Labor Unions

10-2, 10-3, 10-4, 10-5

Introduction

- Unions attempt to maximize the well-being of their members.
- Unions can flourish only when firms earn above-normal profits. or what economists call "rents"
- Unions influence practically all aspects of the employment contract.

How unions change the relationship between workers and firms.

terms of employment
- hours of work
- wages
- productivity

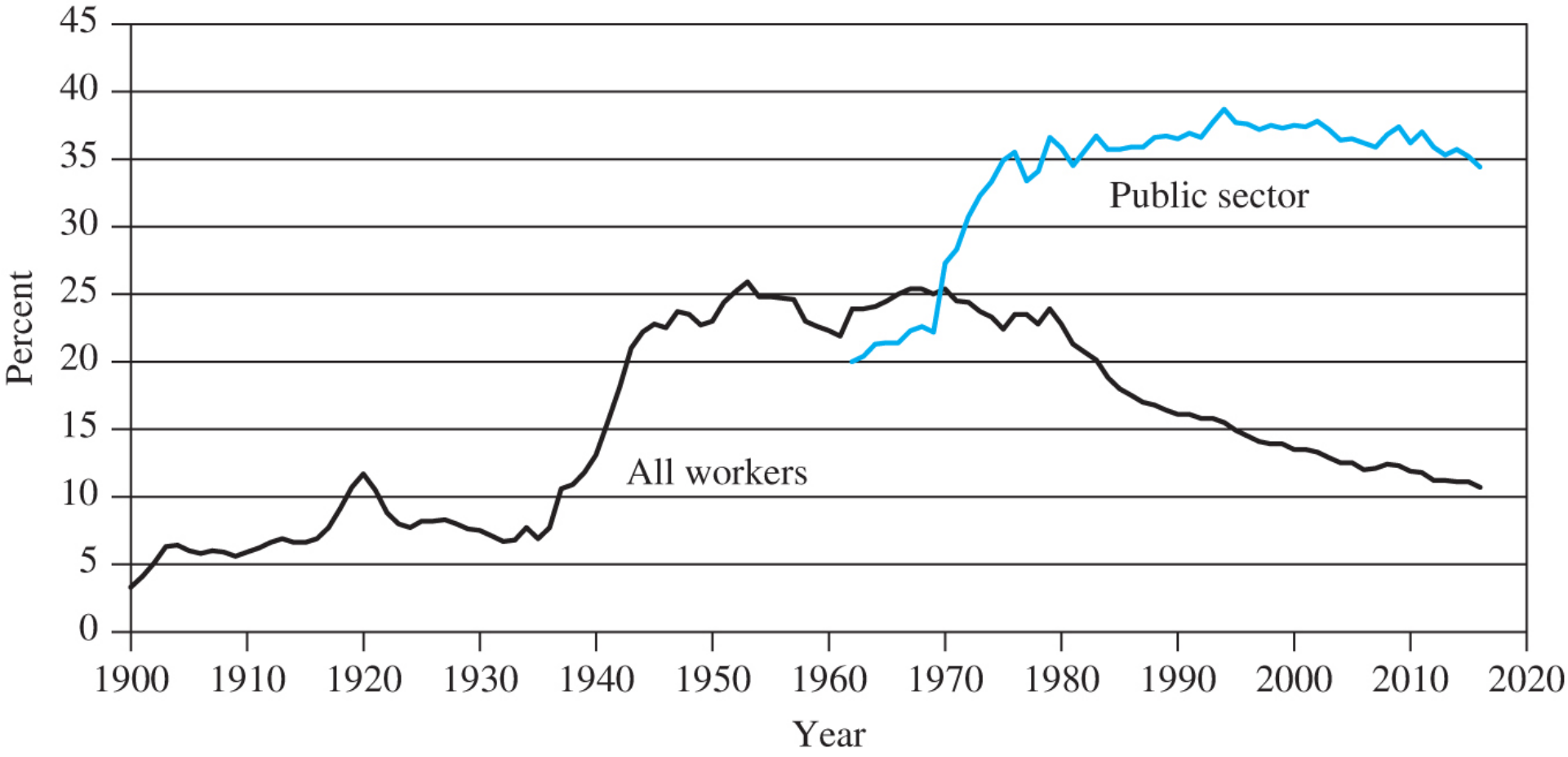
Unions in the United States

- Private-sector unionization rose between 1930 and 1960 (from 8% to 25%) and then began a steady decline (to under 15% by 2000).
- Public sector unionization increased dramatically during the 1970s and coverage has remained above 35% since.

Unions in the United States

- Unionization in the United States has declined more rapidly than in other nations.
- Differences in unionization across countries arise from variations in the degree of political effectiveness of union movements.

Union Membership in the United States, 1900-2016

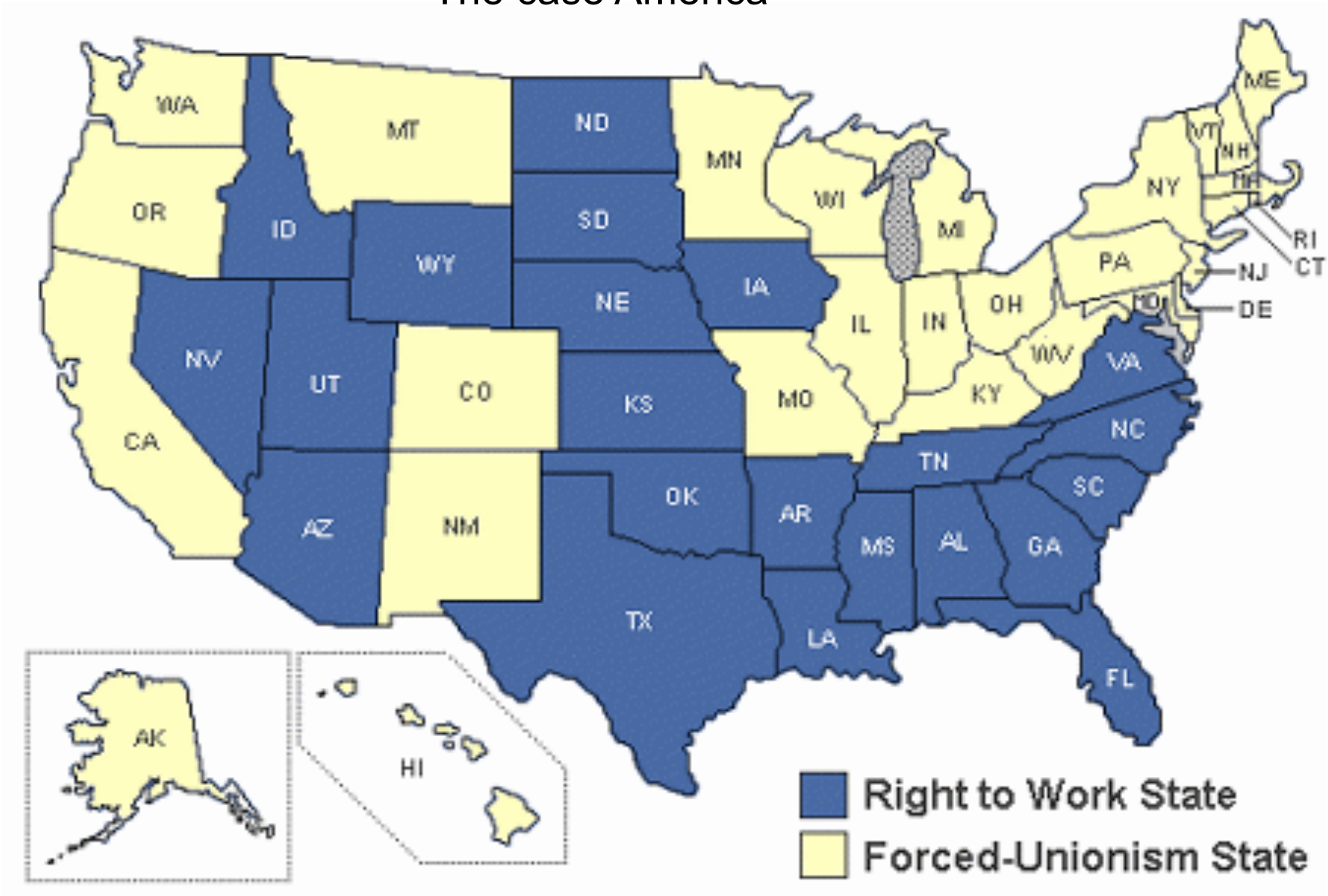


Union Membership and Bargaining Coverage, Selected Countries, 2004

Country	Union Membership as a Percentage of Workers	Percentage of Workers Covered by a Collective Bargaining Agreement
Austria	37	98
France	10	93
Sweden	81	93
Australia	25	83
Italy	35	83
Netherlands	23	83
Germany	25	68
Switzerland	18	43
United Kingdom	31	33
Canada	28	32
Japan	22	18
United States	13	14

Source: Organisation for Economic Co-operation and Development, http://www.oecd.org; search under "union density, 2004."

The case America



Unions in the United States

Unionization in the United States has declined more rapidly than in other nations.

