

Supply side policies/1

(Burda & Wyplosz , *Macroeconomics. A European text*, third edition.
Oxford University Press, 2001: Part VI –ch.17)

- We have explored the role of demand management macroeconomic policies (monetary and fiscal policies) in closed and open economies. These policies affect aggregate demand (AD).
- Their main risk is to increase inflation in the long run, without affecting the structural problems which may limit the growth potential of a country.
- Alternative or complementary policies are supply side policies, which are aimed at increasing the productive potential of an economy, by shifting the AS curve outward, irrespective of the state of aggregate demand and without increasing inflation (Fig.17.1). In the long run supply side policies may improve the LRAS.

Supply side policies/2

- Supply side policies are “structural” labour and product market policies which try to improve the efficiency of the product and the labour markets, reducing structural market failures and removing obstacles to competition.
- These policies have drawbacks (*government failures*):
 - they may take a long time to have effects
 - they are usually difficult to design and implement and may introduce the wrong incentives in the economy, shifting the LRAS backwards, increasing both inflation and unemployment
 - They are costly and, being financed by taxation, may produce distortions.

The benchmark of efficiency: perfect competition and complete information

- Perfect competition in the product and labour market is considered the most efficient system to achieve full employment of resources.
- Perfect information is necessary to support competition in product and labour markets.
- With perfect competition firms and workers may not affect prices and wages; prices and wages are perfectly flexible and free to adjust to bring full employment.
- If these conditions are not met, government intervention can intervene to support a better and more efficient use of resources.
- In order to avoid the risk of introducing additional distortions, government intervention is justified only if:
 - It is limited to clearly identified market failures
 - It is targeted directly at market failures

Product markets failures and policies: competition and information/1

- When product markets are not competitive and only few large firms are operating, firms may affect the prices of their products using their monopolistic/ oligopolistic power and try to create barriers to the entry of new firms. Firms try to maintain their economic rents by keeping prices higher and output/employment lower than in perfect competition.
- In this case **competition policies**, such as **antitrust policies and regulation**, may be adopted by governments. Examples:
 - Microsoft court case at the EU level
 - The separation of the electricity generation from electricity distribution (in UK, Italy, ...)
 - The EU Bolkestein directive for competition in the service sector
- The state should intervene also to support the diffusion of information and to reduce information asymmetries among buyers and sellers, by appropriate regulation.

Product markets failures and policies: competition and information/2

- Often there is a strong opposition to competition and antitrust policies both from producers and workers; National governments may also oppose these policies if their national interests are at stake (ex. Beer quality case which put the German government against the European Court of Justice)
- Risk of excessive regulation, which reduces competition

Product markets failures and policies:

Natural monopolies

- **Natural monopolies:** in some industries (ex. railways, electricity generation and distribution, water distribution, telecommunication) there are increasing returns to production, and the only economically feasible (efficient) way to produce goods/serves is to have a monopolist. So the market would produce a monopolistic firm, with the inefficiencies associated to it.
- The state could intervene by granting monopoly rights to a (public) company in exchange for a regulation preventing monopolistic pricing.
- Public companies however may be inefficient, due to the absence of competition. **Privatizations** are a way to increase competition in these markets and open markets.

Product markets failures and policies: externalities

- There may be also **negative externalities** which the market alone is not able to adjust:
 - *Pecuniary externalities* such as pollution, these externalities may be dealt with assigning property rights and creating a market: for example the law may specify that everyone has a right to clean water/air and the polluter firm has to pay a fee/indemnity to support water/air cleaning or spend resources to clean it.
 - *Non pecuniary externalities*, such as education and training, health, are more difficult to be dealt with. In these cases the individual returns are lower than the social returns and so there may be under-investment relative to what would be socially optimal if the decision is left only to the individual. There is thus a justification for public support (for example free compulsory education: but how many years should be free and compulsory?).

Product markets failures and policies: public goods

- **Public goods:** goods or services, such as clean air, law and order, justice, which are non-rival (consumption by one does not reduce their availability for others) and non excludable (everyone can use them freely): thus it is not possible to make profits out of them and may only be provided by the state and financed by taxation.
- Problems with supply side policies:
 - They are financed usually by taxation, which introduces distortions
 - how much should be produced?
 - how can we make public production efficient?

