



Course:

Economics II (macroeconomics)

Chapter 5

5.1 Labor Market, Unemployment and the Phillips Curve, Part I

Author: Ing. Vendula Hynková, Ph.D.

Introduction

The aim of this chapter is a thorough explanation of the features neoclassical labor market, its elements and mechanisms constituting real and nominal wage rates, improving knowledge macroeconomic context, classical and original Keynesian model of the labor market and their different effects on economic variables, particularly on unemployment. The second main objective of this lecture is the explanation of the individual characteristics of unemployment as a complex economic phenomenon.

This chapter follows the issues discussed in the context of deriving and explaining the shape and position of the aggregate supply curve and further develops the knowledge obtained here. Analysis of individual concepts of the labor market and provides additional arguments for their understanding and simultaneously becomes the starting point explanation of macro-economic context of unemployment and then, in the next lecture, also Phillips curve.

1 Labor Market: aggregate labor demand and aggregate supply of labor

a) General characteristics of the labor market structure in which:

- households supply labor and receive labor income (nominal wages - $IH = W \cdot NS$);
- firms demand labor services and pay wages that make up their costs (labor costs - $TW = W \cdot ND = IH$).

We assume that firms are owned by households, and therefore the total household income includes (before taxes):

- occupational incomes (wages);
- share in the profits of companies;
- interests.

Households interest is to maximize their utility, firms want to maximize their profits.

b) Demand for labor - based on the respect of maximizing profit. The involvement of additional labor input (additional hours of work, working day or week, etc.) has a dual effect:

- increase in total production on marginal (physical) product of labor (MPN) and increases the total income of the company $P \cdot MPN$;
- increase in the wage costs of businesses by W .

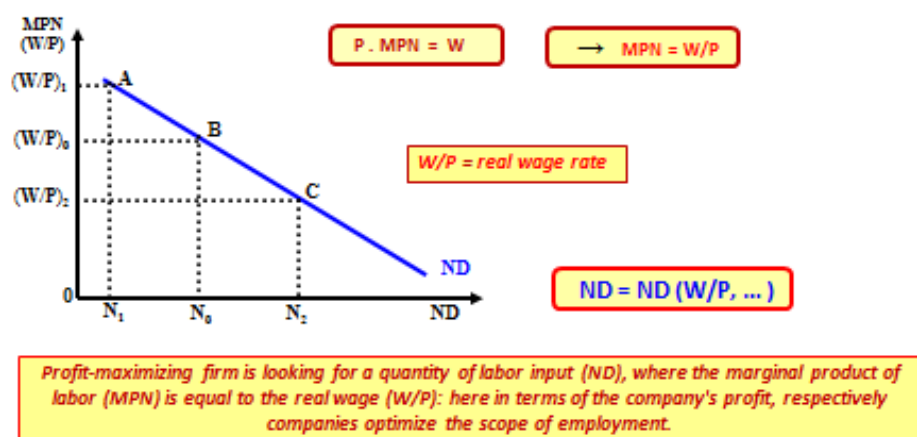
Companies profit-maximizing employment will expand to the point where the value of the marginal product equals the wage rate of the koruna, i.e. where: $P \cdot MPN = W$ and hence $MPN = W/P$.

The share W/P is the real wage rate that represents the amount of goods that can be bought for the price of one crown hours of work (one unit of work), i.e. the amount of goods that can be purchased for a nominal (crown), wage rate W .

Profit-maximizing firm is looking for a quantity of labor input (ND), where the limit (marginal) product of labor (MPN) is equal to the real wage (W/P): here is in terms of the company's profit, respectively. Companies optimized scope of employment.

As can be seen in Figure 5.1.1, aggregate demand for labor is decreasing function of the real wage rate, given the shape of the production function.

Fig. 5.1.1 Aggregate demand for labor



c) supply labor curve - based on the assumption that households (workers) in order to maximize their utility divide their time between work period (labor supply) and leisure time, i.e. households make a decision between work and leisure.

In Fig. 5.1.2 there is an analysis where the indifference curves represent different levels of the total benefit, when households receive a combination of work and leisure - their tendency is given by the marginal rate of substitution between consumption (work) and leisure. Size determines the real wage for domestic achievable level of total utility.