Differences in unionization across countries arise from variations in the degree of political effectiveness of union movements.

Labor union and wage determination

- Increase demand
- Decrease supply
- Wage bargaining to be higher than equilibrium wage

Objective of labor union

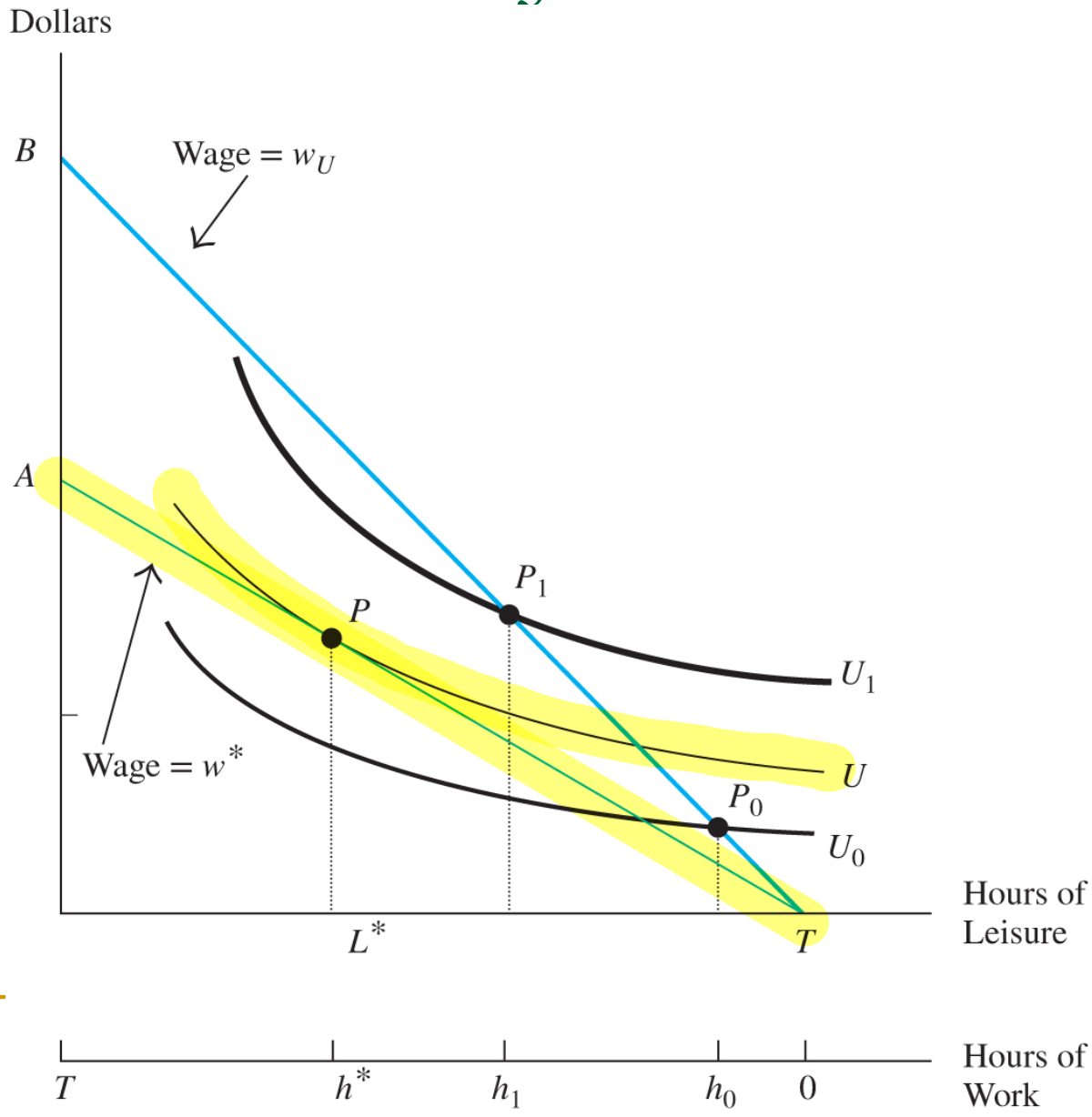
- Freely decision (to join union) → how to make a decision
- Trade off between working hour and the wage rate
- Cost of joining the union
- Create productivity → pay high → efficiency
- Exit-voice hypothesis

10-2

Determinants of Union Membership

- **A worker joins a union if** the union offers him or her a wage-employment (benefit) package that provides more utility net of union dues than the wage-employment package offered by a nonunion employer.
- Higher wages increase firm costs, so there could be employment cutbacks.
- If a firm's demand curve for labor is inelastic the employment reduction is small (and vice versa).

The Decision to Join a Union



- The budget line is given by AT, and the worker maximizes utility at point P by working h* hours
- The proposed union wage increase shifts the budget line to BT
- If the employer cuts back hours of work to h0, the worker is worse off
- If the employer cuts back hours to h1, the worker is better off

Suppose that the firm's demand curve for labor is downward sloping and elastic

⇒ If the firm responds to the union wage increase by moving up the labor demand curve, the union-mandated wage increase reduces the worker's workweek to h_0 hours, placing him at point P_0 on the BT budget line

⇒ If the union organizes the firm's workforce, therefore, the worker would be worse off (U_0)

⇒ This worker, therefore, opposes the union in the certification election

If the firm's demand curve for labor is inelastic, the employment reduction is small and the union offers the wage-employment combination at point P,

⇒ The union shifts the worker to a higher IC (U_1) and the worker supports the union in the certification election.

The Demand For and Supply of Union Jobs

Who joins a union ?

- The demand for union jobs depends 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 organize a workforce, the legal environment affecting union activities, the resistance of management, and whether a firm is making excess rents.

Why has Union Membership Declined?

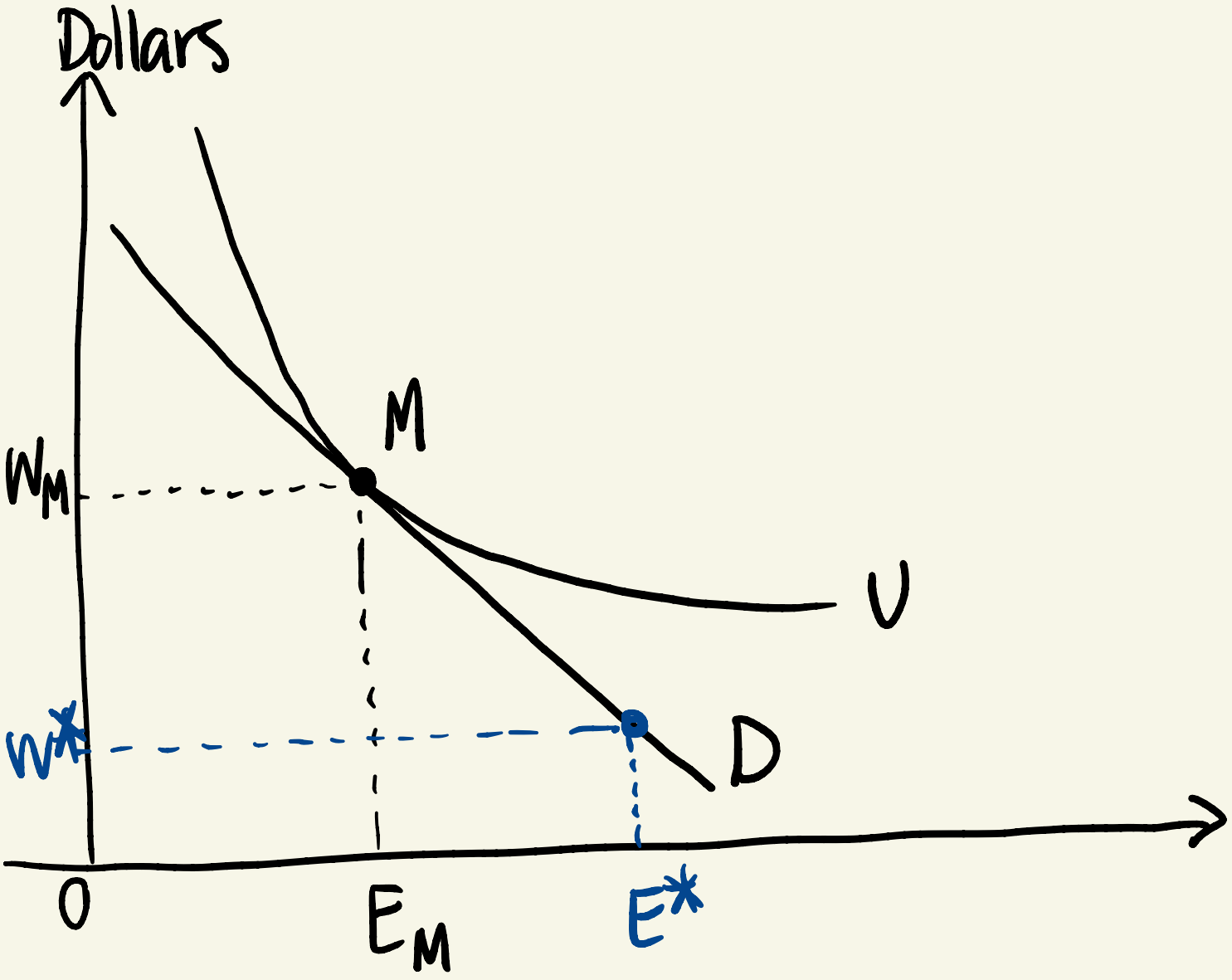
- The structure of the labor market has been changing since the 1960s.
- Blue collar workers are less prevalent.
- Jobs have shifted to right-to-work states.
- There has been a marked increase in labor force participation rates of women.
- Workers' demand for union jobs has declined.
- Firms have become more resistant to unions.

