

WILFRID LAURIER UNIVERSITY

Department of Economics

EC390

Midterm Exam

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Instructions:

- This exam is out of 100 points.
- You have 90 minutes to complete the exam.
- There are 6 problems.
- If you use a figure, make sure you label axes and curves.
- Show all your calculations and report your answers in two decimal places.
- Answers should be clear, concise and devoid of any extraneous material.
- **Hand in the question paper.** Insert the question paper inside the booklet.
- Non-programmable calculators are allowed. Dictionaries are not allowed.

1. [17 points] Consider a closed economy. Suppose that there is an increase in business confidence.
 - a. Using the IS-LM framework and AD-AS model show graphically the impact of the above event on output, interest rates, unemployment rate, and price level in the short run. Assume that the economy starts at the natural level of output. Please label the initial equilibrium with the letter A, and the short run equilibrium with the letter B.
 - b. If the Bank of Canada wants to restore full-employment output, will the Bank of Canada increase or decrease the nominal money supply? Using the IS-LM framework and AD-AS model show graphically the impact of the Bank of Canada's immediate intervention to restore full-employment on output, interest rates, unemployment rate, and price level in the short run. Please label the equilibrium with the letter C.
 - c. Now suppose that the Bank of Canada decides not to intervene. However, the Ministry of Finance wants to restore full-employment output. Will the Ministry of Finance increase or decrease government spending? Using the IS-LM framework and AD-AS model show graphically the impact of the Ministry of Finance's immediate intervention to restore full-employment on equilibrium output, interest rates, unemployment rate, and price level in the short run. Please label the equilibrium with the letter D. *(It is highly recommended that you use a different set of graphs)*
 - d. Now suppose that neither the Bank of Canada nor the Ministry of Finance intervene to restore full-employment. Using the IS-LM framework and AD-AS model show graphically the impact on equilibrium output, interest rates, unemployment rate, and price level in the medium run without a stabilization policy. Please label the equilibrium with the letter E. *(It is highly recommended that you use a different set of graphs)*

2. [16 points] Consider a closed economy. Using the IS-LM and AD-AS models, show graphically how an increase in taxes and an increase in government spending would affect equilibrium output, interest rates, unemployment rate and the prices level both in the short run and medium run. Additionally, explain the short run and medium run effects (if any) on consumption, investment and the government budget. Suppose that the economy starts at the natural level of output. Please label the initial equilibrium with the letter A, the short run equilibrium with the letter B, and the medium run equilibrium with the letter C.

3. [17 points] Consider a closed economy. Suppose that there is a decline in the price of oil.
- Using the IS-LM framework and AD-AS model show graphically the impact of the above event on output, interest rates, unemployment rate, and price level in the short run. Assume that the economy starts at the natural level of output. Please label the initial equilibrium with the letter A, and the short run equilibrium with the letter B.
 - Suppose that the Bank of Canada decides to restore full-employment output. Will the Bank of Canada increase or decrease the nominal money supply? Using the IS-LM framework and AD-AS model show graphically the impact of the Bank of Canada's immediate intervention to restore full-employment on equilibrium output, interest rates, unemployment rate, and price level in the short run. Please label the equilibrium with the letter C.
 - During the summer of 2015, the Bank of Canada increased the money supply (and equivalently lowered the interest rates) as the price of oil declined. Is the Bank of Canada's action consistent with your answer in part (b)? Briefly explain.
 - Now suppose that the Bank of Canada decides not to intervene to restore full-employment. Using the IS-LM framework and AD-AS model show graphically the impact on equilibrium output, interest rates, unemployment rate, and price level in the medium run without a stabilization policy. Please label the equilibrium with the letter D.
4. [17 points] Consider a closed economy. Suppose that there is a very large decline in consumer confidence.
- Using only the IS-LM framework show graphically the impact of the above event on output, interest rates, unemployment rate, and price level in the short run. Assume that the economy starts at the natural level of output. Please label the initial equilibrium with the letter A, and the short run equilibrium with the letter B. [4 points]
 - Suppose that the Bank of Canada intervenes immediately by changing the money supply. Will the Bank of Canada conduct an open market sale or an open market purchase? Suppose that the Bank of Canada's actions cannot return the economy to full employment. Using the IS-LM framework show graphically the impact of the Bank of Canada's immediate intervention on equilibrium output, interest rates, unemployment rate, and price level in the short run. Please label the equilibrium with the letter C. Explain why the economy might be unable to return to full employment.
 - Can the Canadian federal government help return the economy to full employment? Briefly explain how. Using the IS-LM framework show graphically the impact of fiscal policy's immediate intervention on equilibrium output, interest rates, unemployment rate, and price level in the short run. Please label the equilibrium with the letter D.

5. [17 points] Suppose that an economy can be described by the following equations:

$$g_{yt} = g_{Mt} - \pi_t$$

$$\pi_t - \pi_{t-1} = -u_t + 4\%$$

$$u_t - u_{t-1} = -0.5g_{yt} - 1\%$$

- a. What do the above equations represent?
 - b. What is the natural rate of unemployment for this economy?
 - c. What is the normal rate of output growth?
 - d. Suppose that the unemployment rate is equal to its natural rate, and inflation rate is 4%. What is the growth rate of output? What is the growth rate of the money supply?
 - e. Suppose that conditions are as in (d) and the Central Bank reduces the inflation rate to 2% in year t and keep it there. Compute the unemployment rate, output growth rate in years $t, t+1, t+2$. What money growth rate in years $t, t+1, t+2$ will accomplish this goal?
6. [16 points] Consider an open economy with flexible exchange rates. Suppose that the Central Bank increases the nominal money supply. Using the money market diagram, interest parity diagram, the IS-LM framework and the AD-AS model show graphically the impact of the above event on output, interest rates, unemployment rate, exchange rate and price level in the short run and medium run. Assume that the economy starts at the natural level of output. Please label the initial equilibrium with the letter A, the short run equilibrium with the letter B, and the medium run equilibrium with the letter C.

The following equations might be useful

$$W = P^e F(u, z)$$

$$P = (1 + m)W$$

$$P = P^e (1 + m) F\left(1 - \frac{Y}{L}, z\right)$$

$$Y = C(Y - T) + I(Y, i) + G$$

$$\frac{M}{P} = YL(i)$$

$$P_t = P_t^e (1 + m)(1 - \alpha u_t + z)$$

$$\pi_t = \pi_t^e + (m + z) - \alpha u_t$$

$$u_t - u_{t-1} = -\beta(g_{y_t} - \bar{g}_y)$$

$$g_{y_t} = g_{M_t} - \pi_t$$

$$Y_t = C(Y_t - T) + I(Y_t, i_t) + G + NX\left(Y_t, Y^*, \frac{E_t P^*}{P_t}\right)$$

$$i_t = i^* + \frac{E_{t+1}^e - E_t}{E_t}$$