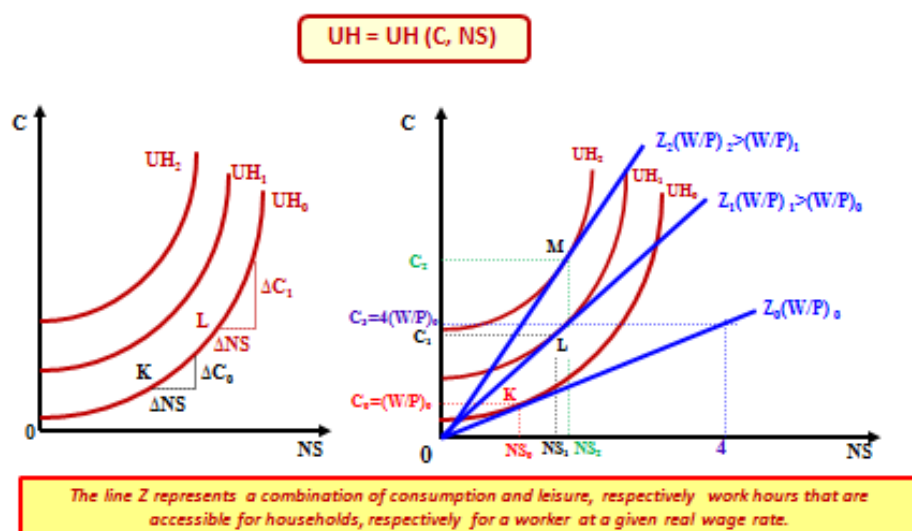
Substitution and income effects = two forces that act upon an increase in real wages.

Substitution effect operates as higher real wage makes leisure "expensive" income effect occurs when the result of growth in real wages can afford to households more free time, respectively less work.

Superiority substitution effect tends to increase the amount of the proposed work, the preponderance of income effect over the substitution results in a tendency to reduce the supply of labor. The relative influence of these two effects depends on the preferences of households.

In further analysis we will take into account the conclusion that the aggregate supply curve has a positive slope.

Fig. 5.1.2 The derivation of labor supply using the indifference analysis



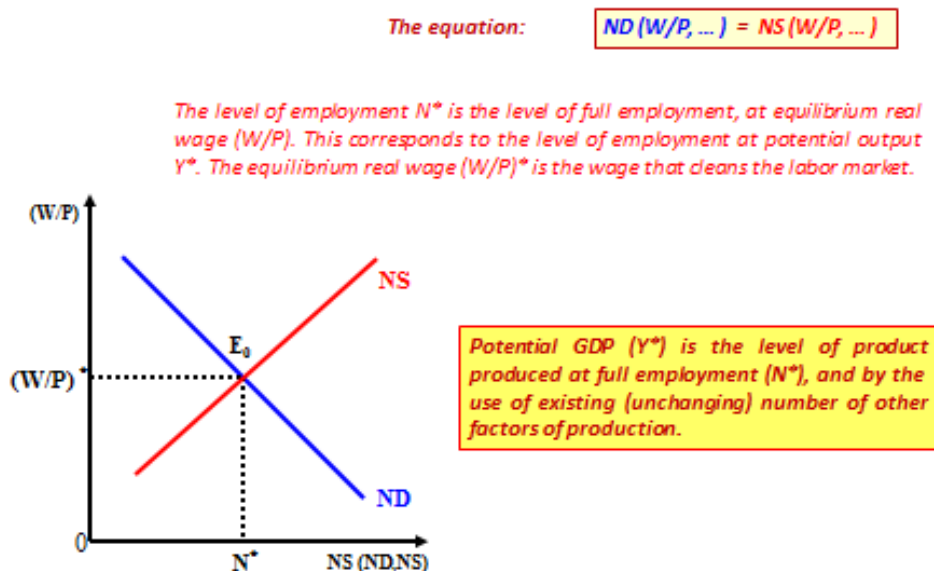
d) The equilibrium of the labor market

Equilibrium in the labor market occurs when the aggregate labor supply is equal to the aggregate demand for labor, as can be seen in Fig. 5.1.3. Since the analysis of the labor market performed assuming perfect competition, then these ideal theoretical terms of the classical model of the labor market and households at a given real wage offer such amount of work they want and so many companies hire workers, which in the real wages they want to hire. The economy operates on the natural rate of unemployment, i.e. full employment.

In the classical model the full employment level corresponds to the level of production at full employment, i.e. the potential product.

Potential GDP is the level of product produced at full employment and utilization of existing (unchanging) number of other factors of production.

Fig. 5.1.3 Equilibrium at labor market



2 Macroeconomic context of classical labor market

In the previous lecture were in connection with the interpretation of various concepts of aggregate supply curve and explain various concepts of the labor market, which forms the basis. Now we inflict the classical labor market in the macroeconomic context, and thus we get the complete picture of classical doctrine.

