

# Chapter 11

## Labour Unions

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### Introduction

- Unions choose among different options in an attempt to maximise the well-being of their members.
- Unions can flourish only when firms earn above-normal profits.
- Unions influence practically all aspects of the employment contract.

## 11.1: Unions in the US & NZ

- US union membership & unionisation rates rose between 1930 and 1960 and then began a steady decline.
- Unionisation in the US has declined more rapidly than in other nations! The phenomenon of 'vanishing' unions!
- Differences in unionisation rates across countries (see Table 11.1). They arise from variations in the degree of political effectiveness of union movements!
  - Specific US history of 'business unionism'. Unions not so much associated with a particular political party as in other countries etc.
  - History of US unionism (not compulsory; read if interested).

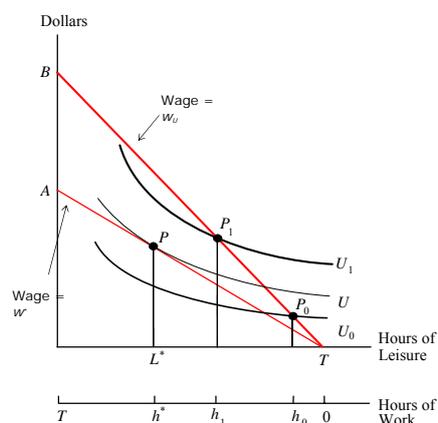
## Unions in the US & NZ ctd.

- Some data on union density in NZ: Steady decline since late 1980s! (See your Supplementary Reading List for references)
- For a brief write-up on industrial relations reforms in NZ since the start of reforms in 1984 (e.g. the **Employment Contracts Act 1991** and the **Employment Relations Act 2000**) see *Dalziel P. and R. Lattimore (2004), The New Zealand Macroeconomy, 5<sup>th</sup> edition, Oxford, Chapter 8 "Labour Policy", pp. 99-112.*
- Also see *New Zealand Official Yearbook 2006, chapter 14 "Labour Market". Section 14.1 (pp. 271-277) was handed out in class.*

## 11.2 Determinants of Union Membership

- A worker joins a union if the union offers her/him a wage-employment package that provides more utility than the wage-employment package offered by a nonunion employer.
  - Application of the labour-leisure choice model (see Figure 11.3)!
  - Simple model: Only wages & employment included as job characteristics (differences in working conditions, fringe benefits etc. neglected).
- We usually assume a downward-sloping labour demand curve. If the wage increases because of the union, labour demand (in terms of hours of work) will fall. There is a trade-off ('no free lunch')!
- If a firm's demand curve for labour is inelastic the employment reduction is small and the worker may end up on a higher indifference curve because of joining the union.

**Figure 11.3: The Decision to Join a Union**



The budget line is given by  $AT$ , and the worker maximises utility at point  $P$  by working  $h^*$  hours. The proposed union wage increase (from  $w^*$  to  $w_u$ ) shifts the budget line to  $BT$ . If the employer cuts back hours of work to  $h_0$ , the worker is *worse off* (utility falls from  $U$  to  $U_0$  units). If the employer cuts back hours to  $h_1$ , the worker is *better off*.

## The Demand For and Supply of Union Jobs

- The ‘demand’ for union jobs is dependent on the size of the wage increase, the amount of employment loss, and the costs of union membership.
- The ‘supply’ of union jobs depends on the ability to organise a workforce, the legal environment affecting union activities, the resistance of management, and whether a firm is making excess rents.
- Unionisation rates differ by industry etc. In the US and NZ, union density tends to be higher, and unions tend to be stronger, in the public sector.

## Why has Union Membership Declined?

- The structure of the economy and the labour market has been changing. Blue collar workers are less prevalent.
- There has been a marked increase in labour force participation rates of women (who tend to take most of the part-time jobs).
- Workers in oligopolistic industries (where economic rent is earned) more unionised than workers in industries where there is little economic rent.
- Etc., etc.
- Deregulation in NZ meant that ‘excess rents’ that unions could bargain for disappeared in many industries?!
  - Also see: Cooper and May (2006), *Union Rivalisation in Australia and New Zealand, 1995-2005*, NZ Journal of Employment Relations, 31(3), 17 pages.

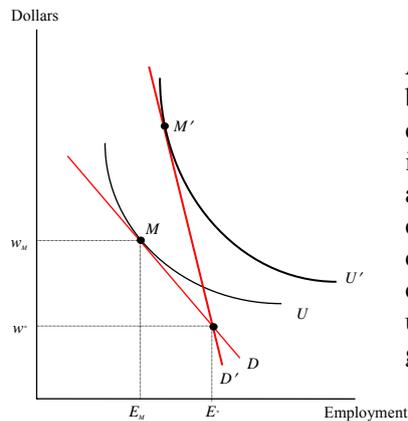
## 11.3 Monopoly Unions

- A model of monopoly unionism: A union is the sole seller of labour to a firm.
- Assume the union wishes to maximise utility, which depends positively on both wages  $w$  and employment  $E$ :  $U = U(w, E)$
- We can draw union indifference curves (see Figure 11.4)
- Assume the union is dealing with a profit-maximising competitive firm (i.e. output price is given).
- The firm's downward sloping labour demand curve can be interpreted as a constraint on union behaviour.

