

**Ec 1: Introduction to Economics  
FINAL EXAM**

**COVER SHEET**

**Prof. S. O'Connell**

**Fall, 2006**

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**STUDENT'S NAME:** \_\_\_\_\_

**INSTRUCTIONS:**

Please write your name on the line above, and don't write your name anywhere else on the exam.

Feel free to use a bluebook for scratch work only. Please put your name on it and hand it in along with your exam. I will only grade what is written on this exam, not anything in your bluebook. (If you need to completely re-do a diagram on this exam, you can do that on the last page of this exam, which is blank.)

**This is a short-answer exam. It is designed to last 1 ½ hours. You have 3 hours to complete it, so you should not be under time pressure.** The exam is worth 100 points, and the points for each question are indicated.

- Answer all questions. Partial credit will be awarded, so make an attempt to answer each part of each question.
- You do not need long answers. Read the questions carefully so you are clear about what is being asked and can be precise in your answer. If you need to continue an answer, you can use the extra sheet on the back.
- Please write legibly and label your diagrams clearly!!!

1. [12 points] We defined total desired spending as  $TS = C + I^p + G + NX$ , where  $I^p$  is planned private investment spending. Suppose the consumption function is given by  $C = a + .8 \cdot (Y - T)$ . Assume that  $T$ ,  $a$ , and all other components of desired spending are exogenous.

1.1. [4 points] The equilibrium condition in the market for goods and services is  $Y = TS$ . Use this to derive the formula for equilibrium real GDP.

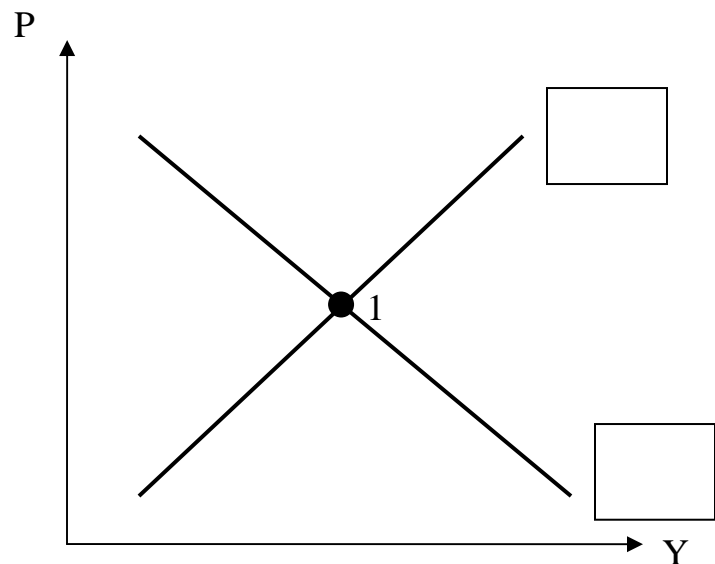
1.2. [4 points] Fill in the blanks: The value of the expenditure multiplier is \_\_\_\_\_. An increase in  $a$  by \$10 billion would therefore (increase, decrease) \_\_\_\_\_ real GDP by (amount) \$\_\_\_\_\_ billion.

1.3. [4 points] The overall tax system in the USA is roughly proportional. Suppose that instead of being exogenous, we use  $T = 0.25 \cdot Y$ . Briefly, is the tax system operating as an *automatic stabilizer* here, or not?

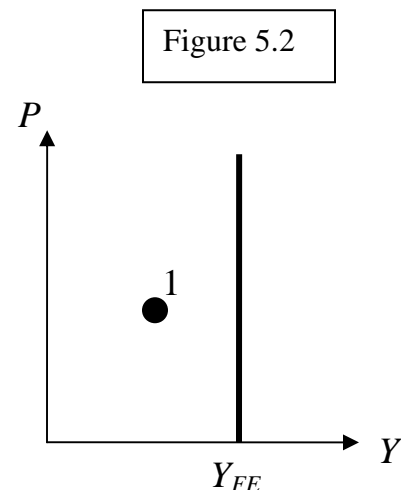
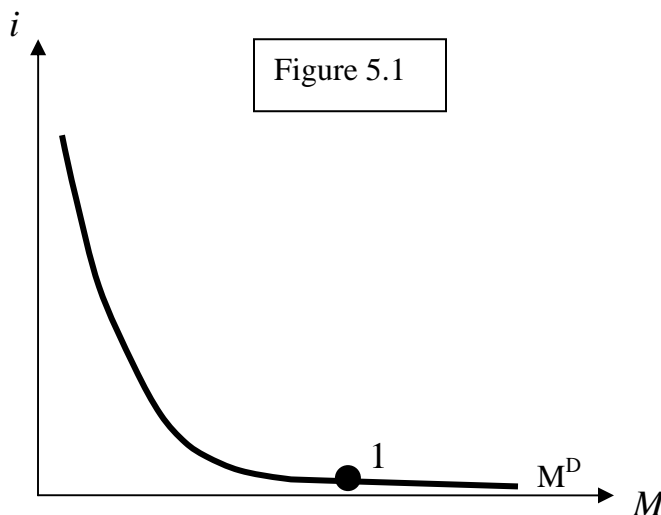
2. [12 points] Suppose that the nominal interest rate on a 10-year fixed-interest-rate mortgage (a loan to buy a house) is 6 percent, and the expected rate of inflation over the next 10 years is 4 percent (both on an annual basis).
- 2.1. [4 points] What is the expected *real interest rate* on this loan? \_\_\_\_\_.
- 2.2. [4 points] Suppose that inflation unexpectedly turns out to be 0 rather than 4 percent over the next 10 years. Who gains (borrower or lender) and who loses, in terms of real purchasing power, from this unexpected outcome? Briefly explain.
- 2.3. [4 points] in the AS/AD model we argued that wage and price dynamics provide a ‘self-correcting’ mechanism for the macroeconomy. According to this view, a recession will eventually ‘cure itself’, even in the absence of any fiscal or monetary policy, because wages and therefore prices will start to fall. Suppose now that booms and recessions are generally unanticipated, and that borrowers have higher marginal propensities to consume than lenders do. Using your answer to 2.2, will the tendency for prices to fall unexpectedly in recessions and rise unexpectedly in booms *reinforce* the self-correcting nature of the economy, or *destabilize* the economy further? Briefly explain.