Monopoly Unions 10-3

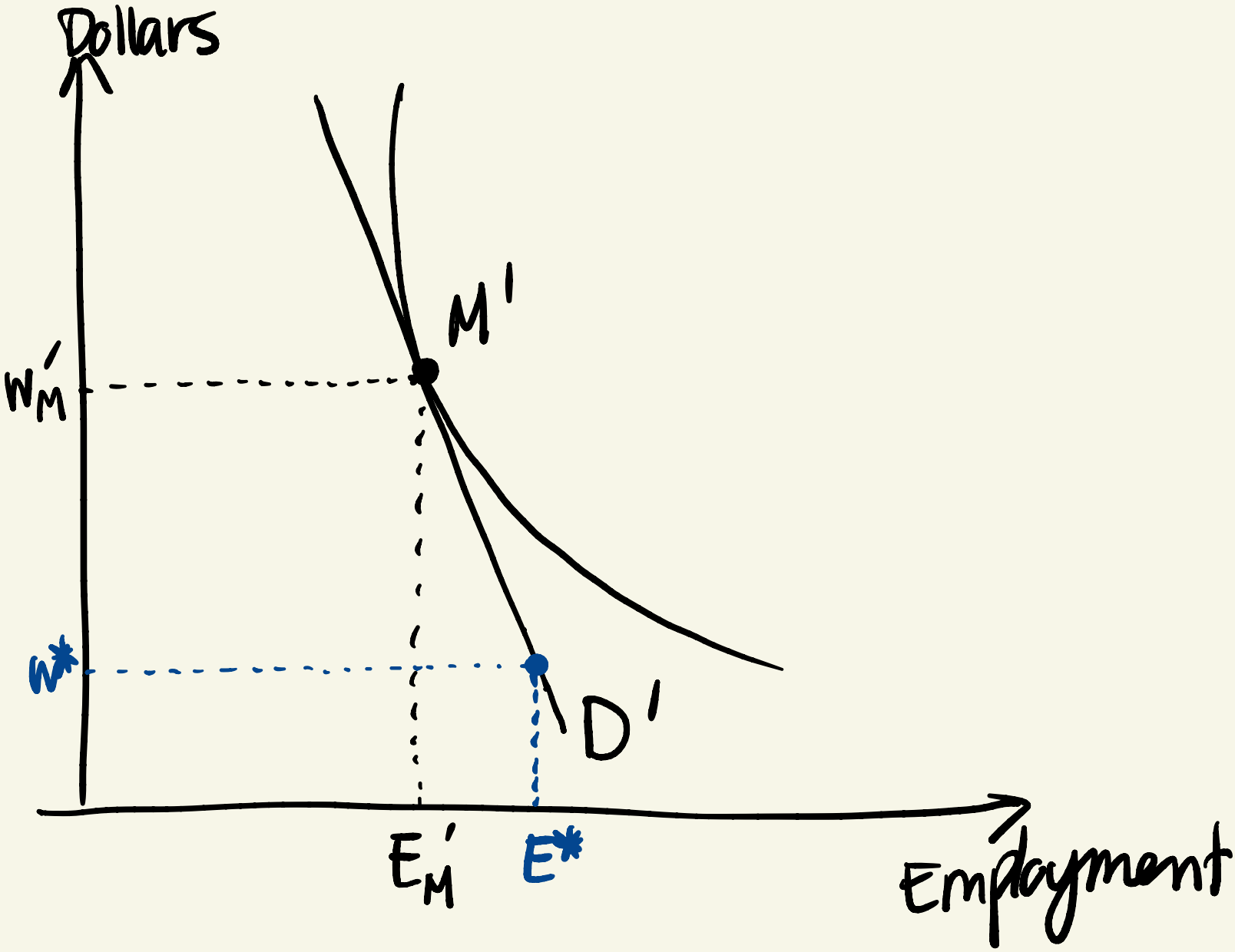
- The model of union behavior is called a model of **monopoly unionism**
- The union sets the price of its product and firms looks a the demand curve and determine how many workers to hire
- Some workers will lose their jobs as a result of the union's wage demand
- Unions get more utility when the demand curve for labor is inelastic

We assume that the union's utility depends on the wage w and employment E, and that unions want more of both.

The union utility function is then given by U(w, L) and the union's indifference curves have the usual shape as shown in



A monopoly union maximizes utility by choosing the point on the labor demand curve D that is tangent to the union's indifference curve. The union demands wage W_M and the employer cuts employment to E_M (from the competitive level E^*)



If the demand curve were inelastic (D'), the union could demand a higher wage and get more utility.

The model of union behavior is called a model of monopoly unions.

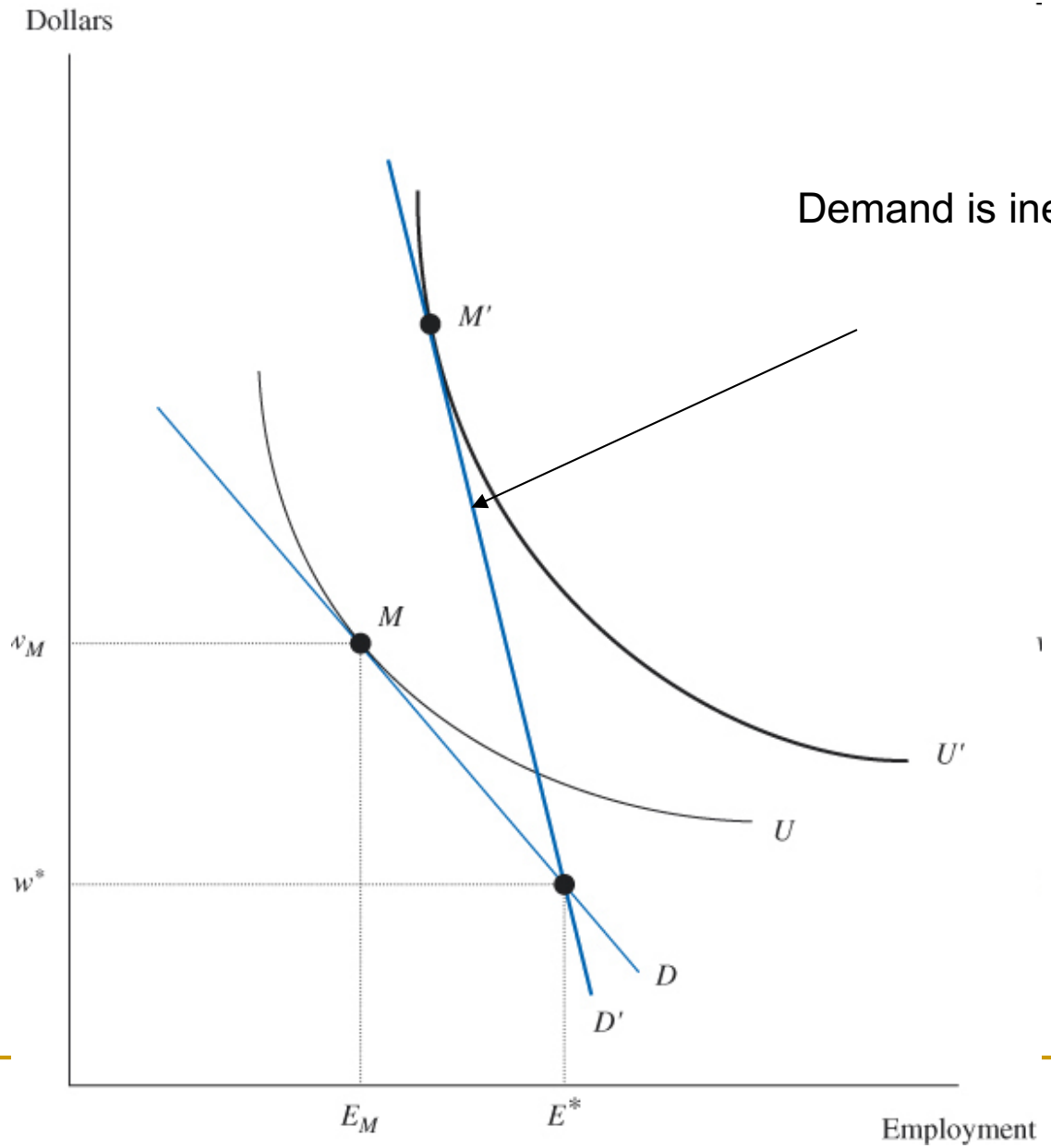
The union has an effective monopoly on the sale of labor to the firm. The union sets the price of its product (that is, it sets the wage) and firms then look at the labor demand curve to determine how many workers to hire

The model of monopoly unions implies that some workers lose their jobs as a result of the union's wage demand.