## Monopoly Unions ctd.

- The union chooses a wage *and then* the firm decides how many workers to hire to maximise profit.
- The model suggests some workers lose their jobs due to the union setting a wage above the competitive wage  $w^*$ .
- Union better off when the labour demand curve is less elastic: It can choose a higher wage but cause fewer job losses, thereby obtaining higher utility.
  - Recall "Marshall's rules of derived demand" from chapter 4.7, p. 132! Unions will try to make labour demand and product demand less elastic etc. etc.

## Figure 11.4: The Behaviour of Monopoly Unions

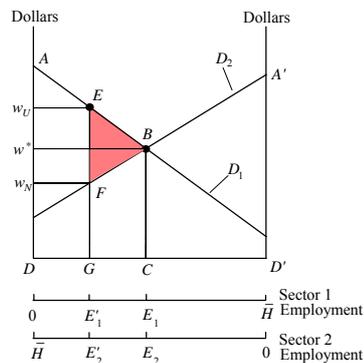


A monopoly union maximises utility by choosing the point on the demand curve  $D$  that is tangent to the union's indifference curve. The union demands a wage of  $w_M$  dollars and the employer cuts back employment to  $E_M$  (from the competitive level  $E^*$ ). If the demand curve were inelastic (as in  $D'$ ), the union could demand a higher wage and get more utility.

## 11.4 Policy Application: Unions and Resource Allocation

- Unions reduce the total value of labour's contribution to national income:
  - Less employment in unionised firms, more employment in nonunionised firms.
  - MP of labour in nonunionised firms lower than if the marginal worker were employed by a unionised firm. Allocative inefficiency!
- Figure 11.5 and formulae (11.1 & 11.2). Note the assumptions made to draw the figure: Two sectors in the economy, two demand curves in one diagram, inelastic labour supply etc.
- However, one estimate of the loss in US national income is approximately 0.1 percent, a relatively small amount.

## Figure 11.5: Unions and Labour Market Efficiency



In the absence of unions, the competitive wage is  $w^*$  and national income is given by the sum of the areas  $ABCD$  and  $A'BCD'$ . Unions increase the wage in sector 1 to  $w_U$ . The displaced workers move to sector 2, lowering the nonunion wage to  $w_N$ . National income is now given by the sum of areas  $AEGD$  and  $AFGD'$ . The misallocation of labour reduces national income by the area of the triangle  $EBF$  (the deadweight loss of employing too few workers in sector 1 and too many workers in sector 2).

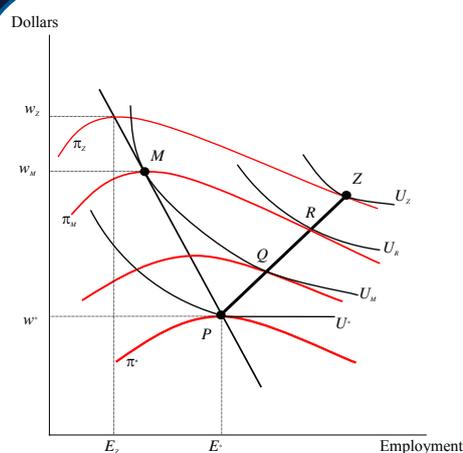
## 11.5 Efficient Bargaining

- By moving off the labour demand curve, the firm and the monopoly union could make a deal that makes at least one of them better off without making the other worse off!
- Explanation of shape of firm's isoprofit curve (see Figure 11.6).
- Derivation of the contract curve (Figure 11.7): Why firms and unions have an incentive to move off the labour demand curve.
  - If the monopoly union and the firm agree to move to a point between Q and R, both of them would be better off than at point M (the original point picked by the monopoly union).

## Efficient Bargaining ctd.

- The upper bound to the wage-employment combinations that the firm can offer is given by the zero-profit isoprofit curve  $\pi_z$ .
- Line  $PZ$ : All points where union's indifference curves and firm's isoprofit curves are tangent. These points are all **Pareto optimal**.  $PZ$  is the **contract curve**.
- A contract agreed on that lies on the contract curve is an **efficient contract**. Two extreme points:
  - $P$ : Firm gets all the rent (union workers get only the competitive wage).
  - $Z$ : All rents go to the union workers (the firm makes zero profits).
- The efficient contract curve lies to the right of the labor demand curve. An efficient contract leads to more employment than would be the case with monopoly unionism. Implies that unions and employers bargain over both wages and employment.