Taxation

- Taxation introduces distortions by creating a wedge between the production costs and the price paid by consumers.
- For example a **sales tax** (a tax paid as a percentage rate of the value of the goods/services) shifts upward the supply curve of the product/service, determining a new equilibrium at lower output, higher buying price and lower selling price. There is a deadweight loss: the welfare losses for the seller and for the buyer which are not completely compensated by the increase in tax revenues (Fig. 17.3)

Industrial and trade policies

- **Industrial policies**, usually support some industries or firms considered strategic at the national level or to avoid employment losses when there are industrial crisis. Usually these policies are based on subsidies or the public ownership of firms or public orders, state aids.
- **Trade policies**, support national firms and industries with tariffs on foreign goods, quotas on imports, exports credits, procurement policies.
- The ultimate effect of these policies is to reduce competition and to rise prices above the competitive levels.
- At the EU level, the European Single Act (1992) bans most trade policies for intra-EU trade and state aids. However the Common Agricultural Policy (CAP) at the EU level is a typical example of non competitive policy.

LABOUR MARKET POLICIES

ACTIVE LABOUR MARKET POLICIES (ALMP):

- job search assistance (labour market services)
- Labour market training
- Employment incentives (wage subsidy for hiring in the private sector)
- Integration of the disabled
- Direct job creation schemes
- Start up incentives

PASSIVE LABOUR MARKET POLICIES:

- unemployment benefits and other income support during unemployment
- early retirement schemes

LABOUR MARKET REGULATION:

- Hiring and firing
- Working time regulation

Labour market policies/2

These policies are supply side policies to reduce unemployment in the labour market. The underlying hypothesis is that unemployment may not be solved only via demand policies because of the inflation trade off.

Main market failures.

- Asymmetric Information (firms do not know workers characteristics, workers do not know jobs conditions)
- Externalities (social costs of plant closures are not internalised by firms; workers with Unemployment benefits do not internalise the costs of rejecting job offers)
- Lack of Competition in product and labour markets (monopolies, trade unions,
- Imperfect Capital markets (such as for unemployment insurance)
- Equity considerations

Main government failures:

- Distorsions of relative prices
- Restrictions to individual choices
- Time incosistencies
- Abuse/lack of credibilitiy
- High costs in the presence of scarce resources

THE LABOUR MARKET

Main assumptions of the baseline competitive 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**
- There are no regulations and/or institutions governing the labour market

LABOUR SUPPLY

- The 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 then 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*.

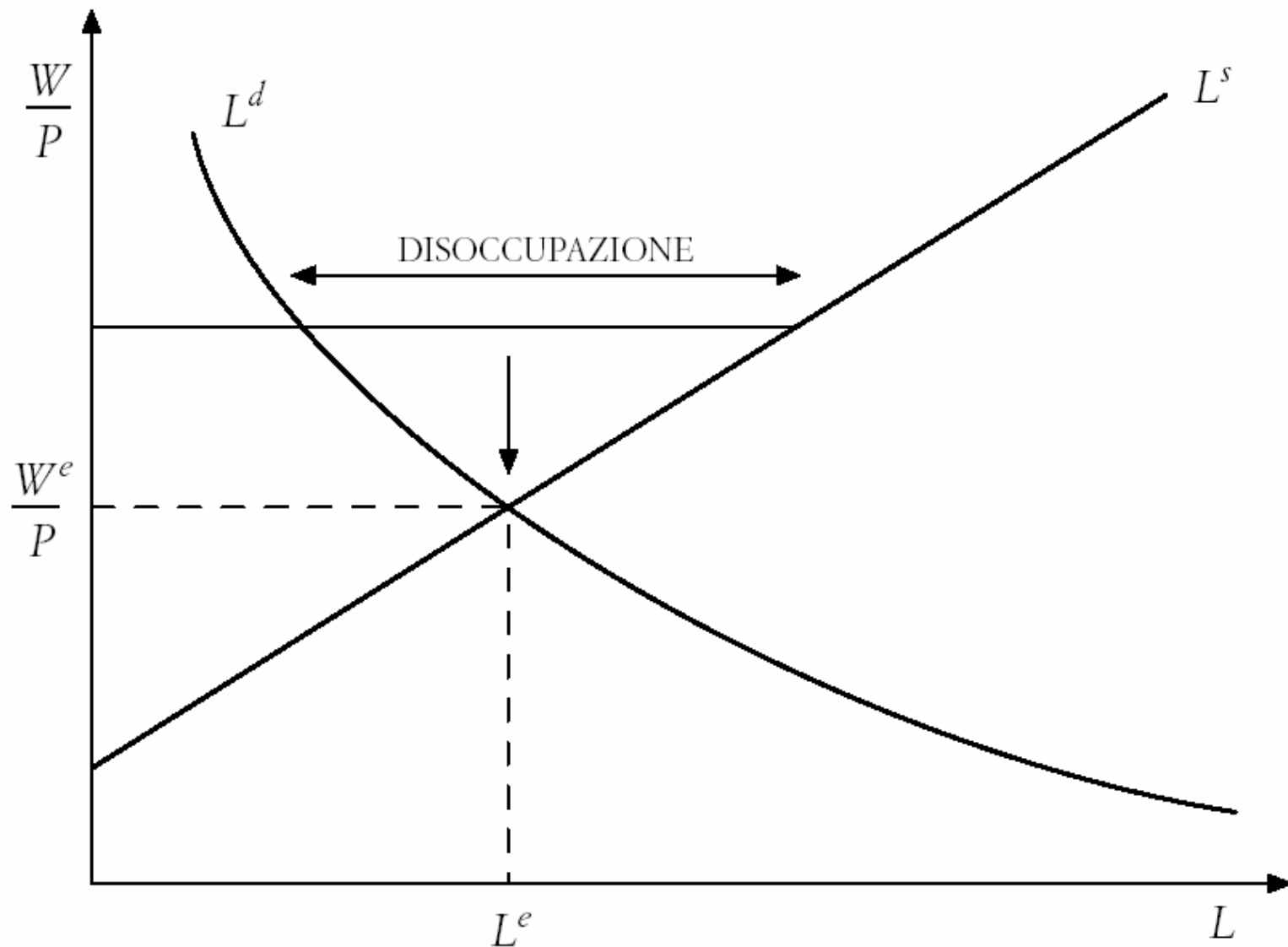
LABOUR DEMAND (1)