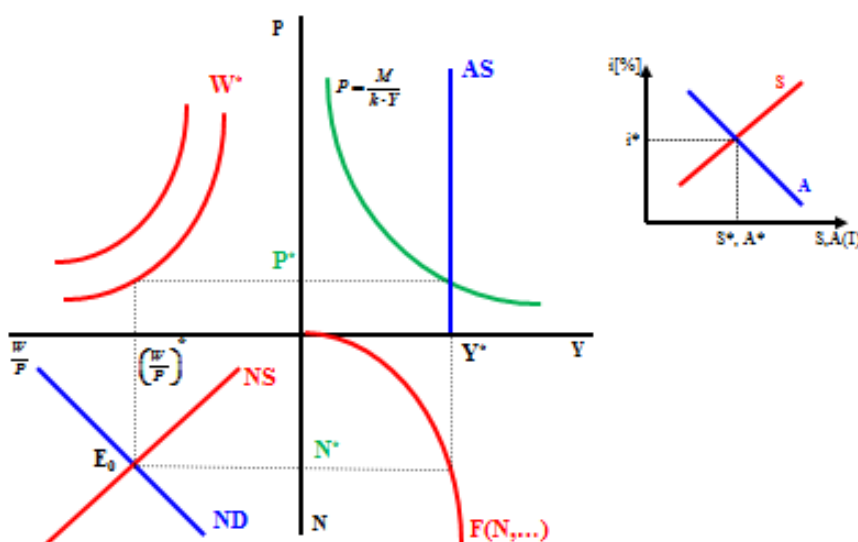
The classical model in formal algebraic description consists of six equations:

- equation anchoring equilibrium in the labor market, i.e. the situation cleaned market (equilibrium wage rate and the level of full employment);
- another equation is the production function, which shows that the volume of full employment in the classical model directly determines the level of supply of goods;
- another component of the classical model of capital market, respectively. equilibrium condition on the capital market, i.e. the equality of savings and autonomous expenditures (investments), this market also establishes the equilibrium interest rate, which cleans up this market;
- the fifth component is the Cambridge equation, which is the formulation of the quantity theory of money, i.e. $M.V = P.Y$;

- the last sixth equation is a formal identity, which establishes a claim that a nominal wage is implied equilibrium real wage rate and the equilibrium price level.

Thus formulated model represents six equations with six unknowns, from which can be determined six economic variables, i.e. N^* , $(W/P)^*$, Z^* , i^* , P^* and Y^* . Model embodies the classic dichotomy between the real sector (equation 1-4) and the monetary sector (equation 5-6).

Fig. 5.1.4 Macroeconomic relationships at the classical labor market



3 Macroeconomic context of the original Keynesian labor market (inflexible wages)

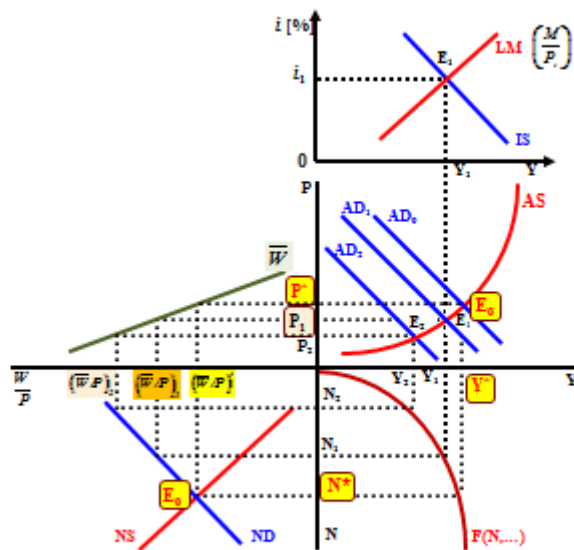
In interpreting the macroeconomic context (outcomes) to the model, we use the original interpretation of the Keynesian model (basic situation), which was carried out on the previous lecture, when we derived the short run aggregate supply curve assuming rigid nominal wages.

The original Keynesian model: rigid nominal wages in the formal algebraic description consists of the following equations:

- the first equation expresses the fact that the nominal wage exogenously given, and therefore when real wage rate, there is an excess supply of labor households over demand for labor: the level of actual real wage rate is higher than the level of the equilibrium real wage rates;

- the second equation is the equation of the production function, which showed that the level of production is given the level of employment, which is lower than full employment;
- another equation is the equation of the curve IS; which expresses the fact that the demand for autonomous planned spending is decreasing function of interest rates and savings increasing function of income;
- fourth equation is the equation of the LM curve, which establishes equilibrium in the money market and other assets from which it follows that the demand for real money balances is a function of interest rates and income, and must offer equal real money balances;
- last, the fifth equation, contains factors that have been characterized previously: since nominal wage rate is determined exogenously, the real wage rate and depends on the price level.

