

ELM Part 2- Economic models

- Elliott R.F. (1991), Labour Economics: A Comparative Text, Mc Graw Hill ,1991, chapters 1 and 15
- Blanchard O. (2006) European Unemployment, *Economic Policy* no.45 Jan.2006

Some questions looking for an answer

The labour market performance of EU countries presents some problems which need to be addressed:

- Why the EU is not able to create enough jobs for its active population?
- Why unemployment is so persistent?
- Why participation rates are so low relative to other non EU countries?
- What policies may be introduced to improve the labour market performance of EU countries?

Economic models try to answer to these questions

THE ECONOMIC APPROACH TO THE LABOUR MARKET

Main assumptions of the baseline neoclassical model (1)

- In the labour market **buyers** (firms, labour demand) and **sellers** (individuals, labour supply) of labour exchange labour services for pay. **Wages** are the price of labour services.
- **Agents (buyers and sellers) are rational:** on the basis of their tastes and constraints they try to maximise their objective function. The objective of buyers (firms) is to maximise profits; the objective of sellers (individuals) is to maximise utility.

Main assumptions of the baseline neoclassical model (2)

- **Markets are competitive.** There are many sellers and buyers which are price takers: they cannot affect wages or prices which are completely flexible and are set only by the movements of demand and supply. The equilibrium wage and price are those determined by the equality of demand and supply.
- **Individuals and firms are homogenous**
- **Individuals and firms have a complete information** on labour market conditions
- There are **no constraints to labour and firms' mobility**

LABOUR SUPPLY (1)

➤ **The labour force (LF) function/curve** represents the size of the labour force at different levels of the real wage (W/P). We assume that aggregate participation increases with the real wage.

➤ **The labour supply function (Ls)** represents the behaviour of the sellers of labour. It indicates the amount of labour that individuals or groups are willing to supply at each wage rate. Labour supply depends on:

- Individual tastes and preferences
- The real wage rate
- Non labour income (which depends also on the system of welfare support such as unemployment benefits or subsidies).

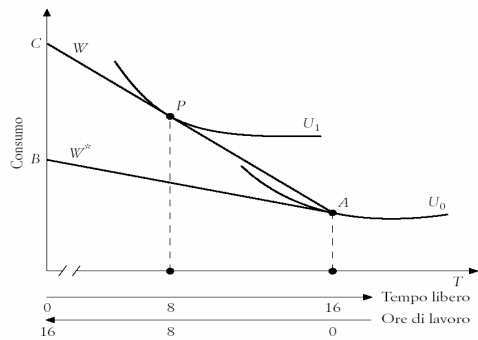
The individual maximise her/his utility function (which depends on her/his preferences) under an income and time constraint (which depends on the income she/he may get either working or not and the time available):

$$\begin{aligned} \max_{C, L} \quad & U(C, T) \\ \text{s.t.} \quad & C = \frac{W}{P} L + \frac{X}{P} \\ & T_{\max} = T + L \end{aligned}$$

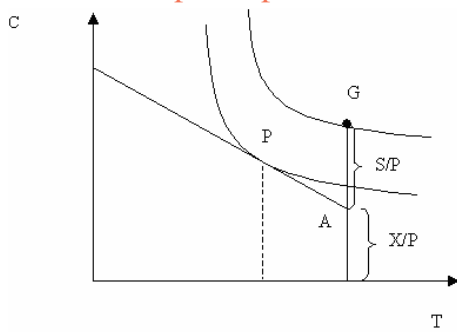
LABOUR SUPPLY (2)

- On this basis decision to participate to the labour markets depends on the **comparison between the (net of taxes) market real wage and the reservation wage**. The individual participate only if the market wage is greater than the reservation wage.
- **The reservation wage** is the highest wage below which individuals do not wish to work. The reservation wage depends on non labour income and preferences.
- Given individuals' preferences and non-labour income, the quantity of labour supplied is a **positive function of the real wage**.
- Changes in non-labour income and tastes shift the position of the supply curve, while changes in the real wage result in movements along the supply curve
- All policies which affect the reservation wage and the market wage affect labour supply: family composition, welfare subsidies, taxes. But also employment and working time regulations affect labour supply, especially in the case of *secondary workers*.

