

Problem Set 3

Due: Wednesday, September 29.

1. Answer **TRUE**, **FALSE** or **UNCERTAIN**. Give a brief explanation for your answer.
 - (a) The Fed is concerned about the Y2K bug effect on the banking system. But as long as all banks solve the problem in their computers before new years eve, the Fed should not worry.
 - (b) An increase in the reserve requirements for banks will increase the impact of future monetary policy.
 - (c) ATM's will increase the quantity of money in the economy without increasing the amount of currency.
 - (d) A contractionary open market operation will decrease interest rates.
 - (e) A merge of the iron industry with the car industry may decrease money demand without changing \$GDP.
 - (f) If a country is able to consume less (e.g. lower c_0), it will be able to save more.
 - (g) The multiplier effect of G over Y is $\frac{1}{1-c_1}$. But if this increase is accompanied by a similar increase in T—in order to keep a balanced budget— then consumption decreases and the effect over output is 0.
2. Suppose that we have the following dynamic model for the goods market:

$$C_t = 10 + 0.3(Y_t - T) + 0.2(Y_{t-1} - T) \quad (1)$$

$$I_t = 25 + 0.1Y_t \quad (2)$$

$$G = 10 \quad (3)$$

$$T = 10 \quad (4)$$

$$Z_t = C_t + I_t + G \quad (5)$$

$$Y_{t+1} = Z_t \quad (6)$$

- (a) What is the marginal propensity to consume in this model¹?
- (b) Solve for equilibrium output assuming that Y_t is constant over time.

¹Marginal propensity as defined in the textbook refers to the change in 'steady' consumption associated with a permanent change in income.

- (c) What is the multiplier effect in this economy? Find the effects in periods 1,2 and 3 of a permanent \$1 increase in government spending.
- (d) Does the presence of endogenous investment increase or decrease the multiplier effect?
- (e) Answer the first three questions assuming that consumption is:

$$C_t = 10 + .45(Y_t - T)$$

Compare these results with your previous solutions.

3. Suppose the following:

- The demand for currency is equal to the demand for checkable deposits.
- The ratio of reserves to deposits is 0.1.
- The demand for money is given by the following equation:

$$M^d = \$Y(.1 - .6i)$$

Initially the monetary base is \$100 billion and nominal income is \$ 5,000 billion.

- (a) Determine the value of money supply.
- (b) Determine the equilibrium interest rate.
- (c) Determine the impact on the interest rate if the Central Bank increases the stock of high-powered money to \$150 billion.
- (d) what will be the cost of a bond that will pay \$1000 one year from now?