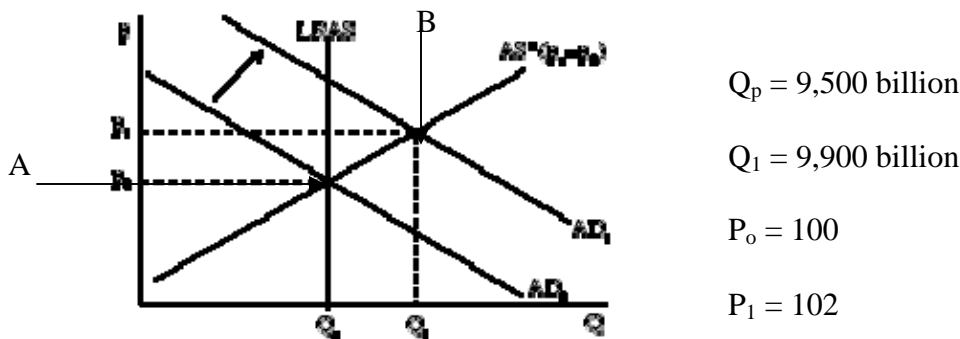


Phillips Curve Problem Set

**From PC PPT: unemployment rate = natural rate of unemployment – a (inflation rate – expected inflation)
Thus, inflation rate = expected inflation + b (natural rate of unemployment – unemployment rate) when $b = 1/a$.**

1. If the government increases its purchases by \$100 billion, how will this shift the aggregate demand curve? Under what circumstances would it shift horizontally by exactly \$100 billion? What aspects of economic behavior would cause it to shift by more than \$100 billion? What aspects would cause it to shift by less?
2. Suppose that the US economy is initially, in the year 2003, in long-run equilibrium with zero inflation and the natural rate of unemployment, as shown at point A in the following figure. Assume that the labor force in the US totals 100 million people. Assume further that the following is the aggregate production function:
 $Y = 100,000L$, where Y is real GDP in US\$, and L is the number of employed labor.



- A. Find the natural rate of unemployment.
 - B. Suppose now that in the year 2004 a fiscal expansion takes the economy to point B on the above graph. Calculate the unemployment rate for 2004 and the inflation rate that has occurred from 2003 to 2004.
 - C. What is the equation of a typical short-run Phillips curve? What does it imply about the relation between the inflation rate and the unemployment rate in the short-run? What is the effect of an increase in expected inflation?
 - D. What was the expected inflation rate in the initial long-run equilibrium at point A above?
 - E. Using the initial long-run equilibrium point A, together with point B, find the value for the parameter a of the short-run Phillips curve.
 - F. Draw the short-run Phillips curve that you found, labeling the coordinates of the points on it that correspond to points A and B above.
 - G. Suppose now that the Fed begins to manage the money supply so as to keep the inflation rate at 2% in 2005 and subsequent years. Show in the figure that you've drawn for F where you would expect the economy eventually to end up.
3. Suppose the natural rate of unemployment is 6%. On one graph, draw two Phillips curves that can be used to describe the four situations listed below. Label the point that shows the position of the economy in each case:
 - A. Actual inflation is 5% and expected inflation is 3%.
 - B. Actual inflation is 3% and expected inflation is 5%.
 - C. Actual inflation is 5% and expected inflation is 5%.
 - D. Actual inflation is 3% and expected inflation is 3%.
 4. Illustrate the effects of a rise in the natural rate of unemployment on both the short-run and the long-run Phillips curves. Give the economic reasoning underlying your answers