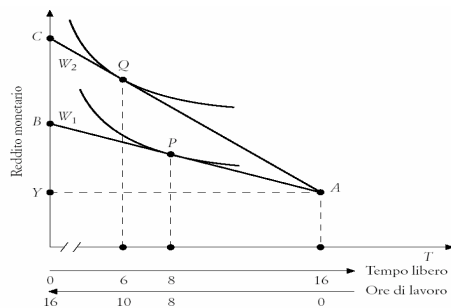
labour supply at the individual level



Effects of subsidies on labour market participation



The effect of child care subsidies on labour market participation



TAB. 3.4. *Stime dell'offerta di lavoro maschile e femminile tenendo conto delle tasse*

	Paesi	Elasticità al reddito	Elasticità dei salari
OFFERTA DI LAVORO MASCHILE			
Blomquist <i>et al.</i>	Svezia	0,01	0,09
Triest	Stati Uniti	0,0	0,0
Colombino e Del Boca	Italia	–	–
Bourguignon e Magnac	Francia	< 0,01	0,0
OFFERTA DI LAVORO FEMMINILE			
Blomquist <i>et al.</i>	Svezia	–0,24	0,79
Triest	Stati Uniti	–0,32	1,31
Colombino e Del Boca	Italia	–0,66	1,18
Bourguignon e Magnac	Francia	–0,03	1,0

Fonte: *Labor Supply and Taxation*, numero speciale di «Journal of Human Resources», 1990.

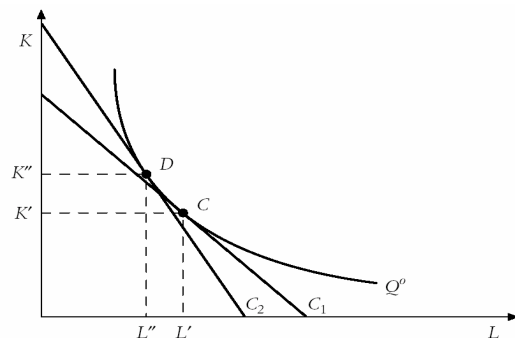
LABOUR DEMAND (1)

- The **labour demand curve** represents the demand for labour by a single firm or a group of firms.
- **Labour demand (Ld)** is a derived demand: depends on the demand for the final commodity that labour helps to produce.
- The firm maximizes its profit function subject to the constraint given by the technology available:

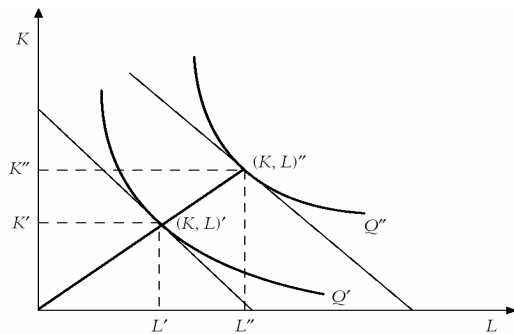
$$\begin{aligned} \max \Pi &= PQ - (wL + rK) \\ \text{st } Q &= (K, L) \end{aligned}$$

- The **price** that the firm is willing **to pay** for labour is related to the market value of an employee's output (the revenue that the firm obtains from selling the output of labour). For this reason in a competitive market, the demand for labour depends on:
 - The real wage
 - The price of other production factors
 - Labour productivity and the technical possibility to substitute labour with other production factors.
- **The demand for labour is inversely related to the real wage** because it is assumed that the marginal productivity of labour increases at a diminishing rate.