The unions get more utility when the labor demand curve is inelastic

↓ If the demand curve were given by D', the union would want an even higher wage (at point M') and jump to a higher indifference curve because employment does not fall very much

The Behavior of Monopoly Unions



Policy Application: The Efficiency Costs of Unions

10-4

The wage-employment solution implied by the model of monopoly unions is inefficient because unions reduce the total value of labor's contribution to national income.

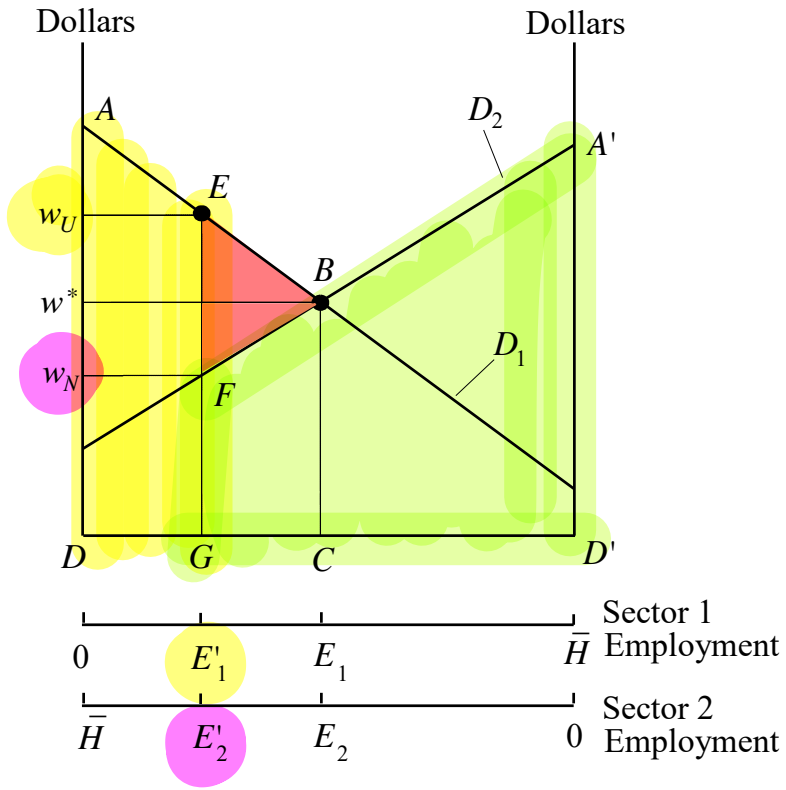
If employers move along the demand curve as a result of union-mandated wage increases, unions reduce employment in union firms and increase employment in nonunion firms (as long as the displaced workers move to nonunion jobs)

Because the wage (and the VMP_L) differs between the two sectors, unionism introduces an inefficiency into the economy

The last worker hired by nonunion firms would have a greater productivity if he or she had been hired in the union sector, and the value of labor's contribution to national income would increase if some workers were reallocated across sectors.

Unions and Market Efficiency

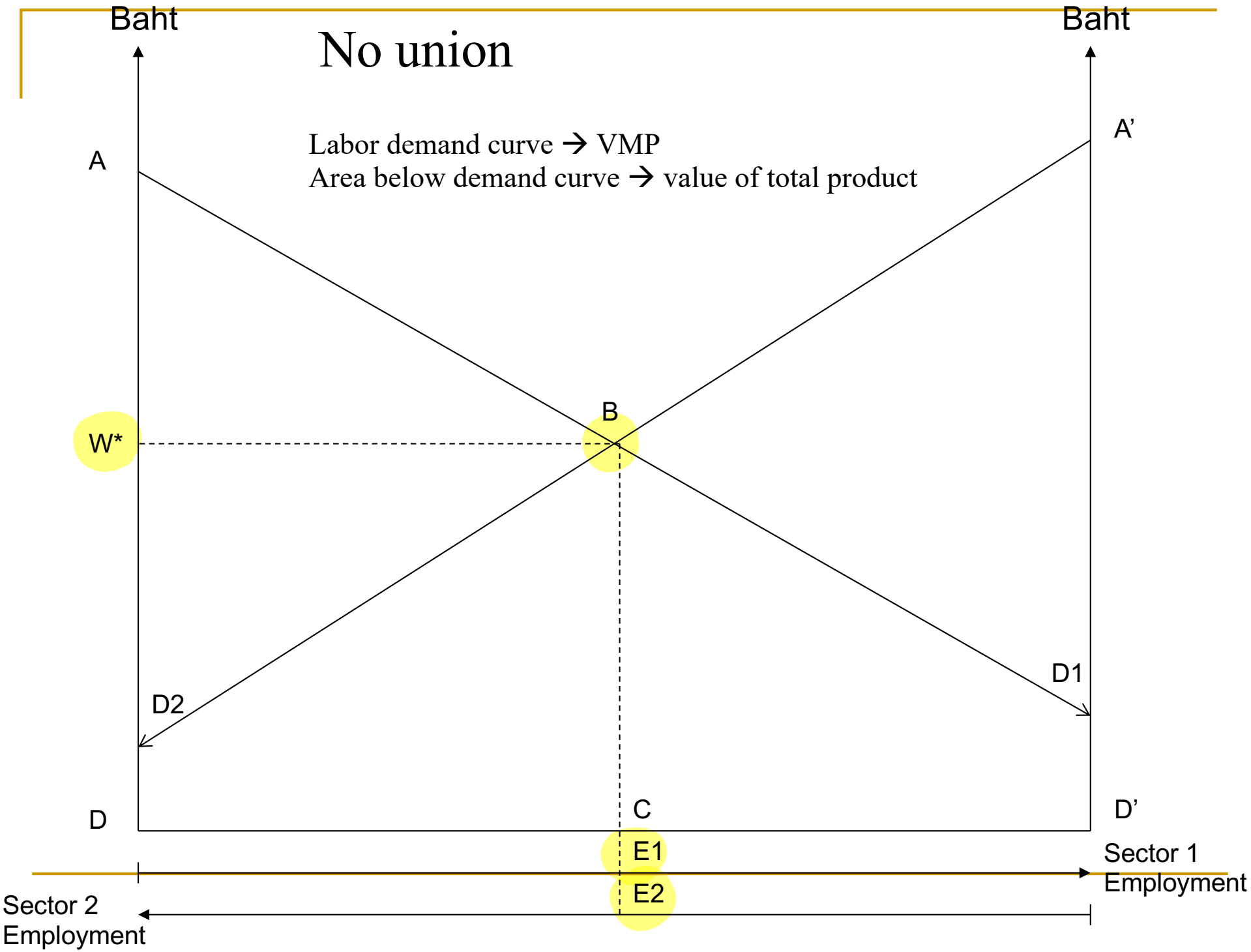
Assume labor supply is inelastic, so that a total of $\bar{H}$ workers must be employed in one of the two sectors.



