Unions and collective bargaining.
Labour Economics - set 3

Lorenzo Rocco

Department of Economics - Padova

April 2013

Few facts about unions I

- In all developed economies, wages are set by means of a negotiation between unions and the employer (or employers' associations)
- negotiation occurs at different levels, depending on the degree of centralization and coordination of the negotiation.
- Initially (XVIII century in UK and US) unions are associations of artisans or skilled workers whose purpose was that of providing insurance services to their members in case of death, injury or unemployment. During the XIX century they transformed into association of intermediate-skilled industrial workers. During the XX century expansion and representation of all workers. However the low-qualified were much more unionized than the high-qualified. After the peek in union density in the Seventies and the Eighties, marked decline in the Nineties and thereafter.

Few facts about unions II

- Unions negotiate a wage that applies to all their associates and in most cases also to the non-unionized workers: there is a wide and increasing gap between union density (proportion of associate workers) and the level of union coverage. In many countries collective contracts are extended to every worker by the law or the praxis.
  - problem of free riding in union membership and the provision of private services

- The purpose of unions is that of maximizing associated workers' welfare (i.e. not social welfare).

- Unions care also about equality and aim at wage compression. Besides ideological motivations, this is implicitly a way of insuring against the risk of losing the job. But this implies also that the more able would prefer to opt out.

- Empirical evidence: unions membership is ageing. Difficult to associate young workers.

Union's objective function I

- Unions typically care about both wages and employment levels. They realize that there is a trade-off between the two goals.

- To simplify, suppose that union's members vote to decide union's behavior and strategy. Suppose majority voting. Under regularity conditions, union's objective function coincides then with the median voter utility function (or the representative member).

- Borrowing from their representative member, unions' objective function can be described as

$$EU = \frac{L}{N}\nu(W) + \left(1 - \frac{L}{N}\right)\nu(\overline{W}) = \nu(\overline{W}) + \frac{L}{N}\left[\nu(W) - \nu(\overline{W})\right]$$

where L is the number of employees, N is labour force, W is the negotiated wage and $\overline{W}$ is income from unemployment. $\nu(.)$ is the (concave) worker's utility function.

Union's objective function II

- Utility derives from both wages and occupation. Indifference curves are decreasing and convex. The corresponding SMS_{wL} between occupation and wages is

$$SMS_{wL} = \frac{\nu(W) - \nu(\overline{W})}{L\nu'(W)}$$

Unions' purposes I

- Unions negotiate a unique wage rate for all.
- Therefore, workers with a high productivity (ability) will loose, as well as workers with a low productivity that will not be hired by firms at the union wage.
- Let's suppose that workers are heterogenous regarding their ability, so that adhesion to the union depends on workers' characteristics. Only the mid-able will associate to the union.
- Once the membership is defined, the median member determines union's preferences.
- Therefore, unions purposes are not representative of all workers and tend to reflect the preferences of a particular category.

Note: This model is relevant only for countries where unions negotiate only for their members and collective contracts do not extend beyond members.

Models of collective bargaining

- right-to-manage
- efficient bargaining

Right-to-Manage I

- The union and the firm negotiate over W, but the firm is the only responsible for occupation L.
- The firm will hire accordingly to his own labour demand, given W
- This means that the firm will always maximize its profits, given W (recall: the labour demand is the function that establish how much labour has to be hired in order to maximize profits).
- Negotiation on W is represented by means of a Nash Bargaining (let $0 \leqslant \gamma \leqslant 1$ union's bargaining power)
- Unions goal is EU, its outside option is $\nu(\overline{W})$
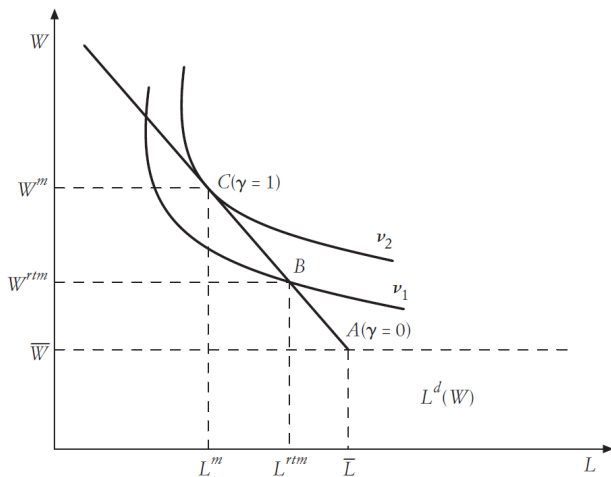- Firms goal is profit $\pi = q(L) - WL$, its outside option is $\pi = 0$