Effects of a relative increase in wages: the substitution effect



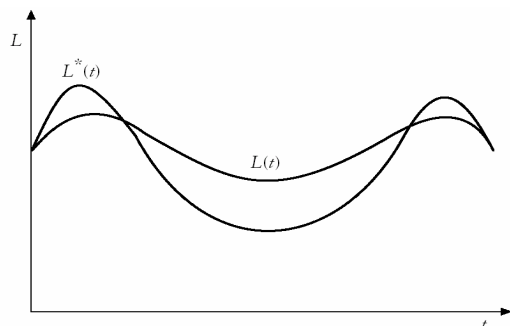
Effects of a relative increase in wages: the scale effect



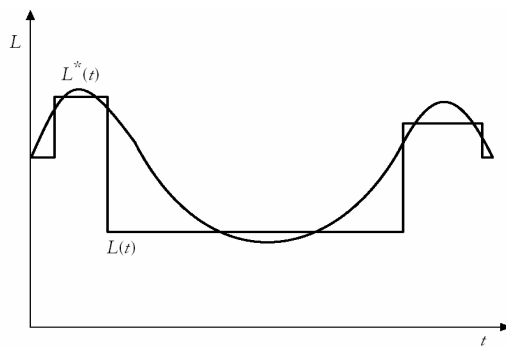
LABOUR DEMAND AND ADJUSTMENT COSTS

- Labour costs include a **variable component** (hourly wages) which depends on time worked and a **fixed component** (adjustment costs, such as hiring and firing costs, training costs) which depends on the number of workers.
- Due to adjustment costs, a firm wishing to adjust its workforce to changing economic conditions may find it costly to make quick changes: high hiring costs and high firing costs may discourage firms from expanding employment during economic expansions; high firing costs may discourage firms from reducing employment during recessions
- High adjustment costs may thus reduce employment fluctuations over the business cycles, but also increase labour market segmentation and long term unemployment among outsiders (usually women, young and older people) and wage pressures by the insiders.

Employment variation with variable adjustment costs†



Employment variation with fixed adjustment costst



LABOUR MARKET EQUILIBRIUM in perfect competition models/1

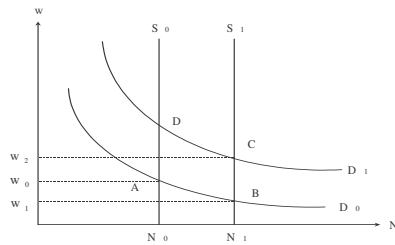
- The labour market is in equilibrium when:
 $L_s = L_d$
- At the equilibrium we have an equilibrium employment L^* and real wage W^*/P .
- This equilibrium is reached because there is perfect competition, wages and prices are completely flexible and there is mobility of factors.
- **Unemployment** is defined as an excess supply at the prevailing wage rates. **At the equilibrium there is no involuntary unemployment and inflation is stable.**

LABOUR MARKET EQUILIBRIUM/2

- In equilibrium there may be only some *frictional unemployment* (those who are changing jobs or are looking for their first job) and, in the short run, *structural unemployment* (due to skill mismatches). In the long run this structural unemployment would not persist if wages are perfectly flexible and markets are free to adjust.
- In these flexible labour markets wage differentials compensate for differences in individuals' productivity and job characteristics and have an important allocative function.
- The equilibrium rate of unemployment is called "**natural rate of unemployment**". Those who are willing to work at the equilibrium real wage do work, those who have a higher reservation wages are out of the labour force.

Labour market equilibria with heterogeneous labour

The relative demand of skilled/unskilled labour



CAUSES OF UNEMPLOYMENT (1)

NEOCLASSICAL MODELS

- In a competitive labour market, wages and prices adjust in order to clear the market: **it is not possible to have involuntary unemployment** unless there are **distortions in the functioning of the labour market due to labour market regulations**:
 - Real wages too high and sticky (due to minimum wage legislation or union power or efficiency wages, or imperfect competition or high adjustment costs)
 - Information imperfections which lead to misperceptions on prices and wages
 - Welfare benefits too generous (search models)
- POLICY RECOMMENDATIONS**: let the market adjust. Reduce regulations and real wages by operating on the supply side. Unregulated labour markets have a natural tendency to clear and involuntary unemployment will not persist in the long run.