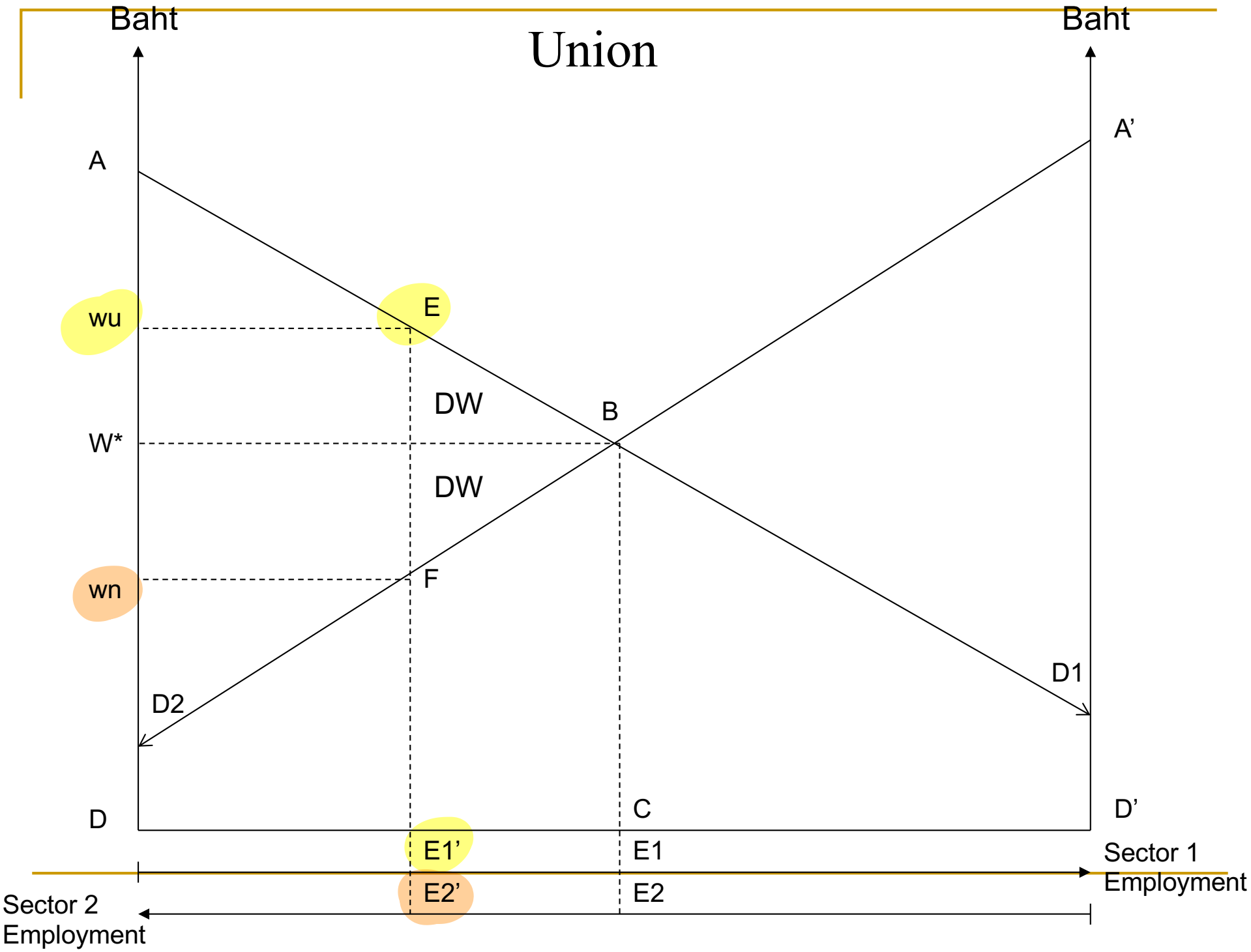
In the absence of unions, the competitive wage is w^* and national income is given by the sum of the areas $ABCD$ and $A'BCD'$. Unions increase the wage in sector 1 to w_U. The displaced workers move to sector 2, lowering the nonunion wage to w_N. National income is now given by the sum of areas $AEGD$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

Effect

- National employment will be decreased by union
- Union reduces value of labor's contribution to national income
- Unions misallocate the resources → cost
- Assume we have two sectors – union sector and non-union sector → different efficiency


Baht
No union
Baht
Labor demand curve → VMP
Area below demand curve → value of total product
A
A'
W*
B
D1
D2
D
C
D'
E1
E2
Sector 1
Employment
Sector 2
Employment

Union


Baht
Baht
A
A'
wu
E
DW
B
W*
DW
wn
F
D1
D2
D
C
D'
E1'
E1
Sector 1
Employment
E2'
E2
Sector 2
Employment

The area of the shaded triangle EBF

$$Efficiency\ Loss = \frac{1}{2} \times (w_U - w_N) \times (E_1 - E_1')$$

- Efficiency loss / National Income =

  0.5 x (percent union-nonunion wage gap)

  x (percentage decline in employment in union sector)

  x (Fraction of labor force that is unionized)

  x (Labor's share of national income)

Suppose that unions increase wages by 15%.

Assume → the demand curve for union workers is unit elastic so that employment in the union sector also falls by 15%.

11% of workers were unionized in 2017

Labor's share of national income is about 0.7

Efficiency loss as a fraction of national income $= \frac{1}{2} \times 0.15 \times 0.15 \times 0.11 \times 0.7$

$\approx$ 0.1 percent

National income was abat $19 trillion in 208

The efficiency loss attributable to unions then equbals $19 billion.

Policy Application: Unions and Resource Allocation

- Unions reduce the total value of labor's contribution to national income.
- One estimate of the loss in national income is approximately 0.11 percent, a relatively small cost.

Efficient Bargaining

10-5

- The Firm's Isoprofit Curves
- The Contract Curve
- Featherbedding
- Strongly Efficient Contracts

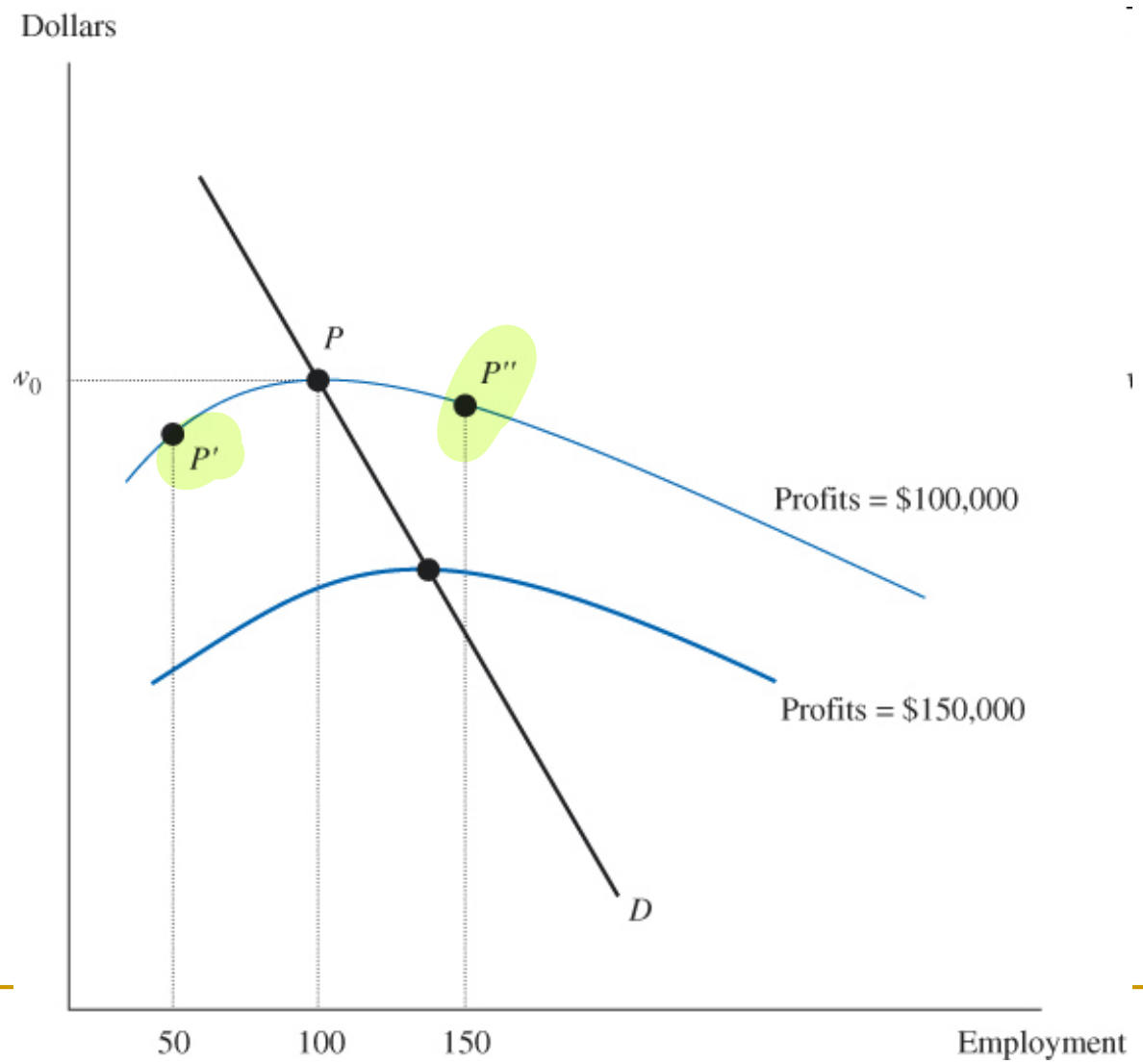
An employment contract that does not lie on the labor demand curve and that would make at least one of the parties better off, without making the other party worse off.

