Intermediate Macroeconomic Theory I (ECON 303)

Final exam - Fall 2013

This exam is composed of two different questions for a total of 12 subquestions.

Read each question carefully. All answers must be clearly justified using **economic theory**. Clear **explanations** must be given. Calculations must be detailed. You can use graphs to support your answers even when graphs are not explicitly demanded. Correct but unjustified answers will not get any credit.

With a fair understanding of the material seen in class, it is possible to answer each subquestion independently of the others, using the information provided in the preceding ones. All subquestions carry equal weight. Hence, do not waste all your time trying to answer just one subquestion.

Question #1:

Consider a two-period economy, as the one seen in class, with identical consumers (workers), identical firms, and a government that finance spending by borrowing money or by levying lump sum taxes. In **period 0**, everyone in this economy expects that economic activity will increase in **period 1**, say because total factor productivity (z_1) is expected to rise at that time. As a result of these new expectations, consumers and firms change their decisions in period 0. How will the anticipation of a future increase in Y_1 affect this economy?

a) **Explain** why investment and consumption increase in period 0 as a result of these new expectations, **if the interest rate remains constant**.
b) **Explain** why production falls in period 0 as a result of these new expectations, **if the interest rate remains constant.**
c) **Explain** why the interest rate must rise following what happen in a) and in b). Will output increase in period 0? **Explain**. Illustrate with a graph.
d) Will the equilibrium wage be affected by what happens in a) to c)? **Explain** why or why not.
e) Assume that economic activity falls in period 0. Do you think that the government should lower taxes in period 0 in order to fight this recession? **Explain** why or why not.
f) Suppose that everyone was mistaken: Y_1 does not increase as expected in period 1. **Explain** what impact this forecast error will have on consumers and on firms.

Question #2:

Consider a two-period economy populated with two consumers only. These two consumers have the same preferences but have different incomes in period 0: Consumer A's income is 210 in period 0 and 165 in period 1. Consumer B's income is 110 in period 0 and 165 in period 1. Each consumer is paying 10 in taxes in period 0 and 15 in period 1. Both consumers' preferences are such that they each would like to achieve $c_0 = c_1$. Of course, consumption plans must satisfy the intertemporal budget constraint

$$c_0 + \frac{c_1}{1+r} = y_0 - t_0 + \frac{y_1 - t_1}{1+r}.$$

In addition, consumption plans are constrained by the fact that the credit market in this economy is such that **consumer can only save, they cannot borrow**; Only the government can borrow in this economy. The government borrows 20 in period 0. The interest rate on saving and borrowing is 50% (i.e. $r = 0.5$).

a) **Show that** consumer A **will** choose the consumption plan $c_0^A = c_1^A = 180$ if $r = 0.5$. **Illustrate** his choice with a graph.

b) Consumer B would like to choose the consumption plan $c_0^B = c_1^B = 120$ if $r = 0.5$. **Explain why** he must nevertheless choose $c_0^B = 100$ and $c_1^B = 150$. **Illustrate** his choice with a graph.

c) **Explain why** the competitive equilibrium of this economy is attained when $r = 0.5$.

Suppose that the government decides to decrease the tax burden of each consumer in period 0 by 5, without varying government spending in period 0 or in period 1.

d) **Explain** why the government must increase each consumer's taxes by 7.5 in period 1 following this reduction in the tax burden in period 0. **Show** that this change in the timing of taxes will lead to an increase in **aggregate** consumption in period 0 if the interest rate r remains the same.

e) **Explain** why $r = 0.5$ is no longer the equilibrium interest rate level if the timing of taxes is changed in this manner. How will the interest rate r change? **Explain.**

f) As an economist, would you recommend to the government to change taxes in this manner? **Explain** why or why not.