- **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.
- 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.

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.**

Labour market equilibrium in perfect competition



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 if workers and jobs are heterogeneous, *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 voluntarily out of the labour force.

The neoclassical equilibrium

- The neoclassical model does not represent the real functioning of labour markets, but it is useful as a benchmark in order to explain the possible causes of unemployment.
- At the neoclassical equilibrium:
 - There is **no involuntary unemployment**
 - The **allocation of resources is the most efficient** (wealth is produced at minimum cost) and the best possible (**Pareto optimum**: it is not possible to improve the situation of one agent without reducing that of another)
 - **Wage differentials** are due either to differences in workers' productivity (heterogeneous workers) or to differences in job conditions (compensating differentials)

Extensions to the basic neoclassical model (relaxing the assumptions)/1

- **Heterogenous workers and jobs:** wage differentials in the long run reflect differences in workers productivity (which may be gained by investment in human capital, i.e. in education, training and experience) or job characteristics (safety levels, working conditions, etc.). The adjustment mechanism takes time and disequilibrium wage differential may persist for a long time.
- **Imperfect competition in the product market:** if firms define prices, they impose a mark up over costs to have higher profits. Hence prices are higher and product and employment levels are lower than in a perfect competition market.
- **Trade unions:** try to impose higher wages than in perfect competitions

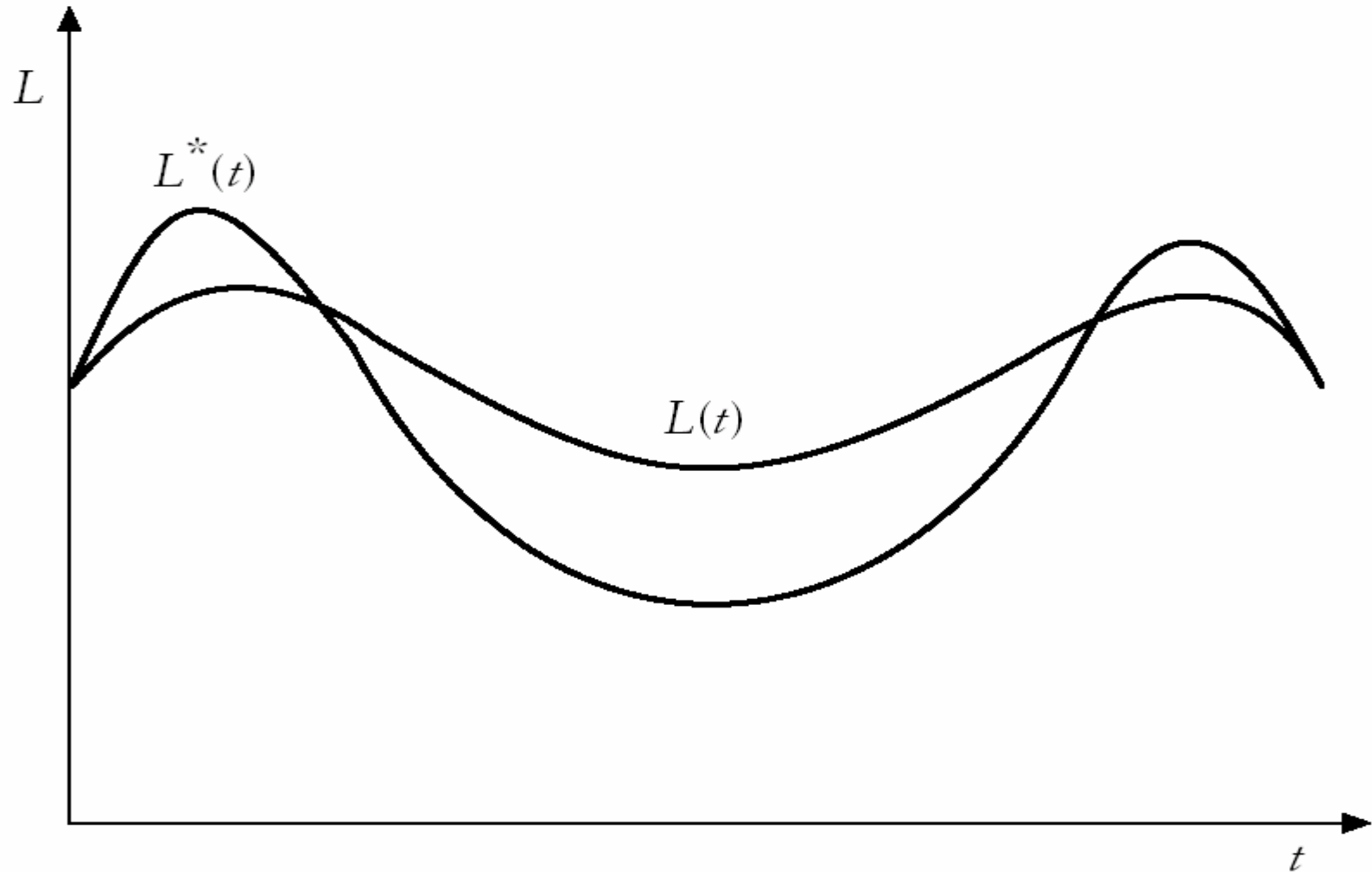
Extensions to the basic neoclassical model/2

