Department of economics
Queen's University

ECON320: Macroeconomic Theory II
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Assignment # 2
Due Date Wednesday, April 6, 2005

Section A (40 percent):Read each of the following statements and indicate whether they are True, False or uncertain. Briefly explain your answer. NO MARKS WILL BE GIVEN FOR UNSUPPORTED ANSWERS

A1. Unemployment cannot be maintained below its natural rate using expansionary fiscal policy.

A3. In the AD-AS framework, the implication that an increase in the money supply stimulates the economy in the short run, stems from the assumption that the price expectations of workers and firms adjust only slowly.

A4. Suppose the Bank of Canada has some target interest rate R*, and that it adjusts the money supply, M, so as to keep R=R*. With this policy, the AD curve is vertical

Section B (60 percent): answer the following Long Questions.

B1. Suppose that, in the short run, the economy can be approximately described by the

following IS-LM system:

$$C = 120 + .6(Y - T)$$
$$I = 50 + .2Y - 200i$$
$$G = 250$$
$$T = 200$$
$$M^d = P(2Y - 8000i)$$
$$M = 1600$$

All variables (expect P) are in units of constant dollars.

   (a) Identify the variables that are exogenous and those which are endogenous.
   (b) Find the IS-LM equilibrium in this economy when the price level P=1. Repeat when P=2.
   (c) Derive the AD curve for this economy. What would be the horizontal shift in the AD curve if taxes fell to t=100.

(d) In general (i.e. when the structural parameters of the model could take on values other than those given above), under that two conditions will the AD curve be vertical? One condition relates to the IS curve and one to the LM curve. In each case, explain the economic interpretation.

B2. In this problem we look at how the recovery of an economy from an oil price shock is affected by the model used for inflationary expectations. Suppose the economy starts off in period t=0 with output at potential: $Y_0 = Y^* = 4000$, $\pi_0 = \pi_o^e = 0$, and $P_0=1$. Also the money supply is assumed fixed at $M_0=600$. aggregate demand is given by

$$Y_t = 2{,}067 + 3.221 \frac{M_t}{P_t}$$

Price adjustment is given by

$$\pi_t = .25\left(\frac{Y_{t-1} - Y^*}{Y^*}\right) + \pi_t^e + Z_t$$

In year t =1, the price shock effect is Z = .025, and then returns to zero thereafter.
For the first three parts of this question assume that M_t remains fixed.

(a) Calculate the path of inflation, the price level and out put in years 1 through 6 under the assumptions that (i) $\pi_t^e = .4\pi_{t-1} + .2\pi_{t-2}$ and (ii) $\pi_t^e = \pi_{t-1}$. In performing your calculations compute $P_t = (1 + \pi_{t-1})P_{t-1}$.

(b) In each case, how long does it take inflation to first return to zero? Analyze the factors that cause inflation to fall in each case.

(c) In which case is the fall in output greater? How do you explain this result?

Now suppose the aim of the central bank is to keep inflation equal to zero in every year possible by manipulating the money stock.

(d) If the oil price shock was unexpected, why can't anything be done about inflation in Year 1? Suppose $\pi_t^e=0$ in every period. What values of M_t would be chosen by the central bank in years 2 to 6?

(e) Now assume π_t^e is given alternately by (i) and (ii) in part (a). Repeat the calculations from part (d) in each case.