Fig. 5.1.5 Macroeconomic relationships of the original Keynesian model (rigid wages)



4 Unemployment and its characteristics

a) The definition and measurement of unemployment - see e.g. the Eurostat definition, which is considered as unemployed all persons 15 years of age and older who during the reference period meet the following three conditions:

- 1) they were without work, i.e. they were not in paid employment nor self-employment.

2) they are seeking job actively, i.e. they have been registered at the labor office or private employment agency.

3) they are going to take a job.

If the person does not meet any of the conditions above are classified as employed or economically inactive.

Employment rate (in %) = the number of unemployed (U) to the labor force (L). Work force consists of employed persons (E), i.e. those who have jobs and unemployed (U), i.e. those who are actively seeking a job.

Rate, respectively the labor participation rate (I) = ratio of labor, i.e. the economically active population (L) to the number of people of working age (F).

In addition, there are persons not included in the labor force, such as pensioners, women on maternity leave and women (men) caring for children in the household, homemakers, sick people, students, people who have given up looking for another job (i.e. discouraged people), and others.

The defect in the measurement of unemployment:

- it does not affect people who have "involuntarily" working on a lower weekly or monthly working hours; problem is a capture of seasonal unemployment;
- it does not include persons who during the reference period (e.g. 4 weeks) did not find work;

Statistical survey of unemployment is done differently in different countries: based on a sample survey of a representative sample of households, or on the basis of data on job vacancies registered at labor offices, etc.

b) Types of unemployment - usually differentiate the following types:

a) frictional unemployment (seasonal unemployment is considered as a component of this friction unemployment),

b) structural unemployment,

c) cyclical unemployment.

Frictional unemployment and structural unemployment are components of the natural rate of unemployment. Because they are compatible with the natural rate of unemployment, in the economic literature are therefore called equilibrium unemployment.

Cyclical unemployment - is associated with cyclical fluctuations in the economy, i.e. the difference between the actual and the natural rate of unemployment and thus the difference between actual and potential output.

Size cyclical unemployment in the literature usually expresses by the Okun's law (according to the American economist Arthur M. Okun). This law shows the negative correlation (statistically derived from real data) coefficient ratio between actual and potential output and unemployment.

c) The duration of unemployment, the unemployment rate

The duration of unemployment is characterized by the average length of time a person is unemployed. It depends on the structural characteristics of the market and the cyclical factors.

The frequency of unemployment is determined by the average number of times in a given period workers are unemployed. Dependent on fluctuations (gusts) aggregate demand for goods and services and labor demand of individual companies in different sectors and regions.

d) The dynamics of employment and unemployment: a simple and an advanced model

A simple model works with two files: a file of the employed and unemployed persons, among whom there is a continual spillover people.

The extended model operates with three sets of people: additionally contains a set of persons outside the labor force, whose existence modifies the extent of unemployment, for example, unemployed, who quit looking for work, reduce the number of people registered as unemployed. At the same time the flow of people from file to file employment outside the labor force increased employment: This is because these individuals often become unemployed, although again board the workforce, and also more likely to lose their jobs.

Flows between files in both models displayed graphically.

The simple and an advanced model of the flow of people between each file show that even if the employment rate unchanged at the level of the natural rate, yet there is a persistent movement of people and the labor market is in constant motion.

Determinants of the natural rate of unemployment - the general determinants are basically two:

- the fact that finding a job takes time;
- rigidities in nominal wages.

Other specific determinants of the natural rate of unemployment:

- demographic composition of the population;
- unemployment insurance of persons;

- the minimum wage;
- retraining system (retraining system);
- system accurate and timely records of vacancies;
- different growth rates of individual sectors of the economy;
- wage agreements etc.

Unemployment and hysteresis phenomenon - a long period of high unemployment carries a tendency to increase the natural rate of unemployment. The arguments are based on the model of wage determination for employees in the company (insiders) and wages for the unemployed in the company (outsiders). The boundaries between these groups varies, some insiders is released and becomes outsiders. The labor unions only care mainly about insiders, which is due to the rise in unemployment is still a smaller number. This may become a growing part of the permanent unemployment.

e) The costs of unemployment:

- unemployment costs per worker - a reduction of personal disposable income and thus the quality of life, loss of skills, psychological consequences of unemployment, etc.;
- costs of structural and frictional unemployment - are compatible with the natural rate unemployment, job search takes time. Some workers are long time unemployed and have no real opportunity to gain work. With that arise actual losses;
- cost of cyclical unemployment - the loss of non-use of factors of production, loss of production, unemployment benefits, loss of personal income tax and corporate income tax, loss of corporate profits.

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