

14.02 Quiz # 2 April 17, 1997
Instructions

- 1) You should have three answer books, one for each question.
- 2) On the cover of each book, please write your name, your T.A.'s name and the number of the question contained in that book.
- 3) If you have a question during the exam, please raise your hand and a T.A. will respond as quickly as possible.
- 4) When you have completed the exam please bring it to the front of the hall where the TA table is located. Please put each answer book in the appropriate box.
- 5) You have 90mins. to complete the exam
- 6) You may not use calculators, notes or text books during the exam
- 7) Please note that there is no choice on this exam you must do **ALL** parts of every question.
- 8) Good Luck!

Question I (35 points)

Answer True, False or Uncertain to **ALL** the following statements. Be sure to justify your answer. No marks will be awarded for unsupported answers.

- 1) An increase in the price of oil will lead to an increase in the natural rate of unemployment in the US
- 2) If a country experiences persistently high inflation, then the natural rate of unemployment will decrease.
- 3) In the long run, a decrease in government expenditure will cause a decrease in prices and a decrease in unemployment.
- 4) If the dollar depreciates, then US employment and output will increase.
- 5) If the government announces that it will increase taxes next year, interest rates today will increase.
- 6) Interest rates in Italy are higher than in the US. Therefore, it makes sense for US investors to move their money to Italy.
- 7) The natural rate of unemployment has fallen in the US because a booming economy has resulted in an increase in firms' demand for labor

Question II (15 points)

$$\pi_t = \alpha_0 - \alpha_1 U_t \quad (1)$$

- a) Equation (1) is the original Phillips curve used by economists in the 1960s. It predicts that a decline in unemployment will lead to an increase in inflation. Explain the intuition behind this.
- b) The version of the Phillips curve given by (1) does not take proper account of workers' price expectations. Write down a version of the Phillips curve that does take account of expectations. Explain the intuition behind this version of the curve. Be sure to explain how this differs with the old version of the Phillips Curve.
- c) Explain why, in practice, economists were able to use the old version of the Phillips curve successfully throughout the 1960s. Why did the relationship in (1) break down?
- d) Assume that the economy is in a long run equilibrium. What would you expect to happen to the rate of inflation if there was a sudden increase in the power of unions. (**Hint:** You may find it helpful to analyze this question using the WS-PS diagram as well as the Phillips curve).

Question III (40 points)

Please answer **ALL** parts of the following question.

Questions A-F pertain to the following scenario: Some people believe that the actual unemployment rate in the United States (5.2%) is currently below the NAIRU (non-accelerating inflationary rate of unemployment) (6%). On Tuesday March 25 1997 the Federal Reserve used monetary policy in an attempt to reduce aggregate demand. This question discusses the effects of this policy action in the short run and in the long run

- a) In order to meet their objective to reduce demand, did the Federal Reserve expand or contract the money supply? Show this change in the money supply using the IS/LM framework.
- b) Why would the Fed want to reduce demand? Use the Phillips curve relationship to illustrate your response.
- c) Assuming prices do not change immediately to a change in monetary or fiscal policy, what is the immediate impact on i and Y as a result of this change in monetary policy? How have C , G , and I changed as a result of this change in i and Y ? Has demand unambiguously changed?

Now assume the following: The IS relationship is given by: $Y = c_o + c_1(Y - T) + b_1Y - b_2i + G$. The LM relationship is given by: $M/P = a_1Y - a_2i$. The PS relationship is given by: $P = (1 + \mu)W$. The WS relationship is given by: $W = P^e F(u, z)$

- d) Write down the equation for the aggregate demand curve, where Y is a function of P (and other variables). Draw the AD curve in (P, Y) space. From the equation of the AD curve which you have just derived, what is the slope of the AD curve? What is the economic intuition behind the slope of the AD curve? Show the effect of the monetary policy described in the above actual scenario on the AD curve. For any given level of P , by how much does Y change if the money supply changes by dM units?
- e) Write down the equation for the aggregate supply curve, where P is a function of Y , P^e , and other variables. Draw the AS curve in (P, Y) space. What is the economic intuition behind the slope of the AS curve?
- f) Now assume that U_n is actually not at 6% , but because of structural change in the US economy, has fallen to 5.2%. Given the Fed action described in the above actual scenario, show the short run and long run equilibria diagrammatically in (P, Y) space?

The following questions ask you to assess the impact of the Clinton Welfare Reform package on the economy in the short run and in the long run.

g) Draw the AS/AD diagram in (P, Y) space. Assume the initial short run equilibrium is where $Y = Y^n$. Using this framework, show graphically the immediate impact of a decrease in government transfers to individuals on P and Y , if P is not allowed to change immediately. Using this framework, show graphically the impact of this decrease in transfers on P and Y in the short run (note that in the short run, P can change); label this equilibrium (P^{sr}, Y^{sr}) . Using this framework, show graphically the impact of monetary policy on P and Y in the long run; label this equilibrium (P^{LR}, Y^{LR}) . Describe in words the process which allows the economy to converge to long run equilibrium.

h) How does wage indexation affect the transition from the short run to the long run equilibrium?