Final Exam

Econ. 116
December 17, 2016

180 MINUTES (one point per minute)
REMEMBER: ONE PART PER BLUE BOOK

Part I.
(60 minutes)
Answer each of the following questions in the time allowed.

1. (6 minutes) Prior to 2008 when no excess reserves were held by commercial banks, how is the money supply affected if I take $500 in currency that I have had in my drawer and deposit it in a commercial bank? How much does the money supply change, and what is the process by which this happens? Assume no response by the Fed to this change.

2. (6 minutes) Say that Donald Trump once he is president lowers the marginal personal income tax rate. Other things being equal, what effect will this have on labor supply? How is this question related to the Laffer curve?

3. (6 minutes) If I (a U.S. citizen) buy a German car, what effect does this have on the U.S. current account and capital account, other things being equal? The United States has been running current account deficits for many years, but in some years its holdings of foreign assets actually increase. How can this happen?

4. (6 minutes) Consider the growth equation derived in class with the capital share coefficient 0.3 and the labor share coefficient 0.7. If capital grows at 3 percent and labor grows at 1 percent, what will be the growth rate of output assuming no disembodied technical progress? Give an example of disembodied technical progress.

5. (6 minutes) There has been a large appreciation of the dollar since the election. Some are worried about the effect of this on developing countries, whose currencies are depreciating relative to the dollar. Why might this be a worry, since in the standard story a depreciation increases exports and decreases imports, both of which have a positive effect on GDP?

6. (6 minutes) If a sports star signs a contract for $10 million a year for 6 years, what is the present value of this contract if the interest rate is zero for the next 6 years? What is the present value if the interest rate is zero for next year, but then 2 percent for each of the remaining 5 years? (A formula is fine; you don't need to do the arithmitic.)

7. (6 minutes) If the dollar continues to appreciate, this is likely to hold U.S. inflation in check. Explain carefully why.

8. (6 minutes) Give an example of a random experiment in development economics. If you don't know of any specific experiment, make one up that seems plausible. Explain why in your example randomization is needed.

9. (6 minutes) If firms at times hold excess labor, what implications does this have for productivity fluctuations? Why might a firm hold excess labor?

10. (6 minutes) Why might the labor market not clear? If the labor market does always clear, would there still be fluctuations in the unemployment rate? Why or why not?

Part II.
(60 minutes)
Answer each of the following questions in the time allowed.

1. (10 minutes) If a country is running a very high inflation rate relative to inflation rates in other countries and it wants to keep its exchange rate from depreciating, how does it do this? What effect will this policy have on its current account? On its GDP?

2. (10 minutes) Since 2010 U.S. output has been growing fairly slowly, but the unemployment rate has fallen sharply. This is contrary to Okun's law, which says that output growth in percentage terms is usually larger than the fall in the unemployment rate in percentage points. How do you explain the large fall in the unemployment rate, and what has gone wrong with Okun's law?

3. (10 minutes) The current account deficit and the government budget deficit are both endogenous variables and are sometimes positively correlated and sometimes negatively correlated. Give an example of a change in an exogenous variable that increases both deficits. An exogenous change in household wealth (say an increase in stock prices) will increase the current account deficit but improve the government budget deficit. How does this happen?

4. (10 minutes) Some economists have argued that Spain would be better off if it dropped using the euro and went back to its old currency, the peseta. What are the reasons given? On the other hand, no one is arguing that California should have its own currency. Why Spain and not California? How would Canada be affected if it dropped its currency and began using the U.S. dollar?

5. (20 minutes) I was asked by a newspaper to write an op ed piece reacting to the Fed's announcement on Wednesday of a 25 basis point increase in the federal funds rate. I declined, but I am going to ask you to write one. First, how will the Fed go about increasing the federal funds rate, since the rate is market determined? And what will this do to the Fed's balance sheet? Second, write a short op ed piece discussing whether you think the increase was a good or bad idea. This is open ended, and there is no right or wrong answer. Just analyze the move based on what you have learned in class. Three other news announcements on Wednesday that you can use or not as you wish are 1) retail sales for November were lower than expected, 2) the increase in the producer price index was higher than expected, and 3) industrial production and capacity utilization were down more than expected.

Part III.
(60 minutes)
Answer each of the following questions in the time allowed.

1. At the end of this exam is a list of the equations of the standard AS/AD model. The first page is for the closed economy model, where variables EX and IM are exogenous. The coefficients, which would be estimated by the econometrician, are a, b, d, h, δ, ϵ, ζ, α, β, and γ. The tax rate coefficient is t. All these coefficients are assumed to be positive.

   (a) (12 minutes) Why are the sizes of the coefficients b, h, and t important? The government spending multiplier is the change in Y divided by the change in G. How is the government spending multiplier affected by an increase in each of the three coefficients (one at a time)?