CAUSES OF UNEMPLOYMENT (2)

KEYNESIAN MODELS

- There is involuntary unemployment due to insufficiency of aggregate demand and wages/prices stickiness (due to imperfect competition in all markets).
- Since wages and prices do not adjust quickly and completely, firms are constrained on the amount of output they can sell in the product market. When aggregate demand is low, firms hire little labour. Because of unemployment individuals have lower incomes and reduce consumption, further reducing aggregate demand.
- POLICY RECOMMENDATIONS**: reducing wages may only aggravate the lack of aggregate demand. To reduce unemployment we have to increase demand through demand side policies (fiscal and monetary policies)

WHY WAGES ARE RIGID?

- **Causes external to the firms:** minimum wages, union power, employment regulations determined by the actions of governments (regulation) and/or unions which introduce **distorsions** in the functioning of the labour market
- **Causes inside the firms:** employers action to increase productivity and effort from workers (efficiency wages), different degrees of risk aversion (implicit contracts)

External causes of wage rigidity/1

1. **MINIMUM WAGES** (Fig. 15.8 Elliott)
2. **UNION POWER:** Unions increase the bargaining power of workers.
 - There is a **wage setting curve above the individual labour supply curve**.
 - The slope of the wage offer curve reflects the relative bargaining strength of unions, which increases as employment increases. The market clearing real wage is higher than in the competitive case, employment is lower and there involuntary unemployment.
 - Unions end up representing the employed (insiders), not the unemployed (outsiders), especially when bargaining at the industry level.

External causes of wage rigidity/2

3. **EMPLOYMENT REGULATION**
 - If employment regulation limits dismissals, the costs of labour (adjustment costs) perceived by the firm increases and they are more reluctant to hire in good times, because they worry about the consequences in bad times.
 - Moreover employed workers are less likely to be dismissed and increase their bargaining power. They may ask for higher wages without fearing to lose their job and, again, there is a **wage setting curve** above the individual labour supply one.
4. **IMPERFECT COMPETITION IN THE PRODUCT MARKETS:**
firms have the power to impose a mark up over production costs and their *price setting curve* is below the labour demand curve in perfect competition. In addition they may share the rents due to non competition with their workers.

Internal causes of wage rigidity (1)

1. EFFICIENCY WAGES

Firms are willing to pay wages higher than the equilibrium ones, in order to improve workers' productivity, for example by:

- Attracting the best applicants and keeping them (turnover models)
- Maintaining high the workers' morale and involvement in the firm
- Avoid shirking

There is a **wage setting curve** above the labour supply one, the equilibrium real wage is higher than in the competitive model, employment lower and unemployment higher.

Internal causes of wage rigidity (2)

2. IMPLICIT CONTRACTS

- Employees are more risk averse than employers. Employers offer an implicit contract to workers which includes a wage-employment package lasting some years where the variability of wages is minimised: the employer provides an "insurance" against wage declines.
- With these contracts real wages are more stable: they do not decline during recessions, while employment is more variable than in competitive markets.

THE NAIRU(1)

The Nairu model summarises the different cases considered before, because considers the possibility of imperfect competition in the labour market and product markets.

In most economies there is imperfect competition in the labour market: collective bargaining set wages, firms set prices. In these economies the relevant curves are:

- the *wage setting curve* (W_s), which is *above* the L_s and reflects the bargaining power of unions (or workers)
- the *price setting curve* (P_s), which is *below* the L_d curve, and reflects the market power of firms over prices.
- If claims over output by firms and workers (unions) are conflicting, each party uses its market power to raise prices or nominal wages in an attempt to realise its claim.
- The result is rising inflation. In the short run, the only way to reduce inflation is to increase unemployment.

THE NAIRU (2)

- In these economies the NAIRU (non accelerating inflation unemployment rate) is the unemployment rate at which the competing claims on output by firms and workers are reconciled and inflation is constant. It is set where the wage setting and the price setting curve intersect.
- The NAIRU changes if one or both these curves shift.
 - The *Ws* curve may shift due to changes in union power, employment protection regulation, unemployment benefits, mismatches, demographic changes, etc.,
 - the *Ps* may shift due to technology or productivity changes, factor prices, firms market power, terms of trade, etc.

