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Student id: \_\_\_\_\_

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**College of Business Administration**  
**Department of Economics**  
**Aggregate Economic Conditions & Analysis**  
**Lecturer: O. Mikhail**  
**ECO 6206-0001**  
**Spring 2002**

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## **Mid-Term Exam**

- This closed book exam is worth 100 points.  
Allocate your time accordingly.
- Including the cover page, the exam totals 6 pages.
- Answer all questions.
- You are allowed an 8.5 x 11" sheet for derivatives rules only.
- Non-Programmable calculators and language dictionaries are allowed.
- DO NOT forget to write your name, your student id on the exam booklet.

**6:00 p.m. – 8:00 p.m.**

**BA 221**

**March 5, 2002**

## Question I (40 points):

### A Simple Transaction Model for the Demand of Money.

Consider the following model of money demand. An individual consumes  $C$  dollars worth of goods every month. Bank deposits earn interest at a monthly rate of  $r$ . We assume that the individual consumes (and therefore spends the money) at an even rate throughout the month. Each time a withdrawal is made the individual incurs a *real* cost equal to  $\phi$ . His optimization problem is to select  $N$ , the number of evenly spaced withdrawals from the bank during the month, that minimize his total (monthly) costs.

- a) Do you think the above description of an individual's optimization problem is very realistic? Is the model missing any *significant* aspect of reality? Explain.
- b) Set up the individual's optimization problem and solve it. For simplicity, treat  $N$  as a continuous variable. You will find that the optimal  $N$  satisfies what is called the "square root rule".
- c) It actually doesn't make much sense for  $N$  to be a continuous variable. So, suppose now that  $N$  is constrained to be an integer. Also, suppose that  $C = \$1000$ ,  $r = 1\%$ , and  $\phi = \$4$ . What is the optimal value of  $N$  now?

## Question II: (20 points)

Consider the following changes and state whether their effect on the real demand for money is an increase, a decrease, or uncertain:

- a) A decrease in the interest rate.

Real M demand increases

- b) An increase in real transaction costs.

Real M demand increases

- c) An increase in the price level.

Real M demand No change

## Question III: (20 points)

### (15 points)

Why is a change in the price level not effective in reducing excess demand or supply in the commodity market? (Hint: answer the question in an economy that does not have a money market, i.e., the representative consumer budget has no money demand in it)

The aggregate supply and aggregate demand curves are affected by relative prices only, and the price level is not a relative price. If the price level rises, goods become more expensive but people's incomes also rise by the same amount. Therefore, a change in the price level has no effect on clearing the goods market.

### (5 points)

Explain how a change in the price level can ensure that the outstanding quantity of money is held willingly.

The price level adjusts to clear the money market.

## Question IV: (10 points)

True, False or Uncertain. Explain your answer. Each is worth 2.5 points.

- a) The term 'real money' means things such as coins and currency rather than assets such as checking accounts that are not really money.

False, the term refers to the amount of money measured in terms of goods, or in commodity units.

- b) There is positive real balance effect whenever a person's initial real cash increases by the same amount as the average amount he or she plans to hold in the future.

False, this is the case where the real balance effect is absent.

- c) An unexpected increase in future wages relative to current wages will increase current leisure relative to future leisure.

False, there is emphasis is on 'Unexpected'. If it is unexpected, then no decision should be made today.

- d) Changes in the real wage can have large aggregate wealth effects.

False, consider the case of a permanent, parallel upward shift in the production function.  $L$  declines even as real output rises.

## Question V: (10 points)

Explain why economic development tends to raise the real wage.

Economic development is a continuing series of permanent upward shifts in the production function. If the shifts are proportional, the model demonstrates that this will raise the real wage rate. If the shifts are parallel, the real wage rate also increases. A parallel, permanent shift creates a (large) reduction in the supply of labor and does not affect the demand for labor. Thus, the real wage rises.

## **BONUS: SHORT ESSAY QUESTION. 10 points**

### **ANSWER IN THE GIVEN SPACE.**

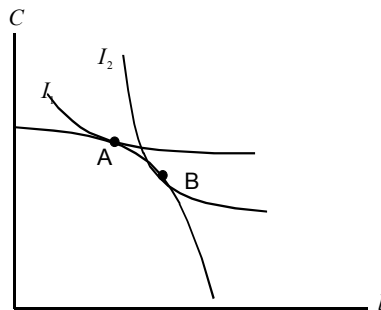
#### **Can an outbreak of laziness generate a recession?**

Suppose that the representative consumer's preferences change, in that his or her marginal rate of substitution of leisure for consumption increases for any quantities of consumption and leisure.

- Explain what this change in preferences means in more intuitive language.
- What effects does this have on the equilibrium real wage, hours worked, output, and consumption? **EXPLAIN GRAPHICALLY.**
- Do you think that preference shifts like this might explain why economies experience recessions? Explain why or why not. (Hint: can this change in preferences' behavior generate similar to data key business cycle facts?)

#### **SOLUTION**

- At the margin, the consumer decides that leisure is more preferred to consumption. That is, the consumer now requires a bigger increase in consumption to willingly work more (consume less leisure).
- To work out the effects of this change in tastes, we refer to the following Figure. The production possibility frontier in this example is unchanged. The consumer now picks a new point at which one of the flatter indifference curves is tangent to the production possibilities frontier. That is, equilibrium will shift from point A to point B. Consumption falls and leisure rises. Therefore, the consumer works less and produces less. Because employment has fallen, it also must be the case that the real wage increases.



- This disturbance, which some might characterize as a contagious outbreak of laziness, would have the appearance of a recession, as output and employment both fall. The consequent reduction in consumption is also consistent with a typical recession. However, in this case the real wage would rise, which is inconsistent with the business cycle facts. Therefore, this type of preference change is not a cause of recessions.