- **Imperfect and costly information:** markets' adjustment will take time if there is incomplete information.
- Inter-firm wage differentials and (voluntary) unemployment may persist, since firms' do not hire the first applicant and workers' do not accept the first job available, preferring to search for better matching.
- In these models individuals are voluntarily unemployed in order to search for better jobs. Unemployment benefits and welfare benefits which reduce the cost of search increase unemployment
- **Adjustment and turnover costs:**

Extensions to the basic neoclassical model/3

- **Adjustment and turnover 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 these fixed 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 and from reducing employment during recessions (*labour hoarding*), if these fluctuations are considered temporary.
- 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 costst



THEORIES 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.

THEORIES 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

2. UNION POWER: Unions increase the bargaining power of workers, reducing competition in the labour market.

- There is a **wage setting curve above the individual labour supply curve**.
- The slope of the wage setting 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.

Equilibrium in non competitive markets: the NAIRU model (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 W s curve may shift due to changes in union power, employment protection regulation, unemployment benefits, mismatches, demographic changes, etc.,
 - the P s may shift due to technology or productivity changes, factor prices, firms market power, terms of trade, etc.

THE NAIRU (3)

- In these economies the NAIRU (non accelerating inflation unemployment rate) is the long run equilibrium rate of unemployment 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.
- In the **short run** the unemployment rate may diverge from the NAIRU due to *demand (macro-economic) policies*, but in the **medium/long term** the economy returns to the NAIRU as inflation stabilises.

Policy Implications

- The NAIRU is a long run equilibrium rate of unemployment which only depends on structural supply factors. The policy conclusions are similar to the classical model (it is a neoclassical model).
- Since in the long run the NAIRU is determined only by supply factors, only structural policies acting on the labour and the product markets may affect the NAIRU
- Macroeconomic policies which affect aggregate demand are not effective in the long run, they only affect the short run (cyclical) unemployment rate, but not the long run structural unemployment rate (NAIRU)
- In the short run it is possible to reduce the unemployment rate with macroeconomic policies, but only accepting higher inflation.

Hystheresis models

- These are alternative models to the NAIRU which reintroduce the role of macroeconomic policies in affecting unemployment also in the long run (neo Keynesian models).
- The hypothesis is that an increase in short run unemployment may affect the long run unemployment rate when it **persists** for a long time, due to labour market rigidities and the slowness of the adjustment mechanisms determined by:
 - Trade unions representing only employed workers (insiders): insiders gain bargaining power when employment is low and increase their wage demands, thus not allowing a reduction in unemployment;
 - Unemployment composed mainly by the long term unemployed which are discouraged and do not actively seek work, thus not competing in the labour market
 - The long term unemployed become obsolete and loose their working capacity, firms do not want to hire them and they do not compete with employed workers in the labour market
 - **In these conditions macroeconomic policies may have long run effects on the unemployment rate.**
- In *full hysteresis models*, there is no equilibrium unemployment in the long run, but unemployment always reflects past unemployment rates.