CAUSES OF HIGH UNEMPLOYMENT IN EUROPEAN COUNTRIES/ 1 (Blanchard,2006)

Why did unemployment rise more in Europe than in other countries and persisted at high levels since the first oil shock and up to the early nineties? How much the unemployment rise was due:

- ✓ to greater adverse effects of shocks or
- ✓ to European institutions, bad equipped to deal with shock and rapidly adjust to changing economic conditions?

No single causes, but interaction of many causes :

- **negative macroeconomic shocks:**
 - restrictive macroeconomic policies
 - technology
 - international competition
- **persistence and influence of past shocks due to institutions:**
 - UB,
 - wage bargaining,
 - employment protection,
 - barriers to labour mobility
 - taxation on employment).

CAUSES OF THE HIGH UNEMPLOYMENT IN EUROPEAN COUNTRIES (1)

Initial shocks (increase in oil prices, worsening of terms of trade, slowing down of productivity...) had more adverse effects on EU labour markets due to *nominal and real wage rigidity* which produced higher unemployment costs for a given reduction in inflation.

Higher wage rigidity due to *institutional features*: wage setting mechanisms and more generous UB.

In addition the *propagation mechanism* was longer in EU countries again due to *institutional features* and lead to persistent unemployment.

Unemployment persistence may be due to hiring and firing costs and wage setting conditions which segmentate the labour market and reduce the power of outsiders to compete for jobs:

- Hiring and firing costs induce firms to reduce hirings and keep out of employment for a long time those looking for a job
- inside membership dynamics: insiders bargaining power increases and reduces the employment probabilities of outsiders.
- The outsiders lose skills and are discouraged in searching for jobs and do not compete for jobs even when conditions improve.

Improvements in EU NAIRU in the late nineties

- In the late nineties the NAIRU started to decline in European Countries.
 - The recent improvement in the NAIRU and employment rates appear to be due to:
 - Increasing openness of EU economy
 - wage moderation,
 - increase in flexible contracts (especially part-time contracts),
 - improvement in skill structure of labour supply,
 - increases in participation rates (among women).
- These factors have increased the employment content of GDP growth and shifted the Phillips curve to the left.
- Part of the improvement in labour market conditions may be due to EMU, which imposed a greater discipline to wage bargaining and supported wage moderation.
 - Also the greater competition due to European Integration and globalisation imposed wage moderation and labour market/product market structural reforms

EMU AND LABOUR MARKETS (1)

However EMU may also have adverse effects on labour markets: economic integration and increased competition may increase growth differentials across EU countries:

- Economic conditions within EU are very different and will be increasingly so with new accession countries. Thus negative shocks may have very different effects over different countries
- Each country has less instruments to intervene to support national and local economic conditions and compensate for adverse shocks: monetary policy is defined at EU level, exchange rates are fixed and fiscal policies is constrained by the stability pact and Maastricht rules. There are thus less options to accompany labour market reforms with expansive macroeconomic policies at the national level.

EMU AND LABOUR MARKETS (2)

The way to overcome this situation is to increase co-ordination at the EU level both in supporting labour market reforms and aggregate demand (via expansionary macroeconomic policies).

In addition a system of transfer of resources to the less developed areas of EU is needed in order to reduce development differentials.

However currently:

- The budget for structural and labour market policies is still small (most of EU budget still goes to the CAP)
- The EC has no political power to make relevant decisions

EU ENLARGEMENT

- EU population increases from 380 to 454 millions (EU 25) and to 485 millions (EU 27)
- In NMS GDP yearly growth rate is on average 4% relative to 2,5% of EU15
- Employment rates in EU 15 is higher than in accession countries
- Agriculture large share of employment; wage differential high (4 euros per hour relative to 22); lower gender differences; large territorial differentials (urban vs rural)
- In order to reach the Lisbon target, jobs should increase by 22 millions between 2002 and 2010 in the enlarged Eu.
- Large differences in welfare regimes (even if on average NMS more similar to anglo-saxon model)

Predictions from economic theory

EU enlargement and economic integration of countries with different incomes would provide gains for all countries involved due to:

- Increasing competition and trade opportunities due to extension of internal market
- Increasing factor mobility
- Increasing wage and price flexibility

BUT

Increases the possibility of asymmetrical shocks, due to the large structural differences, which could increase territorial differences.