## Figure 11.7: Efficient Contracts and the Contract Curve



At the competitive wage  $w^*$ , the employer hires  $E^*$  workers. A monopoly union moves the firm to point  $M$ , demanding a wage of  $w_M$ . Both the union and firm are better off by moving off the demand curve. At point  $R$ , the union is better off, and the firm is no worse off than at point  $M$ . At point  $Q$ , the employer is better off, but the union is no worse off. If all bargaining opportunities between the two parties are exhausted, the union and firm agree to a wage-employment combination on the contract curve  $PZ$ .

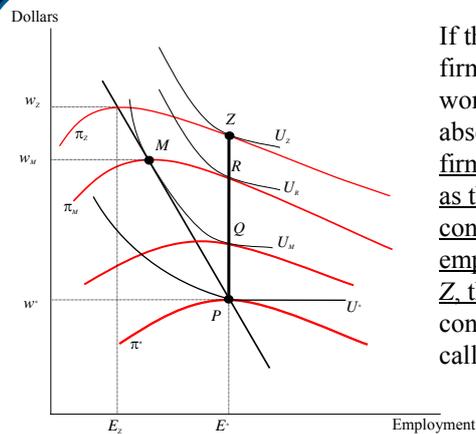
## Featherbedding

- As long as the contract curve is upward sloping, the unionised firm hires too many workers, i.e. more than the competitive level  $E^*$ !
- The firm has to make work for these workers: Featherbedding practices occur when labour contracts require overstaffing. They are negotiated to “make work” for the extra staff.
- Labour market reforms in NZ eliminated or reduced many featherbedding practices.

## Strongly Efficient Contracts

- If the contract curve is vertical, the deal struck between the union and the firm is strongly efficient because the unionised firm is hiring the competitive level of employment.
- On the vertical contract curve, the firm’s output and revenue are constant.
- The point realised on a vertical contract curve shows how the available rent is divided between (extra) profits for the firm and workers’ wages. It depends on the bargaining power of both parties.

## Figure 11.8: Strongly Efficient Contracts: A Vertical Contract Curve



If the contract curve  $PZ$  is vertical, the firm hires the same number of workers that it would have hired in the absence of a union. The union and firm are then splitting a fixed-size pie as they move up and down the contract curve. At point  $P$ , the employer keeps all the rents; at point  $Z$ , the union gets all the rents. A contract on a vertical contract curve is called a **strongly efficient contract**.

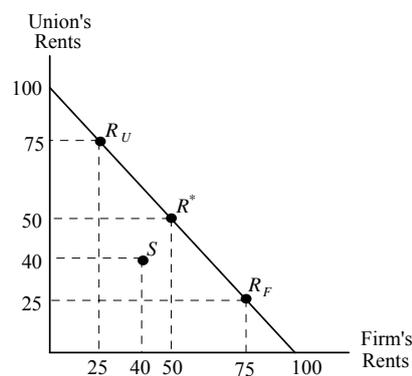
## Evidence on Efficient Contracts

- Empirical studies have found that wage-employment outcomes in unionised firms do NOT lie on the labour demand curve.
- There is disagreement over whether the contract curve is vertical.
- Strongest evidence in favour of vertical contract curves comes from studies that explore the relationship between the timing of union contracts and the stock market value of firms: X \$s of rent going to union workers reduces shareholders' wealth by X \$s!

## 11.6 Strikes

- Economists have problems explaining why strikes occur (maybe they should ask other social scientists?!)
- A strike occurs when neither party is willing to give in when negotiating.
- Because strikes are costly, they shrink the amount of rents over which the parties are negotiating.
- When parties have good information about the costs and likely outcome of a strike, then it is irrational to strike.
- The irrationality of strikes is known as **the Hicks Paradox**.
  - But: Humans are not as 'rational' as standard economic theory assumes!

### Figure 11.9: The Hicks Paradox: Strikes are not Pareto Optimal

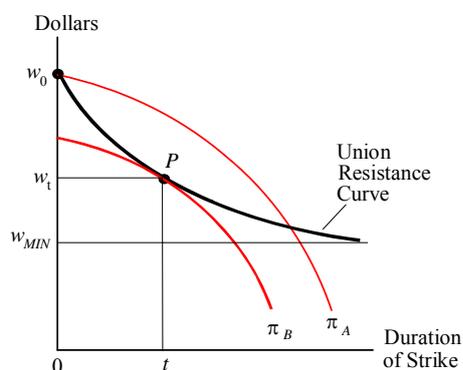


The firm makes the offer at point  $R_F$ , keeping \$75 and giving the union \$25. The union wants point  $R_U$ , getting \$75 for its members and giving the firm \$25. The parties do not come to an agreement and a strike occurs. The strike is costly, and the poststrike settlement occurs at point  $S$ ; each party keeps \$40. Both parties could have agreed to a prestrike settlement at point  $R^*$ , and both parties would have been better off.

