

Final Exam

Econ. 116b
May 9, 2008

180 MINUTES (one point per minute)

(40 minutes—5 minutes each)

I. Answer True/False/Uncertain. Explain your answers.

No credit without explanation.

1. If the money supply is defined as demand deposits plus currency, then my depositing \$500 in currency that I have had in my drawer into my checking account will not lead to a change in the money supply.
2. Purchasing power parity theory predicts that countries that are more inflationary will observe their currencies depreciating over time.
3. One of the reasons that inflation is currently no higher than it is as measured by the percentage change in the CPI is that the CPI is biased downward.
4. According to the quantity theory of money, a one percent increase in the money supply leads to a one percent increase in nominal output.
5. A U.S. Secretary of Treasury once said when angered by something the Japanese government said about the U.S. exchange rate vis a vis the yen, "Let the Japanese worry about their exchange rate and we will worry about ours." At times, this may be a sensible thing for the United States to do.
6. Because firms can meet unexpected changes in sales by having their inventories change, actual investment is always equal to planned investment for a firm.
7. There cannot be sustained inflation if the money supply is held constant.
8. Italy would be better off if it dropped using the euro and went back to its old currency, the lira.

(40 minutes—10 minutes each)

II. Answer the following questions in the time allowed.

1. As announced last Friday, the number of jobs (payroll employment) fell by 20,000 in April, and yet the unemployment rate fell from 5.1 percent to 5.0 percent. How can this happen? In general, does the unemployment rate as computed by the U.S. government overestimate or underestimate true unemployment? Explain.
2. Last week the Fed lowered the interest rate again (by 25 basis points). Is this behavior consistent with our discussion of Fed behavior in class? Explain. Yesterday both the European Central Bank and the Bank of England left their interest rates unchanged. Why are these two central banks behaving differently from the Fed?
3. Last week it was announced that real GDP grew at an annual rate of 0.6 percent in the first quarter of 2008, the same growth rate as in the fourth quarter of 2007. This is a slowdown, but not formally defined as a recession. Some believe that the economy will begin picking up and will not show negative growth this year, while others think there will be negative growth and a full blown recession. What do you think? Give at least three reasons for your answer, and give at least one reason why your answer might be wrong. (NOTE: We are looking for how good your economic analysis is here; there is no one right answer. Opinions can differ.)
4. How do the effects of a tax rebate like the one taking place in the United States now differ in terms of its effect on output under the two different consumption models we studied in class—Keynesian and life cycle. Does your answer change if low income households are targeted for the tax rebate? Does it matter if people spend most of their rebate at chain stores that sell mostly imported goods?

(40 minutes—8 minutes each)

III. Answer each of the following questions in the time allowed.

1. What factors affect the demand for U.S. imports? The demand for U.S. exports? The demand for German exports?
2. How does the government spending multiplier differ in an open economy versus in a closed economy?
3. If the Fed lowers the interest rate and this leads to a depreciation of the dollar, what are the likely effects on investment, consumption, the current account, the price level, and the government budget deficit?
4. If firms at times hold excess labor, what implications does this have for productivity fluctuations?
5. “If the Fed follows an interest rate rule as discussed in class, it is a waste of time for purposes of understanding how the macro economy works to have to learn about what determines the demand for money. Fair should not have spent any time on the demand for money.” Do you agree or disagree? Explain.

(30 minutes)

IV. Answer the following question in the time allowed.

1. Consider the following model describing the United Kingdom economy:

$$C = b(Y - T)$$

$$T = tY$$

$$G = G_0$$

$$I = I_0$$

$$IM = mY$$

$$EX = EX_0$$

- (a) Explain carefully what b , t and m mean. Derive the reduced form equation for output. In other words, derive the equation for Y as a function of I_0 , G_0 , EX_0 , and parameters.
- (b) What is the value of the multiplier if $b = 0.9$, $m = 0.31$ and $t = 0.1$?
- (c) The United Kingdom considers joining the EU. In order to join the EU, the budget deficit cannot be greater than 15% of GDP. For simplicity, assume the United Kingdom government sets a rule by which government spending is such that the budget deficit is equal to 15% of GDP:

$$G - T = 0.15Y$$

Note that it is still the case that $T = tY$. Derive the reduced form equation for output.

