Aggregate demand and aggregate supply.

List 11 - The aggregate supply and the Phillips curve.

1. In the sticky price model, describe the aggregate supply curve in the following special cases. What is the difference between these cases and the horizontal SRAS/vertical LRAS curves that we have seen in the past?

   (a) No firm has flexible prices (s=1).

   (b) The preferred price does not depend on aggregate production (a=0).

2. Suppose that the Phillips curve is described by

$$\pi = \pi_{-1} - 0.5(u - 0.06).$$

   (a) Identify the natural rate of unemployment.

   (b) Represent graphically the relationship between inflation and unemployment in the short run and in the long run.

   (c) How many percentage points of cyclical unemployment are necessary to decrease the inflation by 5 percentage points? Use Okun's law to compute the sacrifice ratio. [Okun's law states that an additional 1 percentage point of unemployment corresponds to 2 percentage points of GDP growth less.]

   (d) Suppose that the inflation is 10% and that the central bank plans to reduce it to 5%. Describe two situations in which we would reach the target.

3. According to the proponents of rational expectations, if everybody believes that the policy makers have credibly committed themselves to the reduction of inflation, the cost itself of reducing it, that is, the sacrifice ratio, will be less than in the scenario in which the agents of the economy are skeptical about the intentions of economic authorities. Why can this be plausible? How could the policy makers gain credibility?

4. Suppose that agents have rational expectations and that the economy experiences sticky prices. Explain why each of the following statements is true.

   (a) Only unexpected changes in the money supply can affect the real GDP. The changes in the money supply that were expected when prices (and wages) were determined do not produce any real effect.

   (b) If the central bank takes the decisions about the money supply right exactly when prices (and wages) are determined, so as all the agents to have perfect information about the economic situation, monetary policy cannot be used systematically to stabilize production. Thus, a policy that aims at maintaining constant the money supply will produce the same real effects as a policy that adjusts the money supply to the economic situation (we refer to this as the *policy irrelevance.*)

   (c) If the central bank chooses the money supply after the moment in which prices (and wages) are determined, so that the central bank collects more information than the rest of the agents about the state of the economy, it is possible to use monetary policy to stabilize production.

5. Suppose that an economy's Phillips curve is characterized by

$$\pi = \pi_{-1} - 0.5(u - u^n),$$

where the natural rate of unemployment is given by the average unemployment of the previous two years, that is,

$$u^n = \frac{u_{-1} + u_{-2}}{2}.$$

   (a) How could the natural rate of unemployment depend on the recent measurements of unemployment?

   (b) Suppose that the central bank aims at decreasing permanently the inflation by 1 percentage point. How would this policy affect the unemployment rate over time?

   (c) What is the sacrifice ratio for this economy? Explain.

   (d) What can these equations tell us about the tradeoff between inflation and unemployment in the short and in the long run?