- Thus negotiation outcome solves:

$$\max_{W} \left[\frac{L}{N} \left[\nu(W) - \nu(\overline{W}) \right] \right]^{\gamma} [q(L) - WL]^{1-\gamma}$$
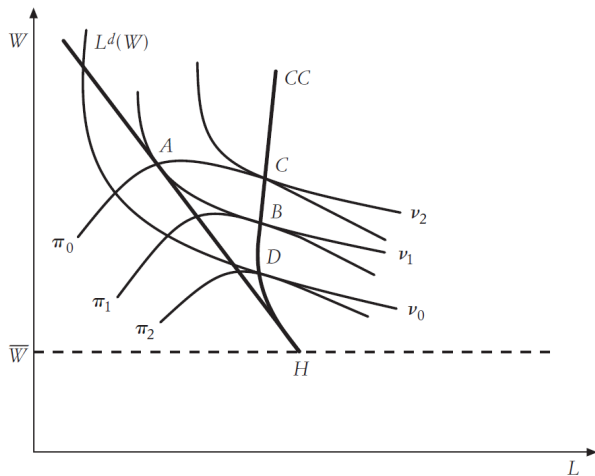
$$\text{s.t. } L = L^*(W)$$

- The solution is somewhere between $\overline{W}$ and W^m, the salary corresponding to the situation of monopolist union.

Right-to-Manage

Efficient Bargaining I

- Obviously, from a Pareto perspective, it should be better to negotiate over both W and L (an unconstrained solution is always better than a constrained solution).

- Likely there exist points outside the labour demand that improve the condition of unions without harming firms profitability.

Efficient Bargaining III

- The efficient solution is such that an union indifference curve is tangent to an isoprofit curve.
- The set of these tangency points is called the curve of contracts
- The point on the curve of contracts actually chosen depends on the relative bargaining power
- Note:
    - certainly iso-profits peak along the labour demand (by definition of labour demand)
    - along the curve of contracts marginal productivity of labour is smaller than the wage rate (at a given wage rate more labour is hired)
    - the curve of contracts is steeper than the labour demand and close to be constant at the full employment level (the optimal point of the union).

Efficient Bargaining IV

- Note: Right to manage and efficient bargaining have different implications in terms of the relationship between occupation and wages
  - right-to-manage implies that occupation should negatively depend on wages (and not on reservation wages - the level of full employment)
  - efficient-bargaining implies that occupation should not respond to wages and remain constant at its full employment level
  - These implications could be empirically tested: available evidence suggests that the (occupation, wages) combinations do not lye on the labour demand (not clear whether they belong to the curve of contracts though).

- Suppose that the wages of the unionized and the non-unionized workers are described as follows

$$\log W = X^u \beta^u + \varepsilon^u$$

$$\log W^n = X^n \beta^n + \varepsilon^n$$

- Wage differential is $D = \frac{W^u - W^n}{W^n}$ and it can be approximated as

$$D \sim \log(1 + D) = \log W^u - \log W^n$$

so that, on average,

$$\overline{D} = \overline{X}^u \beta^u - \overline{X}^n \beta^n = (\overline{X}^u - \overline{X}^n)\beta^u + (\beta^u - \beta^n)\overline{X}^n$$
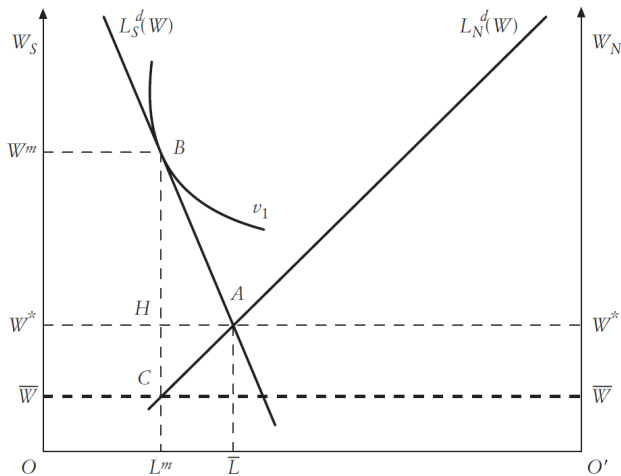
(Oaxaca decomposition): wage differential depends on

- - differences on the characteristics of the unionized and the non-unionized
  - differences on the marginal returns between the two groups.
- Note: Oaxaca decomposition does not capture the spillover of unions on the non-unionized workers (e.g. substitution of work with capital etc.)
- Note: Effects are confounded by the unobservables that determine the decision of associating to a union
- Estimates of D vary between 12 and 20 percent in the US and between 3 and 19 percent in the UK. No effect in countries where union coverage is (almost) total.

