**Review Questions**

Choose the letter that represents the **BEST** response.

**Unions and Collective Bargaining**

1. Which of the following is an accurate description of the nature of unions and collective bargaining in the United States?
   a. Unions tend to be intimately and uniformly associated with one political party.
   b. Bargaining must take place separately with each employer.
   c. Unions are organized as industrial or craft unions.
   d. Union bargaining positions tend to be controlled by the American Federation of Labor-Congress of Industrial Organizations (AFL-CIO).

2. Which of the following is not a role of the National Labor Relations Board (NLRB)?
   a. Conduct union representation elections.
   b. Conduct union decertification elections.
   c. Prevent employers from opposing union organizing campaigns.
   d. Investigate and rule on charges of unfair labor practices.

3. Under the 1947 Taft-Hartley Act, states were allowed to pass laws that have come to be known as right-to-work laws. These laws prohibit
   a. requiring a person to become a union member as a condition of employment.
   b. the permanent replacement of striking workers.
   c. employer interference in union elections.
   d. discrimination against union members.

4. Holding all else constant, which of the following changes would tend to decrease the demand for union activity?
   a. A decrease in the average job tenure
   b. The repeal of some right-to-work laws because of changing attitudes towards unions
   c. Increased use of tariffs and import quotas to restrict the flow of foreign imports
   d. Higher penalties for committing an unfair labor practice

5. Holding all else constant, which of the following changes would tend to decrease the supply of union activity?
   a. A decrease in the ratio of union to non-union wages
   b. Increased employer resistance to unions
   c. An increase in the number of regulated industries
   d. A decrease in the wage elasticity of demand for union labor

6. Union membership as a percentage of the labor force has declined steadily since 1954 when it reached a high of 25.4%. By 1997, only 11.8% of the individuals in the labor force were members of unions or employee associations. Which of the following factors has not contributed to this trend?
   a. New federal legislation unfavorable to union organizing efforts
   b. Deregulation of firms in the airline, trucking, and telephone industries
   c. Migration from the Northeast and Midwest to the South
   d. An increase in the fraction of the labor force that is female
“Monopoly Unions” or “Efficient Contracts”?

7. Which of the following is a characteristic of firm isoprofit curves drawn in the same space as the demand for labor?
   a. The curves must be downward sloping.
   b. Higher curves are associated with higher levels of profit.
   c. The curves reach their maximum when they intersect the demand curve.
   d. Both a and b.

8. An efficient contract between the union and the employer is reached when
   a. the parties explicitly bargain over both wage and employment levels.
   b. it is possible to make one party better off without hurting the other.
   c. it is impossible to make one party better off without making the other worse off.
   d. the firm maximizes its profits and the union maximizes its utility.

How Unions Achieve Their Objectives

9. Which of the following factors would contribute to union success in raising its members’ wages without the occurrence of substantial employment losses?
   a. A rapidly growing product demand
   b. An inelastic supply of substitute inputs
   c. A high price elasticity of demand for the final product
   d. Both a and b

10. There are more constraints on union power in the long-run because
    a. the firm can substitute other inputs for union labor.
    b. in the long run the supply of substitute inputs may be more elastic.
    c. product markets become more competitive in the long run with the entry of new firms.
    d. all of the above.

11. Which of the following factors do unions usually try to limit in collective bargaining agreements?
    a. The number of apprentice workers that can be employed
    b. The firm’s ability to subcontract work to other firms
    c. The firm’s ability to substitute between capital and labor
    d. All of the above

12. Which of the following public policies are most likely to be supported by unions?
    a. The elimination of tariffs and import quotas
    b. A lower minimum wage for teenage workers
    c. Occupational licensing laws
    d. Higher ceilings on the number of immigrants allowed into the country

13. The Hicks model of the bargaining process predicts that a wage settlement will be made in advance of a strike provided that
    a. each side has perfect information about how the other’s bargaining position will change over time.
    b. the union’s threat to strike is credible.
    c. the union’s resistance curve is always downward sloping.
    d. both a and b.
The Effects of Unions

14. Which of the following repercussions associated with a union wage increase could cause the relative union wage advantage to understate the absolute effect of the union on wages?
   a. The threat of unionization in the non-union sector
   b. Wait unemployment in the union sector
   c. Spillovers from the union to the non-union sector
   d. Both a and b