- (d) What is the value of the multiplier if $b = 0.9$, $m = 0.31$ and $t = 0.1$ for (c)?
- (e) Compare your answers from (b) and (d). Which one is larger? Explain carefully why.

(30 minutes)

V. Answer the following question in the time allowed.

1. Consider a closed economy in which consumers spend \$200 when their disposable income is 0 and spend an additional 75 percent of their disposable income when they have disposable income. Firms invest \$200 when the interest rate is 0 and reduce investment by \$25 for every 1 percentage point rise in the interest rate, r . Government purchases are \$100 and taxes are \$100. (Taxes do not depend on income.) Real money demand (M^d/P) is equal to output (Y) when the interest rate is 0 and declines by \$100 for each percentage point increase in the interest rate. The money supply is \$1000, and the price level, P , is 2.
 - (a) Write down the consumption, investment, and money demand equations. Solve for the equilibrium values of the interest rate and output for this economy. Graph the IS/LM curves with correct intercepts and slopes.
 - (b) Suppose that government purchases are raised from \$100 to \$150 while taxes remain unchanged. What are the new equilibrium values of the interest rate and output? Graph the IS curve shift with correct intercept and slope. Is the increase in Y equal to the increase in G ? Why or why not?
 - (c) Suppose that with the initial assumptions (from (a)) the money supply is raised from \$1000 to \$1200. Graph the LM curve shift with the correct intercept and slope. What are the new equilibrium values of the interest rate and output?
 - (d) Solve for the velocity of money in each part. Is velocity constant across the different policies?

Final Exam

Econ. 116b
May 11, 2007

180 MINUTES (one point per minute)

(42 minutes—6 minutes each)

Ia. Answer True/False/Uncertain. Explain your answers.

No credit without explanation.

1. When a country's exchange rate moves from being fixed to being flexible, both its monetary policy and fiscal policy become more effective at changing real output.
2. The large increase in U.S. stock prices in the past two years has, other things being equal, made the U.S. current account deficit worse.
3. When the Yankees are losing, many workers get discouraged, and this is called the "discouraged worker effect."
4. In the Solow growth model consumption per worker is maximized when the saving rate (s) equals the depreciation rate δ .
5. An increase in the tax rate on dividends will lead to an increase in labor supply.
6. A monetary policy that targets the interest rate makes the money supply exogenous.
7. When a country goes into a recession, its current account usually worsens.

(18 minutes—9 minutes each)

Ib. Answer the following questions in the time allowed.

1. A depreciation of a country's currency is usually expansionary and inflationary. Why?
2. Under what conditions will the AS curve be vertical and why? If the AS curve is vertical, what happens to investment when government spending increases by 10 and why?

(60 minutes—10 minutes each)

II. Answer each of the following questions in the time allowed.

1. At 2:15pm on Wednesday of this week the Fed announced no change in the federal funds rate. It has not changed the rate since June 29, 2006. When the Fed does finally change the rate, do you think the change will be an increase or a decrease and why? Explain your reasoning carefully. (It doesn't matter whether you say increase or decrease as long as you explain your reasoning.) If the stock market were informed of your view and believed it, would the stock market go up, down, or stay the same?
2. Real GDP growth for the first quarter of this year was 1.3 percent, somewhat below what people expected. One of the reasons for the sluggish growth is that U.S. exports were down. Briefly discuss two factors that might lead U.S. exports to increase in the future. Then discuss two factors that might lead U.S. exports to decrease. Housing investment was also down. What are the main factors that affect housing investment in the economy?
3. The unemployment rate is currently 4.5 percent, fairly low by historical standards. If U.S. real GDP were to begin to fall—a recession—why might the unemployment rate not rise much at first? Give three reasons.
4. (a) In 2003 a fashion designer named Cat Chow wore a dress to a function at the Met that was made out of 1,000 shredded dollar bills. If you were in charge of financing the U.S. government budget deficit, would you encourage or discourage the shredding of dollar bills to make clothes? In particular, what is the effect on the U.S. government deficit of the shredding of dollar bills to make clothes, other things being equal?
(b) What happens to the money supply if the Fed lowers the reserve requirement rate and why?
5. Explain carefully how an inflation in one country can lead to an inflation in another country. How does the size of this effect depend on whether or not the exchange rate is fixed?
6. Given the large current account surplus of China, how can the Chinese central bank continue to keep the value of the Yuan relative to the U.S. dollar from increasing very much? What would happen to the Chinese current account if China let the Yuan sharply appreciate relative to the dollar?