Are unions promoting efficiency? I

1. when introduced in a competitive market, unions determine a wage gap between unionized and non-unionized sector. Marginal productivity of labour cannot be equated among sectors $->$ this causes a loss of efficiency

Are unions promoting efficiency? III

2. unions allow to obtain "correct" wages without mobility: the worker does not need to quit if he/she is underpaid and look for another job (voice)

3. in case of monopsony, unions counter the employer's market power and increase efficiency

4. however unions are stronger in the sectors where there are rich rents to share: they contribute to preserve rents (e.g. local public services)

5. insiders/outsiders: unions tend to protect the insiders and reduce the opportunities to the outsiders of finding a job

Centralization vs decentralization

- Benefits of centralization:
    - centralized negotiations can take into account the externalities that strong wage requests have on inflation, total employment/unemployment and costs of unemployment benefits.
- Why then do we observe a progressive trend towards decentralization in the OECD economics?
    - when there are large differences in productivity between sectors or between regions, centralization makes wages too rigid and unresponsive to these differences. This creates huge inefficiencies that require decentralization to be avoided.

Insider-outsider model (Lindneck & Snower, 1988). I

There exist costs of hiring and firing: these are costs of turnover that the firm has to pay to replace an insider with a new worker (outsider)

1. new workers have to be formed and integrated into the firm organization
2. insiders might refuse to cooperate with the new-comers reducing their productivity (boycott)
3. dismissals require indemnities to be paid (in general, costs associated with the employment protection rules)

These costs imply that an outsider is convenient to the firm only if

$$W_E \leqslant W_I - H - F$$

where H and F are the costs of hiring and firing (profitability condition). In other words the insiders benefit of a rent of position: they cannot be replaced without incurring significant costs.
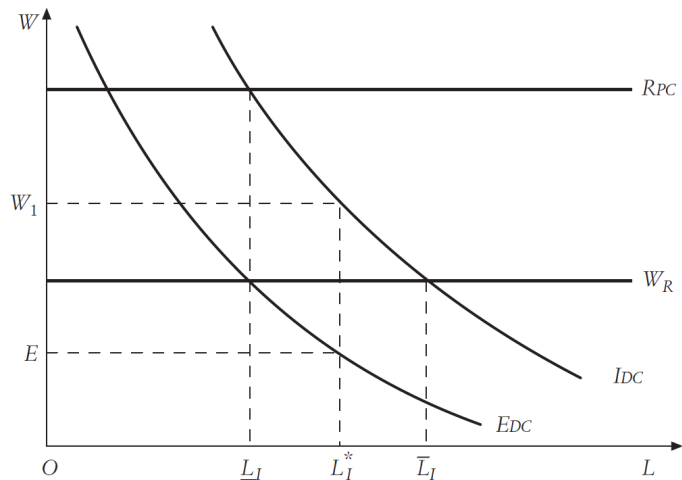
The presence of insiders influences firm's decisions:

- the demand of insiders (IDC) is equal to their *MP* plus the cost of firing
- the demand of outsiders (EDC) is equal to their *MP* minus the costs of formation, training, hiring
- suppose that the current membership is L_I^* and that the outsiders are willing to work at the reservation wage W_R.
- suppose also that the insiders have previously negotiated with the firm the wage rate W_1 on the IDC.
- given L_I^*, the marginal benefits to the firm of an insider are $MP + F$ and the marginal cost of an outsider $MP - H$. Even if the outsiders are willing to work at W_R, they would not be profitable to the firm.
- given W_R the outsiders would not be profitable for all membership levels between $\underline{L}$ and $\overline{L}$

This implies that

1. the firm with L^* insiders will not hire if $\underline{L} < L^* < \overline{L}$ (retention scenario)

2. the firm with L^* insiders will fire insiders if $L^* > \overline{L}$ (firing scenario)

3. the firm with L^* insiders will hire outsiders and increase its membership if $L^* < \underline{L}$ (hiring scenario)

Macroeconomic effect I

- Suppose that all firms behave according to the insider/outsider model.
- Suppose also that we are in the short run and the number of firms is fixed.
- In the retention scenario, $W_1 > MP$ and $W_1 > W_R$. There are outsiders willing to work at W_R (and a fortiori at W_1) that will not be hired $->$ involuntary unemployment.
- Note: if there were no hiring and firing costs, the existing firms will hire all labour supplied as the wage rate will be flexible.

- Productivity shocks can influence membership and have permanent effects because the thresholds that separate the retention scenario from the hiring/firing scenarios depend on L^*.

Macroeconomic effect II

- Productivity shocks can have asymmetric consequences on membership:
  - negative shocks are more likely to reduce the size of the membership (especially if within insiders there is a ranking based on seniority) with moderate effects on wages.
  - positive shocks are more likely to induce rises in the wage level rather than a widening of the membership

This might explain why unemployment jumps during negative shocks are not re-absorbed in case of positive shocks, i.e. the economy is always within the retention scenario.

Remark

- Firing costs can be high because the insiders lobby the government (or determine who is the ruling party - being they the majority) for strong employment protection policies.

- If so government would not have any incentive to favour outsiders' entry into la labour market.

- However insiders could be more sensible to outsiders' interest when they themselves risk to become outsiders (i.e. when unemployment level is rising and the risk of dismissal is increasing)