The Firm's Isoprofit Curves

- An isoprofit curve gives the various wage-employment combinations that yield the same level of profits

- A profit maximizing firm is indifferent among the various wage-employment combinations that lie on a single isoprofit curve

The Demand Curve and the Firm's Isoprofit Curves



The Contract Curve

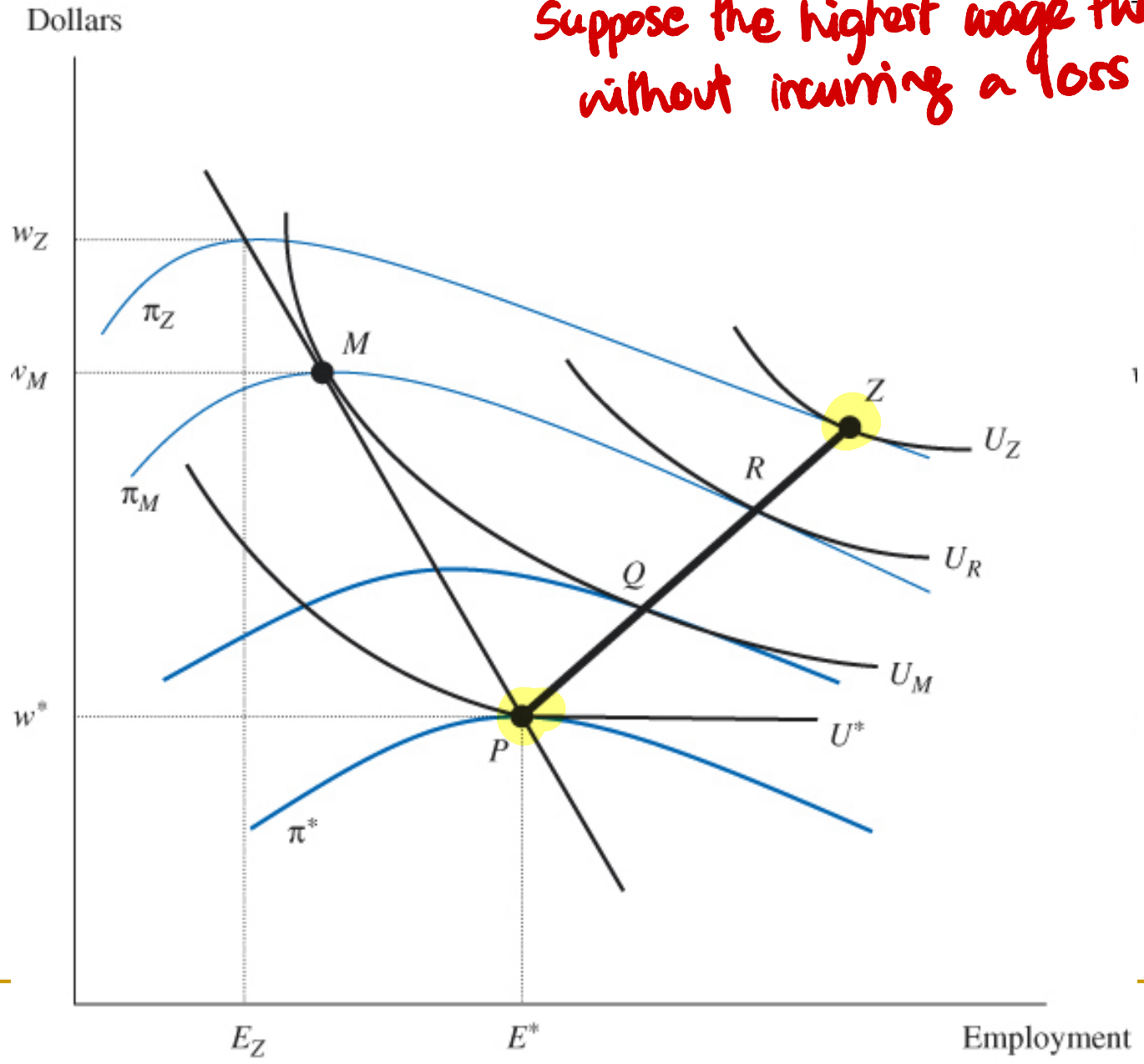
- The curve PZ gives all the points where the union's indifference curves are tangent to the firm's isoprofit curves- these wage employment combinations are **Pareto optimal**
- The curve PZ is called **the contract curve**
- If the union and the firm agree to a wage-employment combination on the contract curve, the resulting contract is called an **efficient contract**

Efficient Contracts

- The firm and the union could make a deal that makes at least one of them better off without making the other worse off.
- The efficient contract curve lies to the right of the labor demand curve.
- Efficient contracts imply that unions and employers bargain over wages and employment.

Efficient Contracts and the Contract Curve

Suppose the highest wage the firm can pay without incurring a loss is w_Z.



Featherbedding

- Featherbedding occurs when labor contracts require overstaffing.
- Featherbedding practices are negotiated to “make work” for the extra staff.

Featherbedding

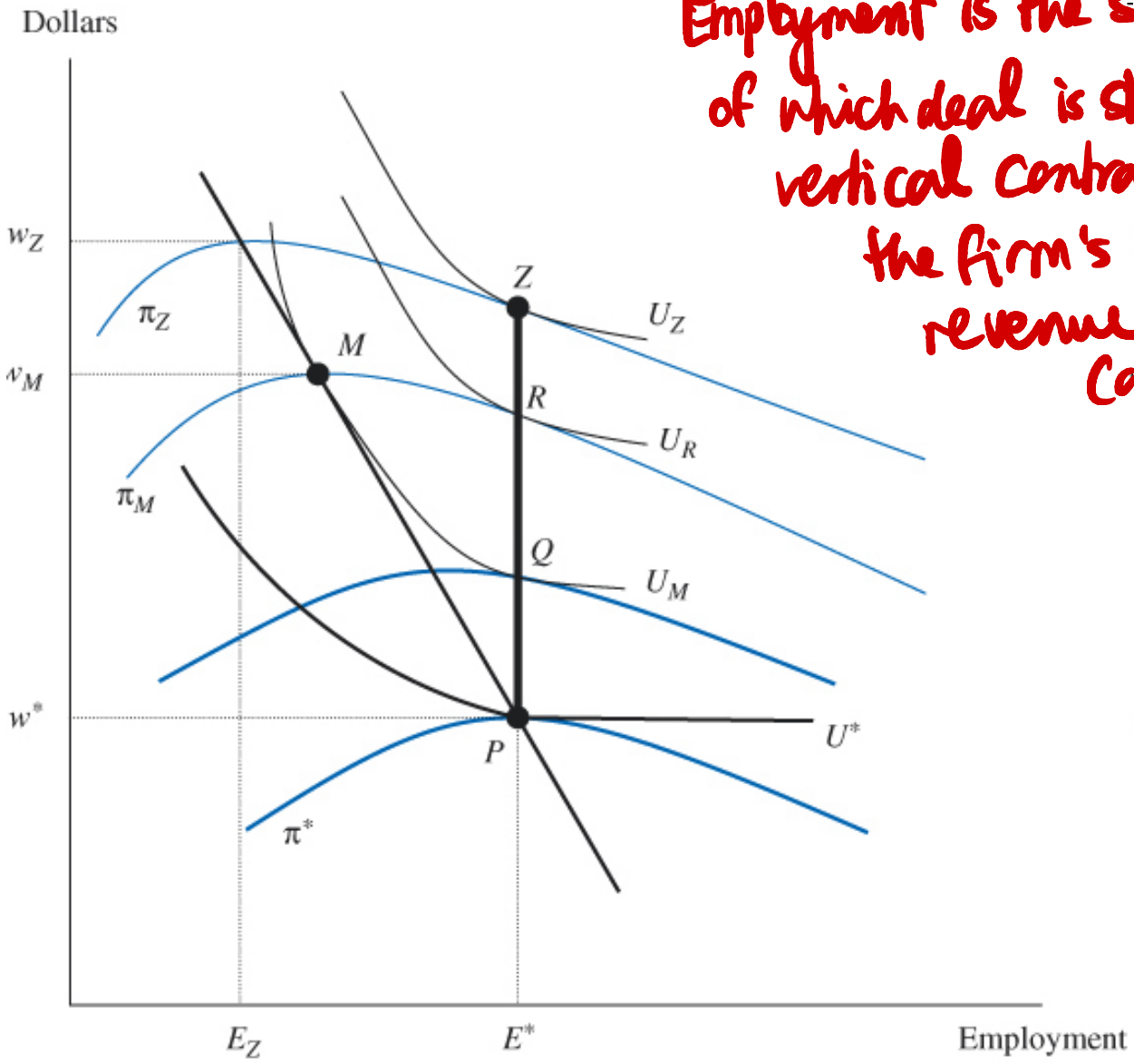
- The contract curve is **upward sloping** – the unionized firm hires more workers than the competitive level E*
- The firm is overstaffed
- The firm and the union will then have to negotiate "make work" or **featherbedding practices** to share the available tasks among the many workers

Strongly Efficient Contracts

- The shape of the union's indifference curves generates a vertical contract curve PZ
- The firm hires the same number of workers E*, regardless of whether it is unionized or not
- If the contract curve is vertical, the deal struck between the union and the worker is called a **strongly efficient contract** because the unionized firm is hiring the competitive level of employment

- Wage employment combinations on an upward-sloping contract curve are efficient only in the sense that they exhaust all bargaining opportunities between the employer and the union

Strongly Efficient Contracts: A Vertical Contract Curve



Employment is the same regardless of which deal is struck on the vertical contract curve, the firm's output and revenue are also constant.

