

Introduction to Macroeconomics
Third Homework Exercise
Modified Final Test for Summer Term 2009

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1. We consider a closed economy whose behaviour is described by the following system:

$$\begin{cases} P = (1 + \mu) \frac{W}{A} \\ W = P^e F(u, z) \\ Y = AN \end{cases} ,$$

with $F(u, z) = 1 - u + z$ and where A stands for the technological progress. This means that the production cost of the firm is $\frac{W}{A}$.

- (a) Determine the aggregate supply relation.
 - (b) Determine the wage setting relation and the price setting relation.
 - (c) Determine the expression of the natural unemployment rate u_n and the expression of the natural output Y_n .
 - (d) Assume initially the closed economy is in medium-run equilibrium. Output is at its natural level Y_n and prices are at a level P_0 . Assume there is an increase in technological progress A . Describe in economic words the effects of an increase in A on the natural unemployment rate. Illustrate it by using a WS-PS diagram. (Hint: determine if it is the wage setting or the price setting relation which will be affected by the increase in A)
 - (e) What is the impact of an increase in A on the natural level of output?
2. Using the AS-AD and the IS-LM diagrams, illustrate and explain the short-run and medium-run effects of a lower markup. In your graph, illustrate the equilibrium for the first two periods in addition to the medium-run equilibrium. Also describe and explain what happens to P , Y , i , I and u . Assume initially that the economy is at the natural rate of output.
(NOTE: Graphs without explanations, particularly explanations of any shifts in the curves, will receive no points)
3. Assume you are working for a big bank in London. Your boss has told you to find out the expectations in the foreign exchange market about the future (one year from now) nominal exchange rate between the U.S. Dollar (USD) and the British Pound (GBP). The only information available to you is the following: the annual interest rate on one year U.S. bonds equals 1.2% and the annual interest rate on one year bonds from Britain equals 4.5%; the current real exchange rate, i.e. the price of British goods in terms of U.S. goods, equals 1.64 and the ratio between the price level in Britain and the U.S. equals one (both years).
- (a) Calculate the expected nominal exchange rate USD/GBP using the exact formula.
 - (b) Is the pound expected to appreciate?
 - (c) What is the expected rate of appreciation of the pound?