

Economics 102  
Spring 2008  
Homework #4  
Due April 7, 2008

On your homework please include at the top of the first page your name, TA name, and the section number for the discussion section you attend. All homeworks should be legible and neat: do a professional looking job!

### **1. Long Run Growth**

Using a graph of a labor market and a graph of an aggregate production function, show and explain what happens in the situations below. Be sure to illustrate what happens to the quantity of labor, wage rate, output, and labor productivity.

- a) An epidemic wipes out a quarter of the labor force.
- b) The average level of education greatly increases.

### **2. The Loanable Funds Market**

Using the information below, graph the market for loanable funds. Measure the X-axis in millions of dollars of investment. Measure the Y-axis in percentage points (the interest rate). In the equations below  $r$  is the real interest rate and  $Q$  is the quantity of loanable funds. Assume the government initially has a balanced budget and that this is a closed economy.

Supply:  $r = 2Q + 3$

Demand:  $r = -2Q + 9$

- a) What is the equilibrium interest rate and quantity of investment in this market?

Now suppose that the government decides to run a deficit equal to \$500,000.

- b) What is the new equilibrium interest rate in this market?
- c) What is the new quantity of private investment in this market?
- d) Draw a graph of the loanable funds market illustrating both the initial situation and the effect of the government deficit in this market.

### **3. Short Run Aggregate Supply (SRAS) (Hint: you may find it helpful to turn to Chapter 10 to guide your work for this question and for questions (4) and (5).)**

Explain with a graph and in words what happens to SRAS in each of the following situations.

- a) A rise in the price of oil.
- b) A rise in the CPI.

### **4. Long Run Aggregate Supply (LRAS)**

- a) Explain why the LRAS is vertical and inelastic.
- b) If the economy is initially operating at potential output (that is, we are on the LRAS curve) and the quantity of aggregate output supplied increases while the aggregate price level increased, would there have been a movement along the SRAS curve or would the LRAS curve have shifted outward?

## 5. Aggregate Demand (AD)

Explain with a graph and in words what happens to AD in each of the following situations:

- a) A rise in income tax rates
- b) A fall in the interest rate caused by a change in monetary policy

## 6. Putting the Classical Model Together

Start this problem by drawing a graph that includes LRAS, SRAS, and AD. From there, explain in words and show on the graph how the following steps would affect the economy.

- i. There is an increase in government spending
  - a. What does this do to the aggregate demand curve?
  - b. What happens to the aggregate price level in the short run?
  - c. What happens to aggregate output in the short run?
  - d. What happens to unemployment in the short run?
- ii. We know that nominal wages are somewhat sticky. After the demand shock in part (i) above, what eventually happens to nominal wages? What effect does this have on
  - a. The SRAS curve?
  - b. Aggregate price level?
  - c. Aggregate output?
  - d. Unemployment?
- iii. Where does the economy end up, that is, what is the long run equilibrium for this economy given the change in government spending described in part (i)?  
Knowing what you know about the Classical Model, do you think you got the correct result?