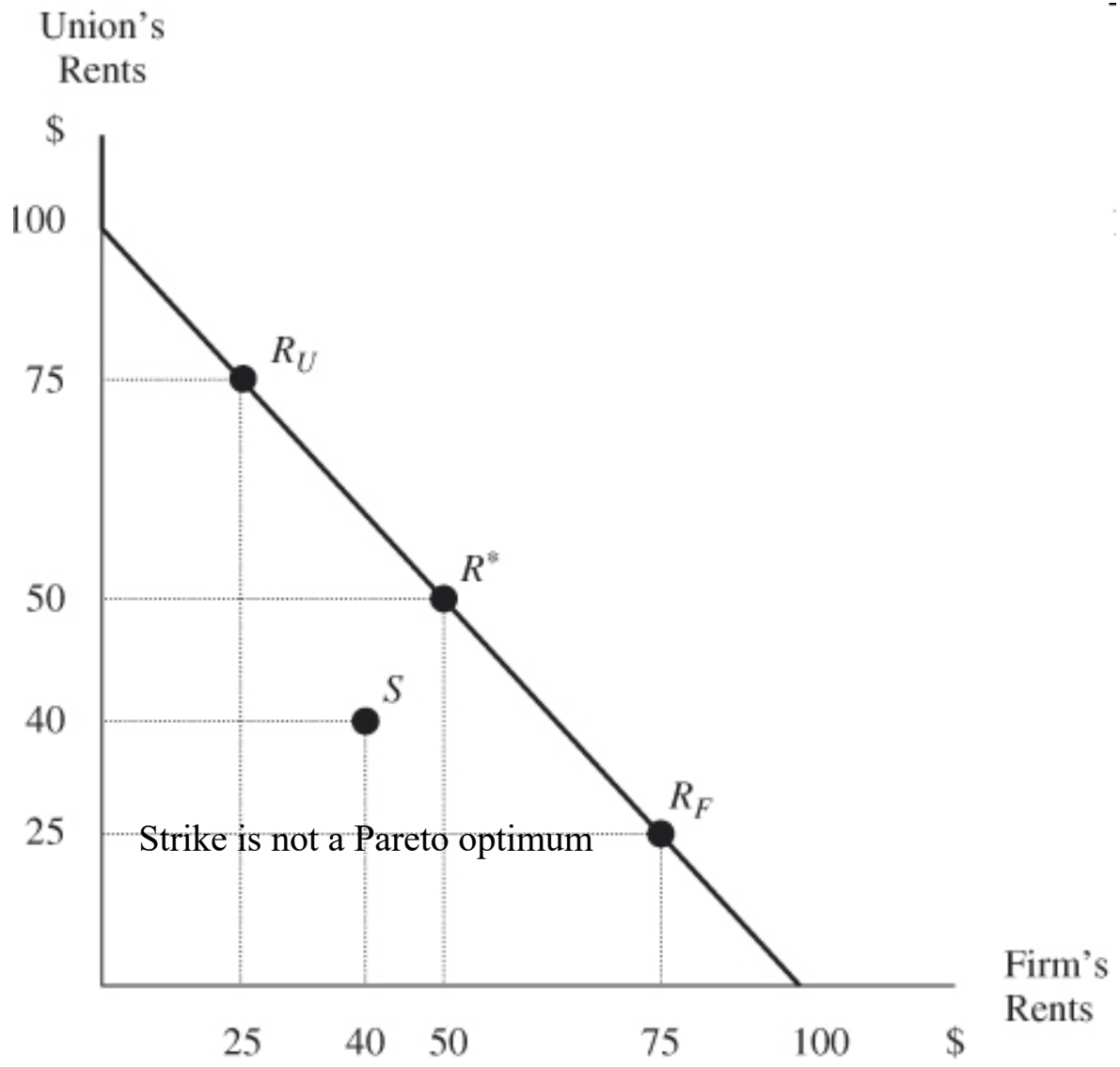
Evidence on Efficient Contracts

- Empirical studies have found that wage-employment outcomes in unionized firms do not lie on the labor demand curve, which supports the standard union bargaining model.
- There is disagreement over whether the contract curve is vertical.

Strikes 10-6

- 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 fact that "irrational" strikes occur is known as the Hicks Paradox.

The Hicks Paradox: Strikes are not Pareto Optimal

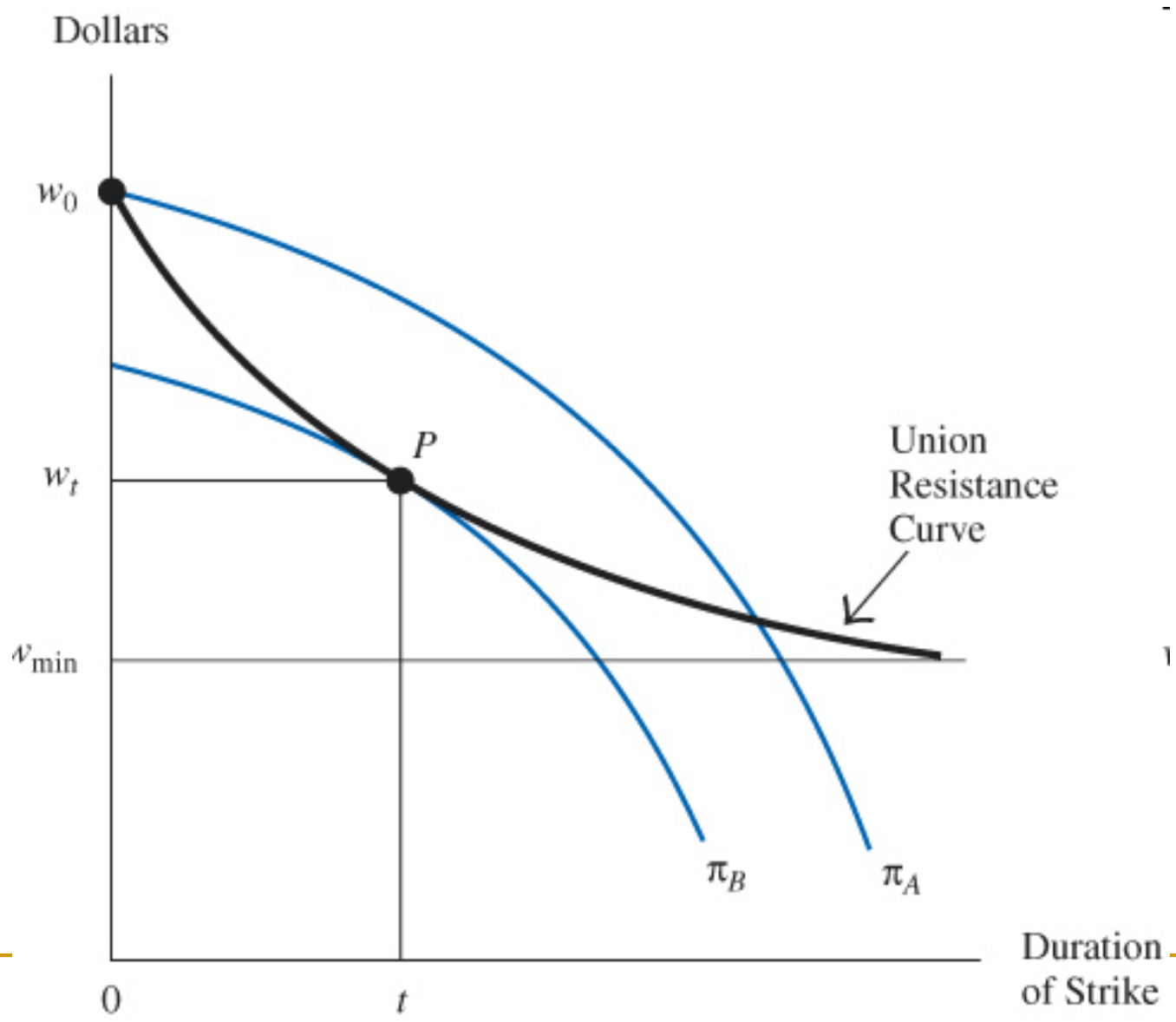


Strikes and Asymmetric Information

- Asymmetric information
- Union resistance curve

- Strikes can be optimal if workers are not well informed about the firm's financial status.
- Since the union will experience losses during a strike, it will reduce its demands throughout the duration of a strike.
- A firm knows that the union will moderate its demands over time.
- A firm incurs costs during a strike, so it will chooses a strike duration that maximizes the present value of profits.