## Strikes and Asymmetric Information

- Influential model that can explain the ‘irrationality’ of strikes: The *Ashenfelter–Johnson model*. It is based on **asymmetric information**: Workers are not well informed about the firm’s financial status. The firm is assumed to know more about the amount of rent available (the ‘size of the pie’) than does the union.
- Since the union will experience losses during a strike, it will reduce its wage demands throughout the duration of a strike (there is a downward-sloping **union resistance curve**).
- A firm knows that the union will moderate its demands over time (it knows the union resistance curve).
- A firm incurs costs during a strike, so it will choose a strike duration that maximises the present value of profits (the ‘optimal’ length of the strike).

### Figure 11.10: The Optimal Duration of a Strike



Unions will moderate their wage demands the longer the strike lasts, generating a downward-sloping union resistance curve. The employer chooses the point on the union resistance curve that puts him on the lowest isoprofit curve (thus maximising profits). This occurs at point  $P$ ; the strike lasts  $t$  periods and the poststrike settlement wage is  $w_t$ .

## Empirical Determinants of Strike Activity

- Some implications of the Ashenfelter-Johnson asymmetric information model:
  - Strikes are more (less) likely to occur and last longer (shorter) the higher (lower) the initial union wage demand.
  - Unions tend not to make high wage demands during periods of high unemployment.
  - Strikes are more likely to occur when unions are uncertain about the firm's financial condition (e.g. when the firm has a volatile stock value).
  - The costs of a strike to the firm are an important deterrent against prolonging a strike.

## 11.7 Union Wage Effects

- Large literature on “by how much do unions increase their members’ wages?”
- **“Union wage gain”**: What the average worker in the economy would gain if s/he suddenly became a union member.
  - Problem: We cannot easily calculate the union wage gain, since we usually do not know what a worker would earn inside and outside the union (we only observe one of these options).
- Economists tend to rely on calculation of the very different “union wage gap”, i.e. the percent wage differential between union and nonunion jobs for similarly skilled workers:

$$D = (\hat{w}_U - \hat{w}_N) / \hat{w}_N \quad (11.5)$$

Where  $\hat{w}_U$  is the average wage in union jobs and  $\hat{w}_N$  is the average wage in nonunion jobs. Worker and job characteristics are also usually controlled for in the calculation of (11.5).

## Does the Union Wage Gap Measure the Union Wage Gain?

- Estimates of the union wage gap indicate it is wide at some times and narrow at other times.
- NOTE: The union wage gap is NOT a good estimate of the union wage gain! It does NOT indicate how much extra a randomly chosen worker would gain by joining a union!
- The union wage gap overestimates the union wage gain, because a typical worker in a union job will be more productive than a typical worker in a nonunion job.

## Threat and Spillover Effects

- Other reasons why 'gain' and 'gap' differ: The existence of a union sector has two side effects on wage setting in the nonunion sector.
  - Threat effects involve nonunion firms offering higher wages to reduce incentives of workers to unionise.
    - The union wage gap underestimates the true impact of the union on the wage.
  - Spillover effects result when workers unemployed in the union sector enter the nonunion sector, thus increasing the supply of labour and decreasing wages.
    - The union wage gap overestimates the true impact of the union on the wage.
  - Use correlation between nonunion wage and unionisation rate in a particular labour market to judge which effect is stronger.
    - If negative, spillover effects dominate. If positive, threat effects dominate.

## Unions and Wage Dispersion

- The dispersion of wages in the unionised sector is less than the dispersion of wages in the nonunionised sector.
- Unionised firms offer a lower payoff to education than nonunionised firms.
- Unions flatten the age-earnings profile.
- Also note that the fringe benefits package received by union workers is generally worth more than the package received by nonunion workers, resulting in a “union compensation gap” somewhat larger than the union wage gap.

## 11.8 The Exit-Voice Hypothesis

- *The hypothesis that unions give workers an option of voicing problems through a formal grievance procedure, instead of exiting the firm when they are unhappy.*
  - Nonunion workers can only voice their job dissatisfaction by quitting (i.e. exiting the firm).
- This hypothesis has some interesting implications for employment relationships in unionised firms:
  - Worker turnover should be lower in unionised firms.  
However, unionised workers often reported to be less happy than nonunion workers (but this is not genuine and just a signaling device?!).
  - As worker turnover declines, worker productivity increases. Workers in (private sector) unionised firms are more productive! (Should not surprise: Fewer workers hired implies a larger MP of labour).
  - Profits rise, but not enough to cover the increased labour costs due to unionisation. Unionised firms have lower profits.

**End of Chapter 11**