Seminar in macroeconomics – Unemployment, 7th week

1. ! Students living in the dorm in Vinarska can be divided into two categories: students in a relationship and single students. 10 percent of the students in a relationship break up every month, and 5 percent of single students establish a new relationship. Calculate the steady-state rate of single students.

2. ! The rate of job separations in the economy is 0.013 (1.3 percent) and rate of job finding is 0.25 (25 percent).

a) If the economy has 500 workers in the labor force, calculate the unemployment rate and the number of unemployed in the steady state.
b) If the rate of job separations is 1 percent, what happens to the unemployment rate and the number of unemployed in the steady state?
c) If labor force suddenly increases by 20 workers who are seeking work (and the rate of job separations remains at 1 percent), what is the immediate change in the unemployment rate? What is the new steady-state unemployment rate? Draw how unemployment evolves in time.

3. ☺ Each student needs two weeks on average to finds a short-term student job and the average job duration is 12 weeks. What is the rate of job finding and what is the rate of job separations? What is the natural rate of unemployment of students in this market? (Hint: If f is the rate of job finding, the average duration of unemployment is $1/f$)

4. ! Suppose that the parliament adopts a new low, which makes it difficult for companies to dismiss employees (e.g. businesses have to pay employees a higher severance pay). If this law reduces the rate of separations and has no effect on the rate of job finding, how does it change the natural rate of unemployment? Do you think the assumption that the law has no impact on the rate of job finding is acceptable? Explain.

5. ☺ Describe ways in which government can influence frictional unemployment. Do not forget to discuss the effect of the time required to search for work and its relationship to frictional unemployment.

6. ☺ Describe the consequences of these changes on the unemployment rate and real wages.

a) an increase in the union membership
b) a reduction in the minimum wage
c) increases in unemployment benefits
d) introduction of efficiency wages
e) an increased participation of women in the labor market

7. ☺ The rate of (registered) unemployment in the Czech Republic rose from 5.4% in 2008 to 9% in 2010. Does this increase represent a change in the natural rate of unemployment? If so, what factors have contributed to its growth?

8. ☺ Describe strategies which would enable the state and local authorities to reduce unemployment. Specify the type of unemployment that would be expected in these situations:

a) in sectors affected by the recent recession
b) among unskilled workers
c) in regions affected by the recent recession
d) among adolescents

9. ☺ What is the impact of an increase in minimum wage on the natural rate of unemployment, if the demand for labor of unskilled workers has

a) a high price elasticity
b) a low price elasticity

10. ! Assume that the total productivity in our country decreases (a negative shock to the production function).

a) What happens to the demand curve for labor?
b) How would the decline in productivity affect the labor market (employment, unemployment and real wages), if labor market is always in equilibrium?
c) How would decreases in productivity affect the labor market if unions prevented the decline in real wages?

11. ! Suppose an economy characterized by the following Cobb-Douglas production function: $Y = K^{1/3}L^{2/3}$. There are 1,000 units of capital and 1,000 employees in this economy.

a) Derive an equation describing the demand for labor in the economy as a function of real wages and capital stock.
b) If wages can move freely, what is the equilibrium real wage? What are the equilibrium employment, output and total wages in the economy?
c) Assume that this economy has adopted a law that sets the minimum real wage equal to one unit of output. (The motivation of the law is to increase workers' welfare.) How does the law affect employment, total output and total wages?
d) Does the law improve the welfare of workers? Explain.
e) How does your answer from d) depend on the elasticity of demand for labor? What is the ratio of elasticity to real wages? Can the answer to question d) be different?

12. ☺ The decision about whether to work more or less after a wage increase is influenced by two effects. Income effect motivates people to work less because higher incomes mean that they can enjoy more free time. The substitution effect motivates people to work more because the opportunity cost of leisure time grows with increasing wages.

a) Can these effects be used to explain differences in the development on labor markets in Europe and in the US in the last fifty years (Blanchard hypothesis)? USA: wage growth, unemployment and hours worked per capita approximately constant, Europe: wage growth, rising unemployment and the decline in the number of hours worked per capita. Draw the indifference curves in Europe and in the US.
b) What are the alternative theories that are trying to explain the differences in the development in Europe and the USA (Prescott, Alesina et al.)?