   (b) (6 minutes) What is the micro theory behind the AS curve (the P equation).

   (c) (6 minutes) Financial wealth and housing wealth are not in the AS/AD model. If you were going to expand the model to include wealth effects,

how would you specify this? In your expanded model, how would the interest rate (r) change if wealth increased?

(d) (6 minutes) If the investment equation also included Y as an explanatory variable, how would this affect the government spending multiplier? For a given change in G, would the change in r be larger or smaller in this new case and why?

2. The second and third pages below add the equations for the two-country open-economy model. Assume that the other country is the U.K. and that the world consists only of the U.S. and the U.K. The star on a variable means that it is a U.K. variable. The U.K. has the same equations as the U.S. (with stars added), with the Fed rule being instead the rule of the Bank of England. In this expanded model the extra coefficients for the U.S., which would be estimated by the econometrician, are θ, m, and ψ. These three coefficients are assumed to be positive. All the coefficients for the U.K. would also be estimated (the coefficients with stars on them). These estimates would in general be different for the U.K., although all positive. In addition, the coefficients of the exchange rate equation, k_0, k_1, and k_2, would be estimated, and they are assumed to be positive. The total number of equations in the expanded model is 11 for the U.S., 11 for the U.K., and 1 for the exchange rate equation, for a total of 23 equations.

(a) (6 minutes) Why is the size of the coefficient m important? How is the U.S. government spending multiplier affected by an increase m?

(b) (6 minutes) What do the PM and EX equations say?

(c) (6 minutes) If we drop the exchange rate equation (e is fixed), we can talk about the trade feedback effect that was discussed in class. Explain why in the expanded model an increase in G leads to a larger increase in Y than in the single-country case. Give the intuition. You don't need to try to derive a reduced form equation.

(d) (6 minutes) If we drop the exchange rate equation (e is fixed), we can also talk about the price feedback effect that was discussed in class. Explain why in the expanded model an increase in δ in the U.S. price equation (an exogenous cost shock to the U.S. price level) leads to an increase in the U.K. price level (P^*). Again, give the intuition. You don't need to try to derive a reduced form equation.

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(e) (6 minutes) If the Fed increases Z, why could the net effect on the U.K. price level (P^*) go either way? Again, give the intuition.

AS/AD MODEL WITH FLEXIBLE EXCHANGE RATES

- $Y_d \equiv Y - T$ Definition

- $C = a + bY_d$ Behavioral (households)

- $I = d - h \cdot r$ Behavioral (firms)

- $Y = C + I + G + EX - IM$ Equilibrium condition

- $TAX = tY$ Behavioral (government)

- $T \equiv TAX - TR$ Definition

- $P = \delta + \epsilon Y + \zeta PM$ Behavioral (AS curve, firms)

- $r = \alpha Y + \beta P + \gamma Z$ Behavioral (Fed rule)

Additional Equations for the United States

- $IM = \theta + mY + \psi \frac{P}{PM}$ Import demand (households, firms, government)

- $PM \equiv \frac{1}{e} P^*$ Definition

- $EX \equiv \frac{1}{e} IM^*$ Definition

Exchange Rate Equation

- $e = k_0 + k_1 \frac{r}{r^*} + k_2 \frac{P^*}{P}$ Behavioral (market determined exchange rate)

Equations for the United Kingdom

- $Y_d^* \equiv Y^* - T^*$ Definition

- $C^* = a^* + b^* Y_d$ Behavioral (households)

- $I^* = d^* - h^* \cdot r^*$ Behavioral (firms)

- $Y^* = C^* + I^* + G^* + EX^* - IM^*$ Equilibrium condition

- $TAX^* = t^* Y^*$ Behavioral (government)

- $T^* \equiv TAX^* - TR^*$ Definition

- $P^* = \delta^* + \epsilon^* Y^* + \zeta^* PM^*$ Behavioral (AS curve, firms)

- $r^* = \alpha^* Y^* + \beta^* P^* + \gamma^* Z^*$ Behavioral (Bank of England rule)

- $IM^* = \theta^* + m^* Y^* + \psi^* \frac{P^*}{PM^*}$ Import demand (households, firms, government)

- $PM^* \equiv eP$ Definition

- $EX^* \equiv eIM$ Definition

Definition of e

- $e = lc/\$$—how much local currency one U.S. dollar can buy. (The United States is country 1—the country with no * on its variables.)

- e increasing is a depreciation of lc, appreciation of $.

- e decreasing is an appreciation of lc, depreciation of $.

Exogenous variables are $G, TR, t, Z, G^*, TR^*, t^*, Z^*$.