

Name: _____

Student id: _____



College of Business Administration
Department of Economics
Aggregate Economic Conditions & Analysis
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ECO 6206-0001
Spring 2003

Final Exam

- This closed book exam is worth 100 points.
- Questions I, II, III, IV, V and VI are worth 10 points, each.
Questions VII and VIII are worth 20 points, each.
Allocate your time accordingly.
- Including the cover page, the exam totals 6 pages.
- Answer all questions.
- Non-Programmable calculators and language dictionaries are allowed.
- DO NOT forget to write your name, your student id on the exam booklet.

7:00 p.m. – 9:50 p.m.

BA 207

April 23, 2003

Question I (10 points)

(6.5)

Suppose that the quantity of Money, M , increases.

- a) The increase in the nominal wage suggests that workers will be better off. Why or why not?
- b) The increase in the price level suggests that workers will be worse off. Is this correct?

Solution

- a) Because the price level rises by the same proportion.
- b) No. Worker's nominal wages rise by the same proportion.

Question II (10 points)

(8.6)

What would be the effect on the nominal interest rate of each of the following events?

- a) The announcement of a one-time increase in the money stock.
- b) The announcement of a planned increase in the rate of monetary growth.

Why does the price level jump in both instances? Does the velocity of money increase in both cases?

Solution

- a) The announcement will have no effect on the nominal interest rate.
- b) The nominal interest rate would rise one-to-one with the increase.

The price jumps to counter the effect of the decrease in the real money demand caused by the increase in the nominal interest rate.

Velocity increases only in the second case.

Question III (10 points)

(9.6)

Why does the productivity of capital reduce the interest rate? Could the interest rate fall so much as to leave the quantity of investment unchanged.

Solution:

Investment demand decreases, thereby reducing aggregate demand. This causes the real interest rate to fall in order to clear the commodity market. It is not possible for the real interest rate to fall so much that investment is unchanged because the fall in the real interest rate reduces total output and raises consumption. Thus, investment must remain below its initial level.

Question IV (10 points)

(11.1)

Does an increase in the saving rate, s , mean that the capital stock grows over time? Explain.

Solution:

A positive saving rate does not necessarily mean that capital grows over time. The change in the capital stock is given by $\Delta K = s.F(K,L) - \delta.K$. Thus, if the capital stock to the point where $s.F(K,L) = \delta.K$, then the capital stock no longer increases even though positive saving occurs.

Question V (10 points)

(11.4)

Explain why an increase in the capital stock, K , tends to reduce the growth rate of the capital stock, $\Delta K/K$, and the real interest rate. How do these results depend on the diminishing returns to capital?

Solution:

The change in the capital stock is given by $\Delta K = s.F(K,L) - \delta.K$. With diminishing marginal returns to capital, increases in K raises $s.F(K,L)$ by increasingly smaller amounts. Meanwhile increases in K raises $\delta.K$ by a constant amount δ , times the change in capital. Eventually, the second effect must dominate and so the growth rate of K slows. The real interest rate equals $MPK - \delta$. As the capital stock increases, the MPK diminishes, so the real interest rate falls. Both the results hinge crucially on the assumption of diminishing marginal returns to K .

Question VI (10 points)

(12.3)

Why does the real interest rate rise as a result of a temporary increase in government consumption?

Solution:

The real interest rate rises as a result of a temporary increase in government consumption because the temporary increase in government consumption means that people's incomes will be temporarily lower. In the face of a temporary reduction in income, people try to draw down their savings and/or borrow to keep their private consumption constant, which raise the real interest rate. We know that real savings must fall because investment falls.

Question VII (20 points)

(9.10) Capacity Utilization

One way for a producer to generate extra output is to use capital more intensively. That is, a producer can run more shifts per day or allow less down time for performing maintenance. Assume that more intensive utilization causes capital to depreciate faster.

- a) How does a producer determine the best intensity of use for capital?
- b) Show that an increase in the real interest rate, r , motivates producers to use their capital more intensively. What does this relationship imply for the effect of the real interest rate on the supply of goods, y^s ?

Solution:

- a) To determine the intensity with which to use the capital equipment, the producer compares the value from, say, increasing the intensity of use, which is the added profit today minus the decrease in the present value of the capital next period, with the value from not changing the intensity of use.
- b) The present value of the capital next period falls when the real interest rate rises. Because the return from running capital more intensively is the added profit today minus the decrease in the present value of capital next period, the increase in the real interest rate increases the profits from running capital more intensively. The ability to run capital more intensively means that the supply of goods becomes more responsive to the interest rate.

Question VIII (20 points)

In early 2003, President George Bush unveiled a jobs and economic growth plan to strengthen the American economy. Among other items, the proposal would

- Speed up the 2001 tax cuts to increase the pace of the recovery and job creation.
- Encourage job-creating investment in America's businesses by ending the double taxation of dividends and giving small businesses incentives to grow.

As part of the FY 2004 budget, President Bush had requested funding over the next decade to inject new growth into the economy by accelerating scheduled income tax cuts and reducing dividend taxes. The House of Representatives approved full funding for the measure. During debate on the budget bill in March 2003, the Senate narrowly voted to halve the president's proposal. Republican leaders do not rule out reviving a higher tax cut when the bill goes into conference committee.