Final Exam, Fall 2009

Question 1 (48 points total; 30 minutes total)
A series of unrelated short-answer questions.

a. (8 points) Personal saving in the U.S. is the difference between disposable income and consumption. Does foreign saving \( S^F \) equal the difference between disposable income and consumption in foreign countries? Explain.

b. (8 points) When \( g=0 \), what is the equilibrium growth rate of real output? Why? (you can answer this one mathematically if you like.)

c. (8 points) What is a yield curve? Draw a typical yield curve.

d. (8 points) When graphed, does the Phillips Curve slope up or down? Why? (Use economics, not math, for your explanation.)

e. (8 points) Holidays approach and December is the month for shopping! If consumers pay for half of the gifts they buy with cash and half with credit cards that they don’t pay off until 2010, how much of their December gift shopping will be recorded in 2009’s GDP? Why?

f. (8 points) Why is there no spending multiplier in the long-run flow-of-funds model?

Question 2 (16 points total; 10 minutes total)
List two different events or actions or changes that can increase efficiency (E). For each, (i) explain why you think it would increase efficiency, and (ii) would this be recorded as a change in consumption, investment, government spending, or none of the above?

Question 3 (18 points total; 11 minutes total)
Suppose an economy can be described as follows:
- Saving rate = 20 percent
- Depreciation rate = 6 percent
- Labor Force Growth rate = 4 percent
- Efficiency = \$25,000 and is constant
- \( \alpha = 0.5 \)
- Capital Stock = \$10 trillion
- Real GDP = \$10 trillion

a. (8 points) What is the balanced-growth equilibrium value of output per worker? Show all your work or no points.

b. (6 points) Is the economy in balanced-growth equilibrium? How do you know? If the economy is not in BGE, will the capital-labor ratio be higher or lower next period than it is in the current period?

c. (4 points) Draw a graph that depicts the balanced-growth equilibrium and the current position of the economy.

Question 4 (34 points total; 22 minutes total)
Jeffrey Lacker, president of the Richmond (VA) Federal Reserve Bank, recently wrote, “[T]he early years of a recovery is when the risk is greatest that we see an upward drift in inflation and inflation expectations. This risk could be particularly pertinent to the current recovery, given the massive and unprecedented expansion
in bank reserves that has occurred, and the widespread market commentary expressing uncertainty over whether the Federal Reserve is willing and able to promptly reverse that expansion.”

(An expansion in bank reserves allows banks to make more loans.)

a. (8 points) Use the quantity theory to explain why Lacker is concerned about “an upward drift in inflation.”

b. (6 points) Define “Fed credibility.” Which phrase in this quote refers to the Fed’s credibility?

c. (6 points) Define each of the following: static expectations, adaptive expectations, rational expectations.

d. (6 points) Based on Lacker’s statement, what sort of expectations – static, adaptive, or rational – exist? Defend your answer.

e. (8 points) If Lacker is right, what will be the effect on the Phillips Curve? Why? (A one-sentence answer suffices.) Draw a Phillips Curve graph that illustrates his comments.

Question 5 (8 points; 5 minutes)
Suppose the Fed’s behavior can be described by this Taylor Rule
\[ r = r_0 + r_n(\pi - \pi^t) - r_u(u - u^t) \]
When inflation rises above their target inflation rate, \( r_n = 2 \) but when inflation falls below their target, \( r_n = 1 \). When unemployment rises above their target unemployment rate, \( r_u = 2 \) but when unemployment falls below their target, \( r_u = 4 \).

Suppose the economy is initially at the Fed’s targets for both \( \pi \) and \( u \), and expectations are static. Which of the following three events would the Fed fight most aggressively, and why: increase in taxes, increase in government spending, or adverse (negative) supply shock.

Question 6 (16 points total; 10 minutes total)
Suppose the economy can be described by the following equations. All dollar amounts are billions of dollars per year.
\[
\begin{align*}
C &= 1,000 + 0.8Y^D \\
I &= 200 + 0.2Y - 800r \\
G &= 2,000 \\
NX &= 2,000 - 100r - 0.1Y \\
TA &= 0.25Y \\
TR &= 1,000
\end{align*}
\]

a. (10 points) What is the equation for the IS curve for this economy? If you can’t solve this without a calculator, set it up and go as far as you can to get as much partial credit as possible. Show all of your work, or no points.

b. (6 points) Why is the formula for the spending multiplier in this economy not equal to \[ \frac{1}{1 - C_y(1-t) + IM_y} \] ?

c. (extra credit: 3 points, no partial credit) What does the inclusion of \( Y \) in the investment function tell you about the way in which businesses form their expectations of the future?

Part II. The Comprehensive Essay Question (60 points; 60 minutes)
Congratulations! You’ve just been hired as an intern by your representative in Congress. What a great job! The Representative admires your Cal education, and wants you to use your knowledge of macro to prepare a briefing paper on this question: Should I vote for a second fiscal stimulus bill? The Representative wants you to consider all sides of the issue and present a fair and balanced report. Don’t use lingo (MPRF is lingo; “Federal Reserve monetary policy” is not). Graphs may not help; your Representative might not understand them. But do explain things clearly and highlight relevant assumptions. Here is the memo to you.

Welcome to my staff. I need to decide whether or not to support a second fiscal stimulus bill. Please prepare a briefing paper on the long-run and short-run effects of a second fiscal stimulus bill. I pose some questions below and suggest you use them as an outline for your paper. If there are questions I don’t ask that you think are relevant to my decision whether or not to support a second fiscal stimulus bill, go ahead and tell me what I need to know.

- What is the state of the economy today? How is the labor market doing?

- I think any justification of the use of fiscal policy ought to also consider the alternative: monetary policy. Certainly the usual preference for curing recessions is to use monetary policy. That worked in the 1982-83 recession, didn’t it? Why don’t we just use monetary policy to cure this recession?

- One argument I’ve heard against another fiscal stimulus is that increasing government budget deficits will raise interest rates and worsen economic growth. Why? Is this always true? I can always try to change the specifics of the bill – what percent is spending versus taxes versus transfers, and even specific types of programs in each of these three categories. Does the impact on interest rates and growth depend on the specific nature of the fiscal stimulus?

- An argument I’ve heard in favor of another fiscal stimulus is of course the need for more jobs. How is it that another stimulus bill will create more jobs? Again, I can propose amendments, so I ask: does the specific nature of the fiscal stimulus impact its ability to create jobs?

- We had one stimulus bill for $787 billion and still the unemployment rate passed 10 percent, even though the President’s advisors said a year ago that unemployment wouldn’t go above 8 percent. Isn’t this evidence that the stimulus bill had the opposite effect: worsening unemployment rather than improving it?

- Some of my colleagues want to impose new restrictions on the Fed’s independence in its conduct of monetary policy. I’ve heard there’s a petition circulating amongst economists claiming that Congressional audit and oversight of the Fed would reduce the Fed’s credibility. I’ve got two questions for you. Why should I care about Fed credibility? And does this have anything to do with the effectiveness of a fiscal stimulus bill?
Finally, I’m interested in what you’d do and why. Would you vote for a second fiscal stimulus bill? Would you propose any specific amendments to the bill? Why?