

Macroeconomics II - Problem set 1

Topic 1: The labor market

1. At the end of 2013, there were 18,094,200 employed in Spain, and the Spanish unemployment rate was 20,9 percent. Then, the number of unemployed people was:
 - A) 4,579,500
 - B) 4,679,500
 - C) 4,779,500
 - D) It can not be computed with the above information.
2. Assume that the Spanish economy presents the following feature: every month, 17 percent of unemployed people leave the unemployment. Then,
 - a) Compute the average duration of unemployment and the probability that an unemployed person remains at unemployment after one month.
 - b) Compute the probability to remain in the unemployment after 2 and 6 months.
3. In the price equation, $P = (1 + \mu)W$, assume that the markup is 30 percent ($\mu = 0.3$). Assume also that the wage equation is:

$$W = P^e(1 - (1/z) - u) \tag{1}$$

where u is the unemployment rate, and $z = 5$ is the level of social protection. Then,

- a) Compute the real wage in the medium run.
 - b) Compute the natural unemployment rate.
4. Assume that the production function is given by $Y = AN$, where $A > 1$ measures labor productivity, and N is the number of workers. Then,
 - a) Compute the marginal cost to produce one additional unit.
 - b) Compute the real wage.
 - c) Plot the equilibrium in the labor market.

5. Assume that the production function is given by $Y = AN$, where $A > 1$ measures labor productivity, and N is the number of workers. Assume also that, starting from an initial equilibrium in the labor market, there is drop in the parameter A . Then:
- a) Explain the effect of this shock over the real wage and the natural unemployment rate.
 - b) Explain also the reason why the natural unemployment rate changes.
6. Assume that the production function is given by $Y = AN$, where $A > 1$ measures labor productivity, and N is the number of workers. Indicate the wrong answer:
- a) Changes in A , will affect both the natural unemployment rate and the real wage.
 - b) Changes in μ , will affect both the natural unemployment rate and the real wage.
 - c) Changes in P^e , will affect the nominal wage, but the real wage will remain constant.
 - d) Changes in z , will affect both the natural unemployment rate and the real wage.