3. [12 points] The federal budget deficit increased very sharply during the Bush administration, but there is little evidence that private spending has been crowded out.
  - 3.1. [6 points] In a fully-employed, closed economy, what category of spending is most likely to be 'crowded out' by an increase in the federal budget deficit, and how does this occur?
  
  - 3.2. [6 points] Very briefly: what can explain the lack of crowding out this time around?
  
4. [6 points] In the micro component of the course we noted that *perfect competition* drives economic profits to zero on the margin. In the Rajan and Zingales book, by contrast, the most highly competitive capitalist system the world has ever imagined – the USA since the early 1980s – is one in which there are massive fortunes being made. Briefly, can you reconcile these two ideas of 'competition'?

5. [16 points] The new Democratic Congress may feel it necessary to increase taxes in order to reduce the federal budget deficit. Use the AS/AD diagram to analyze the likely impact of this policy. Assume that the economy starts at point 1, *and assume that there is initially full employment.*
- 5.1. [3 points] Label the SRAS (short-run AS) and AD curves in the diagram.
- 5.2. [3 points] What (roughly) is a realistic rate of unemployment at point 1? \_\_\_\_\_. Briefly explain why this is not zero.
- 5.3. [5 points] Show what happens to the price level and real GDP in the *short run* if Congress increases taxes (identify this as point 2 on your diagram).
- 5.4. [5 points] Now show what happens to the economy over time, assuming that taxes remain at their new higher level, and briefly explain here.



6. [18 points] Many economists think that the Japanese economy got itself into a *liquidity trap* during the 1990s – a situation in which the economy is in a recession but monetary policy can't help. This question asks you to analyze the situation.
- 6.1. [6 points] The Japanese Central Bank wants to stimulate the economy using open market operations. Fill in the blanks: The central bank will have to (purchase, sell) \_\_\_\_\_ government securities on the open market, in order to (raise, lower) \_\_\_\_\_ the interest rate.
- 6.2. [4 points] Using the left-hand-side figure below, show that the central bank, using the logic you laid out in 6.1 and starting at a point like 1, cannot in fact push the economy out of recession! Briefly explain why.
- 6.3. [4 points] You are in charge of macroeconomic policy and there is tremendous pressure to 'do something'. One sentence: what can you do to rescue the economy?
- 6.4. [4 points] The AS/AD model depicts a 'self-correcting' economy that returns to full employment in the absence of discretionary macroeconomic policy. Does the standard self-correcting mechanism work in a liquidity trap? (Hint: do the standard channels from falling  $P$  to increased spending work?)



7. [10 points] For analyzing long-run growth, we found it convenient to rewrite real GDP per capita as follows:

$$\frac{Y}{N} = \frac{E}{N} \frac{H}{E} \frac{Y}{H},$$

where  $Y$  is real GDP,  $N$  is population,  $E$  is employment, and  $H$  is total hours worked.

- 7.1. [5 points] Of the three ratios on the right-hand side, which ratio plays the largest role in explaining differences in long-run growth of real GDP per capita, across countries and over time?

- 7.2. [5 points] Identify one very important determinant of the growth in labor productivity over time, and for this determinant, indicate an aspect of government policy that exerts an important influence on this determinant.

8. [8 points] In “Saving the Sky” Peter Barnes proposes a cap and trade program in which a limited number of tradable permits for the carbon embodied in fossil fuels would be auctioned off to the firms that import such fuels into the USA. Importing fossil fuels would be illegal without a permit. The proceeds would be distributed equally to all US citizens.
- 8.1. [4 points] What is the market failure being targeted by the cap and trade portion of the program, and briefly, how does the cap and trade mechanism alleviate this market failure?
- 8.2. [4 points] Is the equal-distribution scheme distributionally *regressive*, *neutral*, or *progressive*? \_\_\_\_\_ . How do you know?
9. [6 points] Provide a justification for high taxes on cigarettes as a correction for some specific market failure(s). You don't need a diagram, just a clear statement of what the market failure is and how the tax addresses it.

**END OF EXAM. ADDITIONAL SHEET IS FOR USE IF NEEDED.**

