

## PROBLEM SET 6

*Problem 1 will be discussed in tutorials in week 8.*

### **Problem 1** (Blanchard, chp. 9)

This exercise focuses on the relationship between unemployment, inflation, output growth and nominal money growth. The economy is described by the following three equations:

Okun's law:  $u_t - u_{t-1} = -0.4(g_{yt} - 3\%)$

Phillips curve:  $\pi_t - \pi_{t-1} = -(u_t - 5\%)$

Aggregate demand:  $g_{yt} = g_{mt} - \pi_t$

- (a) What is the natural rate of unemployment for this economy?
- (b) Suppose that the unemployment rate is equal to the natural rate, and that the inflation rate is 8%. What is the growth rate of output? What is the growth rate of the money supply?
- (c) Suppose that in year  $t - 1$  economic conditions are as in part (b), and that at the beginning of year  $t$  the Prime Minister assigns you as the Minister of the Economy to reduce the inflation rate from 8% to 4% in year  $t$  and to keep it there. Given this assigned new inflation rate and using the Phillips curve, what must happen to the unemployment rate in years  $t$ ,  $t + 1$ ,  $t + 2$  and  $t + 3$ ? Given the unemployment rate and using Okun's law, what must happen to the rate of growth of output in years  $t$ ,  $t + 1$ ,  $t + 2$  and  $t + 3$ ? Given the rate of growth of output and using the aggregate demand equation, what must be the rate of nominal money growth in years  $t$ ,  $t + 1$ ,  $t + 2$  and  $t + 3$ ?
- (d) In your position as the Minister of the Economy, would you recommend a more gradual policy in the sense of reducing inflation from 8% to 4% over, say, two years instead of one? Why?