14.02 Principles of Macroeconomics
Fall 2011

Quiz # 1
Thursday, October 6
7:30 PM – 9 PM

Please write your answers directly on the quiz. The exam has a total of 7 questions (100 pts) and a bonus question (5pts). Please answer all of them. You should read all of the questions first and plan your time allocation.

NAME: ____________________

MIT ID NUMBER: ____________________

FRIDAY RECITATION: ____________________

EMAIL: ____________________

(Table is for corrector use only)

Question	1	2	3	4	5	6	7	Total
Score								

1. Define the following concepts in at most two sentences, showing that you have understood them, not just memorized definitions. (2 pts each)

Unemployed Person:

Consumption Basket:

Discouraged Worker:

Disinflation:

GDP:

Potential (natural) GDP:

Base Money:

Contractionary Policy:

Investment:

Equilibrium:

2. Explain why chain weighting is a preferable way of constructing macroeconomic time series. What problem does chain weighting help address? (5 pts)

3. The US economy is currently operating below potential—there is a recessionary gap. Explain how, in the absence of government intervention, such a gap would close. Under what conditions, if any, would having a positive level of average inflation help? (5pts)

4. The US Federal Reserve recently announced that it will change the composition of its balance sheet by selling short-term bonds and buying long-term ones. (You may have heard of this referred to as "operation twist".) What is this expected to do to long-term interest rates? What is the mechanism? (5pts)

5. In February 2009 Chairwoman of the Council of Economic Advisers Christina Romer gave a speech about the stimulus package, American Recovery and Reinvestment Act at the University of Chicago. Here is an excerpt:

"In estimating the effects of the recovery package, Jared Bernstein and I used tax and spending multipliers from very conventional macroeconomic models. We used simulations based on the realistic assumption that monetary policy would remain loose [ie, low interest rates], and on the assumption that people would treat the individual tax cut as permanent. This last assumption is justified by the fact that the President ran on a permanent middle class tax cut and just included it in his budget. In these models, a tax cut has a multiplier of roughly 1.0 after about a year and a half, and spending has a multiplier of about 1.6."

Use IS-LM and AS-AD terminology to answer the following:

(i) Why is an assumption about monetary policy remaining loose needed? (5 pts)

(ii) What is a multiplier? Why would a tax cut have a smaller multiplier than a spending increase? (5 pts)

6. In Inflatia, nominal hourly wages are negotiated and set for a year at the beginning of each year. Inflation in this country has been running at 10 percent for many years because the central bank (CB) increases the money supply every year such that inflation is at this level. Hence, agents have for a while been correctly expecting inflation to be 10 percent per year.

Using AS-AD and Phillips Curve diagrams, discuss what happens to inflation and output in the following scenarios. (Assume that the central bank's announcements, but not its actions, come before the wage negotiations.) (5pts each)

(i) the CB decides not to increase the money supply next year but does not announce it, and then carries out its new constant money supply policy

(ii) the CB announces unchanged money supply but no one believes this announcement (nonetheless the CB does not increase the money supply)

(iii) the CB announces unchanged money supply and is believed (and the policy is carried out)

(iv) the CB announces constant money supply, is believed, but it reneges on its promise and increases the money supply anyway.

7. Assume that in the Grand Duchy of Bzz, aggregate supply is given by

$Y=sP,$

With s a positive constant, while consumption, taxes, government spending, investment and net exports are given as follows:

$C = a + bY_D - cP,$
$T = \overline{T} + tY,$
$G = \overline{G},$
$I = \overline{I},$
$NX = 0,$

where the notation follows the class notation, with a, b, c and t all positive constants. This is a non-monetary economy so there is no money supply or money demand. Aggregate consumption, however, depends on the price level P, perhaps because people hold their wealth in money and feel poorer when prices go up, decreasing real consumption even if their real incomes are unchanged. (Why precisely aggregate consumption depends on the price level is not important for this question.)

(a) Find the equation of the aggregate demand curve. (6 pts)

(b) Calculate the equilibrium GDP and price level (the resulting expressions will not be pretty, don't worry). (5 pts)

(c) By how much does the aggregate demand curve shift to right if government spending increases by one unit? Is that number larger or smaller than one? What is the economic intuition? How much does the equilibrium GDP increase? Which one is larger? What is the economic intuition? (12 pts)

(d) Now assume that taxes no longer have a proportional component, that is, $t=0$. Also assume that the government always maintains a balanced budget that is, government spending and tax revenues are always equal. Find the equation of the aggregate demand curve. If government spending increases one unit how much does the aggregate demand curve shift to right? What is the interpretation? (12 pts)

Bonus:

(a) What is the current unemployment rate in the US? (2 pts)

(b) What is the current US nominal GDP? (3 pts)

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