Benefits and losses could be distributed unevenly across countries and within each country

HENCE

Need of accompanying measures and structural funds, besides coordination of policies and improvement in decision making

Fears

- Deterioration of living standards, wage losses and job displacements if substitution effect prevails especially for low skilled and Southern Europe
- Pressures on labour markets and social cohesion due to mass migration (also from countries bordering NMS). Greater pressures on bordering areas and on traditional, labour intensive sectors, such as agricultural and industrial sectors
- Delocalization of labour intensive productions due to large labour costs differentials
- Convergence will be a very long process and during this process there are costs of integration to be supported: resources to sustain integration will reduce those available for the weaker areas within the EU 15
- Increase in territorial disparities
- Given large role of agriculture in acceding countries, no reform of CAP
- Increasing complexity in EU governance

Note: same fears as with the accession of Greece, Spain and Portugal.

Estimated impacts

- According to impact studies, the NMS are too small in relation to the EU 15 to induce substantial changes of the conditions of trade and capital movements and of wage and employment conditions at the Eu aggregate level.
- The main effects will be concentrated in bordering regions of Austria and Germany.
- There will be an increase in migration flows, but these will be of a minor magnitude: most estimates show a yearly net immigration of 335.000 individuals immediatly after the accession, which will fall to 150.000 after 10 years. Currently immigrants from NMS represent only 0.3% of the Eu workforce, and 80% are located in Austria and Germany. Temporary rather than permanent migration, especially seasonal workers in construction and catering sectors. Migration flows will be reduced with growth and due to ageing population in AC.
- Negative effects on EU workers would be limited to blue collar workers in the industrial and construction sectors and unskilled service workers, however this effect is estimated to be lower than feared, even in Austria and Germany

Policy implications

The transition process may be long and costly. There is a need of specific resources and policies to accompany it (EU coordination).

- policies to accomodate structural reforms
- policies to sustain labour mobility and to regulate migratory flows
- policies to support convergence in income per-capita
- policies to improve the governance and decision making

Policies to mitigate the impact of structural adjustment

- Flexible labour market institutions allowing wage and employment flexibility, but providing adequate income support schemes and coordination of welfare, migration and employment policies
- Support competition in the product markets and shifting AC production from agriculture to industry and services
- Support greater investment in education and training, especially in general skills and secondary education
- Support in reducing the informal sector by simplifying regulation , rationalizing public administration and reducing corruption

Policies coping with regional unemployment differentials

- Enlargements shocks may be concentrated in specific regions (especially rural). In order to reduce regional imbalances, policies supporting labour mobility are relevant:
- Mobility loans,
- Transportation networks
- Support to commuting flows

Migration policies

- Migration flows should not be relevant, and will be concentrated in bordering areas.
- Migration flows, especially if in the form of crossborder commuting, may have positive effects on hosting countries with problems of excess labour demand and mismatches and of ageing population.
- Limiting migration flows may be negative, because it reduces integration potentials and increase incentives to illegal immigration and black economy.
- Policies to increase general acceptance of labour mobility (student mobility good tool)

Cohesion policies

- Structural funds will have a relevant role in cohesion policy after the enlargement
- Currently EU structural fund account for about 0.5% EU gdp and one third of EU budget. 70% goes to Ob.1 regions
- Necessary to revise CAP policies, to increase budget for structural funds.
- Estimates show that poor countries are less costly then relatively well-off not growing countries due to rules of maximum 4% of GDP.

Macroeconomic policies

- The necessary control of the budget balance should not jeopardize investments in public infrastructure and social expenditure.
- Policies should also stimulate foreign direct investments in accession countries and especially in rural areas
