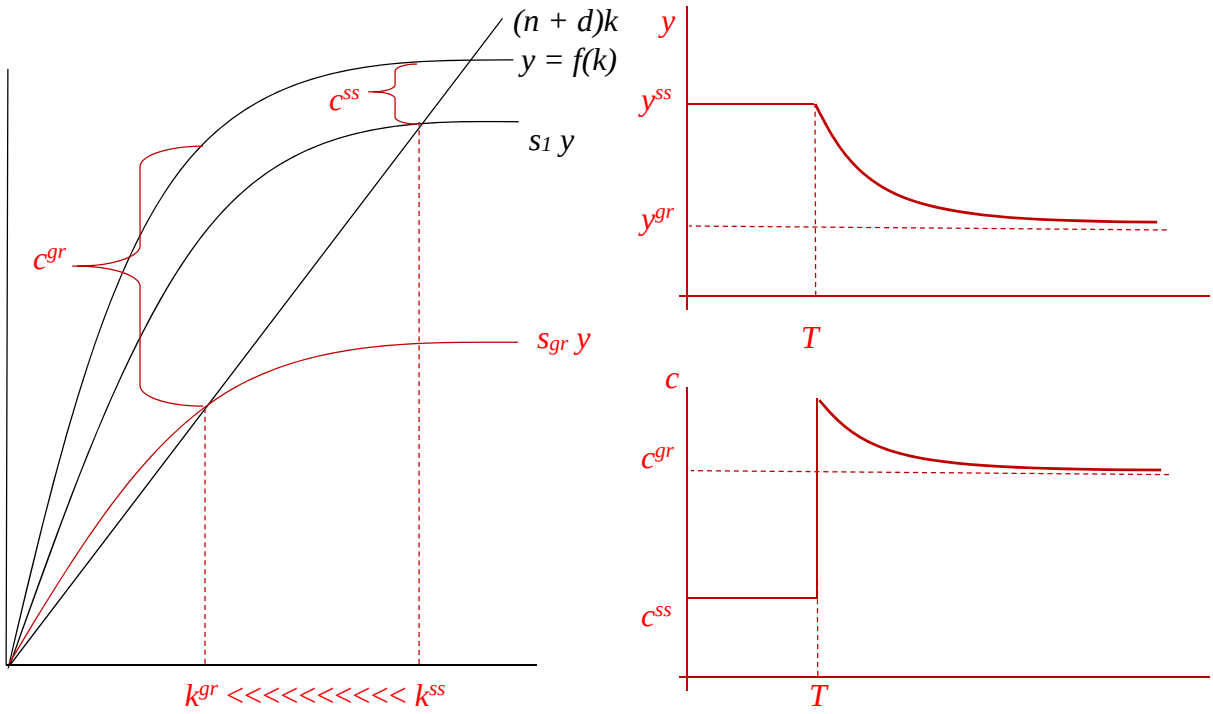
12. Which of the following reasons contributes to the growth slowdown in capital accumulation and output per worker under the Solow growth model?
    a. Constant population growth rate
    b. Constant saving rate
    c. Diminishing marginal product of capital
    d. No technological progress

Writing Questions

1. List three issues in measuring the change in the cost of living using the Consumer Price Index (CPI). Give a short example for each issue.
   - Substitution bias
   - Quality improvement of existing goods in basket
   - Introduction of new goods not in existing basket

2. List three economic activities that are difficult to measure and that may not be well accounted for in the nominal GDP. Give a short explanation for each activity.
   - Underground economy
   - Domestic (household) production
   - Externalities and environmental damages

3. On the Solow diagram below, show the effect of a permanent decrease in the saving rate to the golden-rule saving rate, from s_1 to s_{gr}. Assume the economy is initially in a steady state before the decrease in the saving rate. Use the arrows to show how the capital stock evolves over time. In the space next to the Solow diagram, draw another graph, with time on the horizontal axis, and output per person on the vertical axis. Let the saving rate decrease at time T, and plot (1) output per person and (2) consumption per person over time.



4. Consider a version of the Solow growth model in which output at time t is determined by the production function $Y_t = 0.2K_t + 0.8L_t$. The depreciation is given by dK_t, where the depreciation rate is $d = 0.2$. Saving is given by sY_t, where the saving rate is $s = 0.5$. Assume that population L_t is constant, i.e. does not grow with time. Calculate the steady state capital per person, k^{ss}. Also, calculate the steady state output per person and consumption per person, y^{ss} and c^{ss}, respectively.
   From $Y_t = 0.2K_t + 0.8L_t$
   Divide by L_t to obtain output per worker, $y_t = Y_t / L_t = 0.2K_t / L_t + 0.8L_t / L_t = 0.2k_t + 0.8$
   Steady-state condition: $sy^{ss} = (n + d)k^{ss}$
   With $n = 0$, $s = 0.5$ and $d = 0.2$, then $sy^{ss} = 0.5(0.2k^{ss} + 0.8) = 0.2k^{ss}$
   Solve for kss from $0.1k^{ss} + 0.4 = 0.2k^{ss}$, so $k^{ss} = 4$
   Then, $y^{ss} = 0.2k^{ss} + 0.8 = 0.2(4) + 0.8 = 1.6$ and $c^{ss} = (1 – s)y^{ss} = 0.5(1.6) = 0.8$

5. Consider the two-period consumption-saving problem of a consumer. Assume the consumer has current-period net income of 100, and the future-period net income of 110. The market real interest rate is $r = 0.1$.
   a. Calculate the consumer's present value of lifetime wealth
      $100 + 110/(1 + 0.1) = 200$

   b. Let c and c^f be current and future consumption, write down the two-period budget constraint.
      Draw the budget line and easily write down the equation
      $c + c^f / 1.1 = 200$
   c. What is the endowment (no-borrowing, no-lending) point?
      No-borrowing, no-lending point = (100, 110)

   d. (Bonus) The marginal rate of substitution is $MRS = c^f / c$. Find the optimal consumption plan for this consumer.
      At optimal, $MRS = Slope\ of\ BL$, so $MRS = c^f / c = 1 + 0.1$, so $c^f = 1.1c$. Combine with budget line, so $c = 100$ and $c^f = 110$.