(60 minutes—20, 15, and 25 minutes each)

III. Answer each of the following questions in the time allowed.

1. (20 minutes) Consider a closed economy, Aibo, with only sales tax on all consumption at a rate s and no income tax, characterized by the following equations:

$$C = a + b(Y - T)$$

$$T = sC$$

$$I = I_0$$

$$Y = C + I + G$$

- (a) Suppose the government expenditure is exogenous and that $G = G_0$, express consumption C in terms of Y . Then find the equilibrium level of output and the multiplier for investment.
- (b) Suppose instead we impose a balanced budget constraint on the government spending, and the government has no other source of revenue other than the sales tax, repeat part (a) and find the multiplier for investment.
- (c) If the rate of sales tax s increases, the multiplier in part (b) increases. Explain with economic intuition. (specifically, describe both the positive and negative effect of a higher sales tax rate on the multiplier, and explain why one has a larger effect than the other).
- (d) The multiplier found in part (a) is smaller than that in part (b). Explain using economic intuition why the multiplier is higher when there is a balanced budget requirement.

2. (15 minutes) In a two period economy, John and Joanne are life cycle savers. John has income flow of 1000 in the first period and 2000 in the second period. Joanne's income flow is 100 in the first period and 200 in the second period.
- (a) The government announces a tax cut that increases their **first** period income by 10 percent. Suppose that there are borrowing constraints, and you can only borrow \$300 or less (but no more!). In this case, what percentage of the tax cut does each consume in the **first** period?
 - (b) Now suppose that instead of the tax cut in the first period, the government announces the tax cut for the **second** period (the tax cut is not a surprise, but known in the first period). John and Joanne face the same borrowing constraint described above. In this case, what percentage of the tax cut does each consume in the **first** period?

3. (25 minutes) Bigland(B) and Littleland(L) are two close countries that trade with each other but not with the rest of the world. The multiplier model can be extended to a two country model where variables with the subscript B refer to Bigland, and variables with the subscript L to Littleland. The economies are characterized by the following equations:

$$\begin{aligned} Y_i &= C_i + G_i + I_i + EX_i - IM_i \\ C_i &= b_i Y_i \\ IM_i &= m_i Y_i \\ I_i &= \bar{I}_i \\ G_i &= \bar{G}_i \end{aligned}$$

where IM is imports and m_i is the marginal propensity to import for country i , and i can be either B or L depending on whether we refer to Bigland or Littleland. Investment and government spending are exogenous and taxes are zero, for both countries. Note that in this two country model $IM_B = EX_L$ and $IM_L = EX_B$.

- (a) Derive the reduced form equations for the equilibrium level of output of Bigland (Y_B), and Littleland (Y_L). That is, derive an expression for output in terms of investment, government spending, and the output of the other country (Assume that each country takes as an exogenous variable the output of the other).
- (b) Let's consider:

$$\begin{aligned} b_L &= 0.75 & m_L &= 0.25 \\ b_B &= 0.7 & m_B &= 0.1 \end{aligned}$$

Assume again that each country takes the output of the other as an exogenous variable. For each economy, calculate the government spending multiplier and the multiplier associated with Y_i (the exogenous output of the foreign economy). Which multiplier is higher? Explain your intuition of the result.

- (c) Littleland becomes insecure about its size and decides to adopt protectionist policies and completely close its economy (m_L and m_B are now both zero). Recalculate the government spending multiplier for each economy. Which is now higher and why?

Final Exam

Econ. 116b
May 5, 2006

180 MINUTES (one point per minute)

Part I.

