York University

Department of Economics

Faculty of Liberal Arts and Professional Studies

AP/ECON 3440M

Monetary Economics II: Theory and Policy

Professor Tasso Adamopoulos

Midterm Test

Thursday, February 25, 2010

Duration: 80 minutes

1. (*10 marks*) Explain whether the following statement is true or false: "In a growing economy, the monetary policy that achieves the golden rule is one that fixes the price level".

2. (*35 marks*) Consider an overlapping generations model in which individuals live for two periods. Assume that the population grows at a gross rate n per period. Each individual is endowed with y units of the single consumption good when young, ψy units when old, where $\psi < 1$. Assume that ψ is sufficiently low that individuals want to consume more than their endowment in the second period. The consumption good is non-storable. The supply of valued fiat money M_0 is fixed (introduced as a gift to the initial old).

   (a) (*10 marks*) Write down the feasibility constraint that a central planner would face. Consider the set of stationary allocations. Show where the golden rule allocation is on a graph.

   (b) (*15 marks*) Write down an individual's first and second period budget constraints. Derive the individual's lifetime budget constraint. Solve for a stationary monetary equilibrium. Does the stationary monetary equilibrium obey the golden rule?

   (c) (*10 marks*) If the government cut to half the stock of money it gave to the initial old (i.e., gives them $\frac{1}{2}M_0$ instead of M_0), would the stationary monetary equilibrium obey the golden rule? Briefly explain.

3. (*30 marks*) Consider an overlapping generations model in which individuals live for two periods. Every period, a constant number of N young individuals are born. Each individual is endowed with y units of the single consumption good when young, and nothing when old. The consumption good is non-storable. The valued stock of fiat money, evolves each period according to, $M_t = zM_{t-1}$, where $z > 1$. The government splits the receipts from the newly printed money equally between lump-sum transfers to every *young* person and to every *old* person (use appropriate notation to distinguish between the two types of transfers).

   (a) (*10 marks*) Write down the feasibility constraint that a central planner would face.

   (b) (*20 marks*) Write down an individual's first and second period budget constraints. Derive the individual's lifetime budget constraint. Solve for a stationary monetary equilibrium and draw it on a graph. Show that the stationary monetary equilibrium does not obey the golden rule. Why is this? Explain.

4. (*25 marks*) Consider an overlapping generations model in which individuals live for two periods. Every period, a constant number of N young individuals are born. Each individual is endowed with y_1 units of the single consumption good when young, and y_2 when old. The consumption good is non-storable. The valued stock of fiat money, evolves each period according to, $M_t = zM_{t-1}$, where $z > 1$. The government uses the receipts from the newly printed money to finance wasteful government purchases of a total of G_t (g per old person).

   (a) (*7 marks*) Write down the economy's per capita resource constraint.

   (b) (*8 marks*) Write down the government's budget constraint and the individual's first and second period constraints. Find the rate of return to money in a stationary monetary equilibrium.

   (c) (*10 marks*) Explain whether the following statement is true or false: "Seignorage represents an unlimited source of government revenue."