The Optimal Duration of a Strike



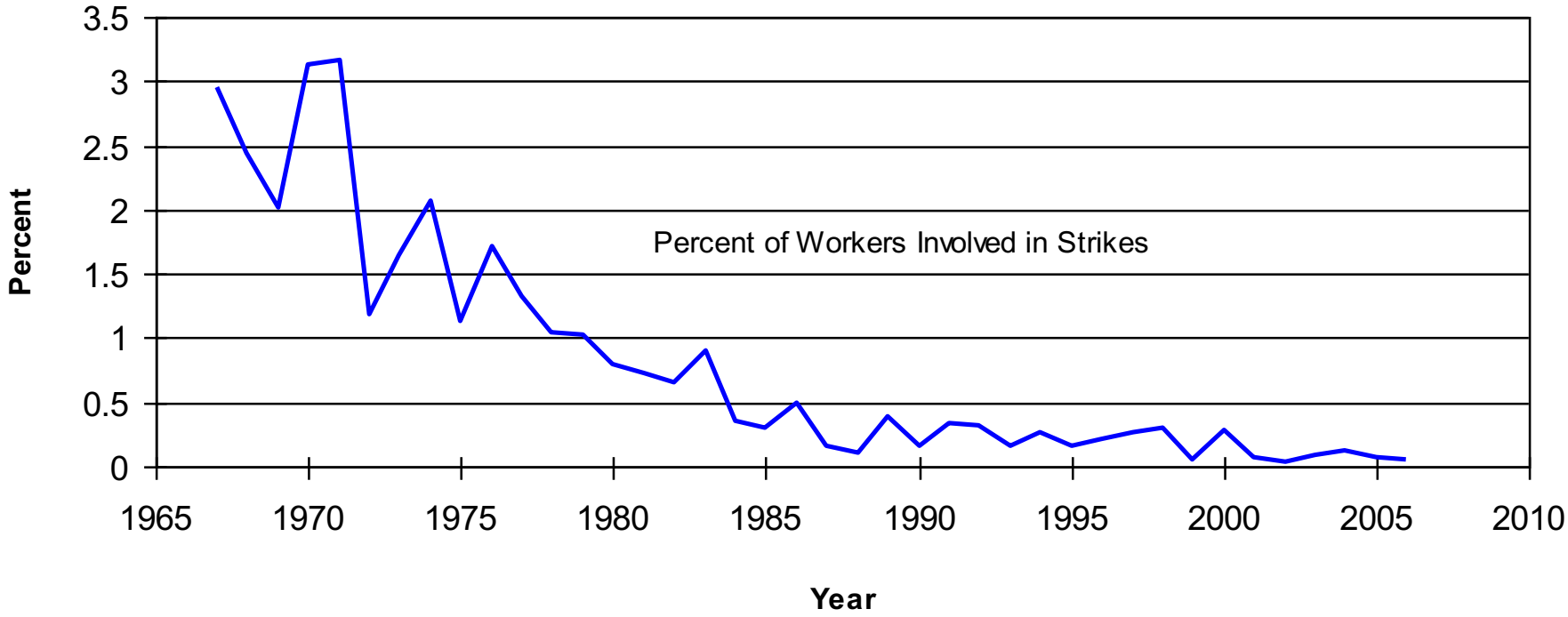
Empirical Facts on Strike Activity

- Strikes are more (less) likely to occur and last longer (shorter) the higher (lower) the wage demand.
- The fraction of work time lost due to strike activity was only 0.02 percent in 1996.
- Unions tend not to make high wage demands during periods of high unemployment (ie.,strikes are procyclical).

Empirical Facts on Strike Activity

- Strikes are more frequent when real wages are growing slowly or during inflation.
- Strikes are more likely when a firm has a more volatile stock value.
- On average, a strike reduces the value of shareholder's wealth by about 3 percent.

Strike Activity in the United States, 1967-2006



The Optimal Duration of a Strike

- The firm then chooses the strike duration that maximizes the present value of profits
- The firm moves to the lowest possible isoprofit curve and maximizes the present value of profits by choosing the point of tangency between the isoprofit curve and the union resistance curve, or point P
- The “optimal” strike – the strike maximizes the firm’s profit for a given union resistance curve – lasts t periods, and the settlement wage will equal wt dollars

Union Wage Effects

Suppose a particular worker i earns w_N^i if he works at a nonunion job but would earn w_U^i if the firm became unionized

- The percentage wage gain for this worker

$$\Delta_i = \frac{w_U^i - w_N^i}{w_N^i}$$

- Suppose there are k workers in the labor market
- The union wage gain thus measures what the average worker in the economy would gain (in percentage terms) if he or she suddenly became a union member

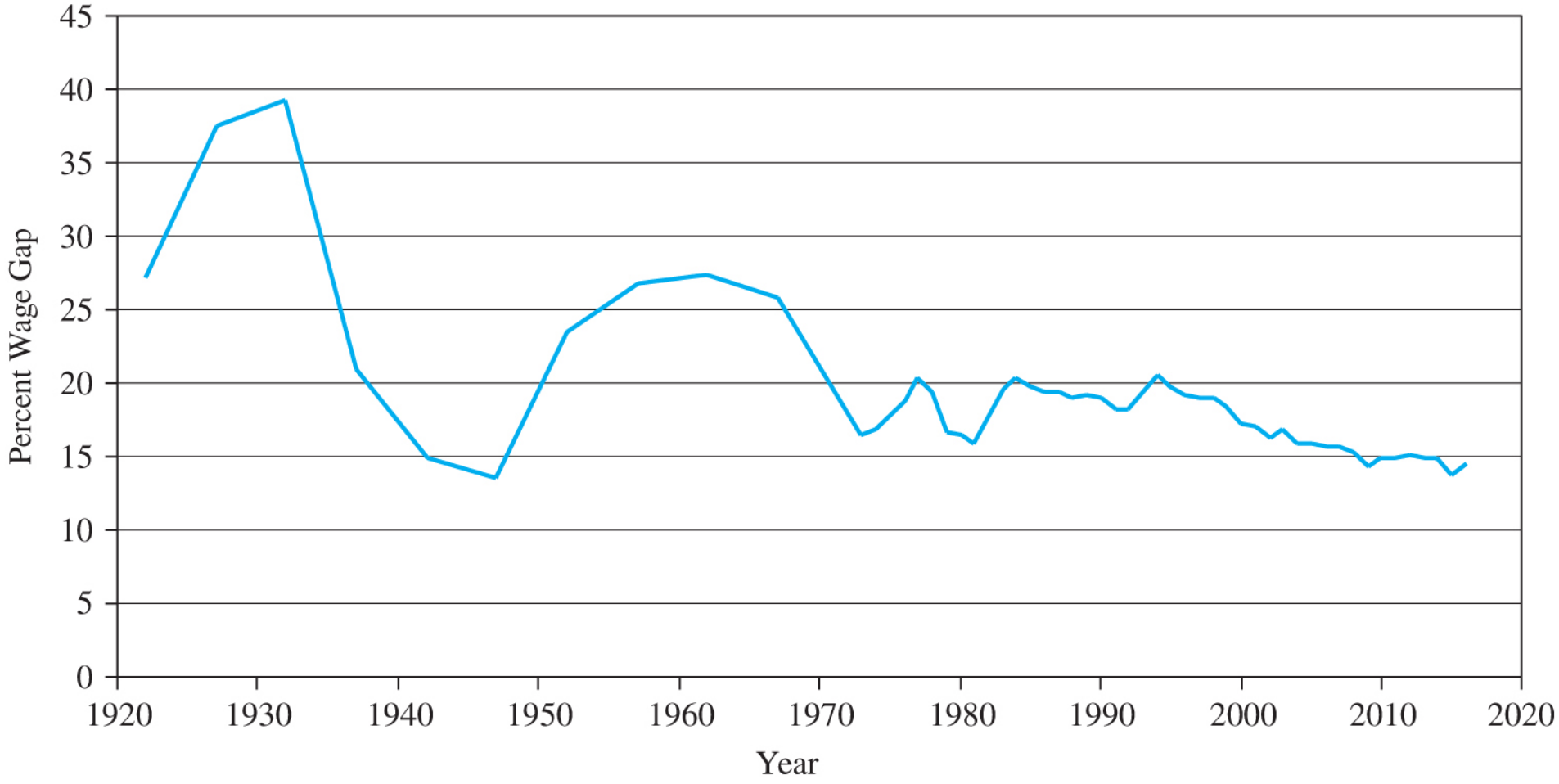
$$Union\ wage\ gain = \frac{\sum_{i=1}^{k} \Delta_i}{k}$$

- The union wage gap

$$D = \frac{\bar{w}_U - \bar{w}_N}{\bar{w}_N}$$

- The percentage wage differential between union jobs and nonunion jobs
- Estimates of the union wage gap adjust for differences in socioeconomic characteristics between workers who are in union jobs and workers who are in nonunion jobs

Wage Gap Between Union and Nonunion Workers, 1920-2016



Threat and Spillover Effects

- The existence of a union sector has two side effects on the nonunion sector.
  - Threat effects involve nonunion firms offering higher wages to reduce incentives of workers to unionize. (The threat effect leads the union wage gap to be underestimated.)
  - Spillover effects result when workers unemployed in the union sector enter the nonunion sector, thus increasing the supply of labor and decreasing nonunion wages. (The spillover effect leads the union wage gap to be overestimated.)

Unions and Wage Dispersion

- The dispersion of wages in the unionized sector is 25 percent less than the dispersion of wages in the nonunionized sector.
- Unionized firms offer a lower payoff to education than nonunionized firms.
- Unions flatten the age-earnings profile.

Unions and Fringe Benefits

- The fringe benefits package received by union workers is generally worth more than the package received by nonunion workers.
- The “union compensation gap” may be 2 or 3 percentage points higher than the union wage gap.

Non-Wage Effects of Unions

- Unions give workers an option of voicing problems through a formal grievance procedure, instead of exiting the firm when they are unhappy.
- This implies that worker turnover should be lower in unionized firms.
- As labor turnover declines, worker productivity increases.
- Profits rise but not enough to cover the increased labor costs.