(45 minutes—5 minutes each)

Answer True/False/Uncertain. Explain your answers.

No credit without explanation.

1. An increase in expected future inflation will raise current bond prices.
2. In the Solow growth model an increase in the saving rate will increase the growth rate of output for a while, but not permanently.
3. Other things being equal, the larger is the trade feedback effect, the larger is the government spending multiplier.
4. If there were no price feedback effect, an increase in oil prices would have more of an impact on world wide inflation than if there were such an effect.
5. A decrease in personal income tax rates will lead to an increase in labor supply.
6. If the required reserve ratio is 1 (100 percent), then open market operations by the Fed will have no effect on the money supply.
7. If a Frenchman buys a farm in the United States, this transaction will appear in the U.S. balance of payments as an "export of goods" in the current account and as an "increase in foreign private assets in the United States" in the capital account.
8. "Okun's law" requires that firms change their employment less than the change in their output (in percentage terms) in the short run.
9. Assuming the Lucas supply curve, if people have rational expectations, then neither an expansionary monetary policy nor an expansionary fiscal policy will affect real output if the policies are announced ahead of time.

Part II.

(60 minutes—20 minutes each)

Answer each of the following questions in the time allowed.

1. Say that China lets its currency (the yuan) float and that the yuan appreciates relative to all the other major currencies in the world (the dollar, the pound, the euro, the yen). What effects will this have on the Chinese economy: output, inflation, unemployment rate, interest rate, current account? Explain carefully the economics behind your answers.
2. Assume that a closed economy is characterized by the following equations:

$$Y = 500$$

$$T = 100$$

$$G = 200$$

$$C = 120 + 0.3 * (Y - T) - 5 * r$$

$$I = 90 - 5 * r$$

where Y is output, C is consumption, T are taxes, G is government expenditure, r is the interest rate, and I is investment.

- (a) Why might consumption be negatively related to the interest rate, as assumed here?
- (b) Derive private savings. What is the relationship between savings and the interest rate? Is this as you would expect given your answer in part (a)?
- (c) Using the fact that total savings equals investment in equilibrium, derive the equilibrium interest rate.
- (d) Assuming the Fed behaves according to the interest rate rule, would the government expenditures multiplier be higher or lower in the above economy compared to one where consumption does not depend on the interest rate? (no calculations needed)

3. In recent statements Ben Bernanke has sent out confusing signals as to whether or not the Fed will tighten more in the future. What are the main factors that will influence the Fed's decision? Explain carefully. If the Fed does tighten more than is currently expected, what effects will this have on the 10 year bond rate, U.S. stock prices, and the value of the dollar relative to the euro, yen, and pound. Explain why.

Part III.

(75 minutes—15 minutes each)

Answer each of the following questions in the time allowed.

1. In the first quarter of 2006 the U.S. economy grew at an annual rate of 4.8 percent. Inventory investment, on the other hand, was not very large. Looking forward, what are the likely effects on output of this sluggish first-quarter inventory investment? This data release also showed that the household saving rate in the first quarter of 2006 was negative. Should policy makers be concerned about a negative saving rate?—list the pros and cons.
2. If the one-year U.S. interest rate is 5 percent, the one-year Japanese rate is 1 percent, and the Yen/Dollar exchange rate is 100, what do you think the one-year forward exchange rate will be? Is the dollar expected to appreciate or depreciate within the next year? What might be true of the two economies that one has a 1 percent interest rate and the other has a 5 percent interest rate?
3. Explain carefully why the AS curve might slope upward in the short run. How will a positive cost shock shift the curve and why? Demonstrate graphically how a positive cost shock can generate stagflation.
4. What are the twin deficits? What effect will an increase in government spending with no corresponding increase in taxes have on the two deficits? What effect will a boom in the stock market have on the two deficits? Finally, what effect will a depreciation of the dollar have on the two deficits?
5. Say there is a drop in world demand for Spanish goods. Prior to the euro, how might the Spanish authorities react to this shock and what would be the likely effects? Be fairly specific here. After the introduction of the euro, how would Spain adjust to this shock?