15. Assume that the ratio of union to non-union wages is 1.25 and that there is no unemployment in the non-union sector. What is the fraction of each time period that individuals in the union sector expect to be employed?
   a. 0.25
   b. 0.75
   c. 0.8
   d. 1.0

16. Suppose that the average union worker has wage earnings 15% more than the average non-union worker. Before this difference can be attributed to the monopoly power of unions, which of the following factors must be held constant?
   a. Working conditions
   b. Employee benefits
   c. Worker productivity
   d. All of the above

17. Unions have traditionally been thought to lower worker productivity by
   a. enabling workers to speak with a collective voice in the workplace.
   b. increasing quit rates.
   c. bargaining for rules that promote the use of internal labor markets.
   d. bargaining for limits on the substitution of capital for labor.

18. Which of the following is a likely consequence of a union’s serving as an effective collective voice for its members?
   a. More strikes
   b. Longer job tenures
   c. Less firm-specific training
   d. More restrictive work rules

Arbitration and the Incentive to Bargain (Appendix 13A)

In answering Questions 19–21, assume that two parties (call them A and B) negotiate over the share (S) of a fixed dollar amount that will go to each. If the parties can not agree, an arbitrated settlement will be imposed. Uncertainty exists as to the arbitrator’s eventual decision and the two parties have identical risk averse preferences.

19. The lowest share that person A would voluntarily accept is the share that yields a utility level
   a. equal to the average utility from arbitration.
   b. equal to the utility associated with the average arbitrated settlement.
   c. slightly greater than the utility associated with the minimum share expected under arbitration.
   d. higher than the utility level achieved by person B.
20. The contract zone consists of those shares that
   a. both parties find preferable to going to arbitration.
   b. yield equal utility for both parties.
   c. are in between the minimum and maximum shares expected under arbitration.
   d. yield utility levels higher than the average utility from arbitration.

21. Assuming the probability of a voluntary settlement is positively related to the size of the contract zone, the probability of a voluntary settlement increases as
   a. the spread of possible outcomes under arbitration increases.
   b. preferences become more risk averse.
   c. the amount to be divided between the two parties increases.
   d. both a and b.

## Problems

### The Employment Effects of Unions

22. Suppose the demand curve for union labor is given by the equation

\[ L = 100 - 2W. \]

Suppose the current wage is $10. Now suppose the union is successful in raising the wage of its members to $15. At the same time, it is able to shift the demand for labor out to

\[ L = 120 - 2W. \]

22a. What was the original employment level? What is the new employment level?

22b. Has the higher wage negotiated by the union reduced the employment opportunities of its members? If so, by how much?

23. Consider a firm with a marginal revenue product (MRP_L) curve given by the equation

\[ MRP_L = 40 - 4L. \]

Assume that the firm has monopsony power in the labor market and faces a market supply curve for labor given by the equation

\[ W = 2L. \]

If the monopsonist pays the same wage to all its workers, the marginal expense of labor (ME_L) to the firm will be

\[ ME_L = 4L. \]

23a. Graph the marginal revenue product curve, the labor supply curve, and the marginal expense of labor curve together on the same axes.

23b. Compute the optimal employment and wage levels for this monopsonist.
23c. Now suppose that a union organizes all the workers in this market and negotiates a wage of $16. What employment level will result? Has the union wage led to an increase or decrease in employment opportunities for the members?

23d. Assuming the union wants to raise the wage of its members (relative to what it was originally) and maximize member employment, what would be the optimal wage from the union’s perspective? What employment level would be associated with this wage?

“Monopoly Unions” or “Efficient Contracts”?

*24. Consider a firm with a production function given by the equation

\[ Q = 10L - 0.5L^2. \]

The resulting marginal product of labor expression is

\[ MP_L = 10 - L. \]

Suppose the firm sells its output in a perfectly competitive market where the going price (P) is $5.

24a. Find the firm’s marginal revenue product equation and graph it.

24b. If the going wage is $15, find the optimal employment level. What output level is associated with this level of employment?

24c. Given the wage of $15, verify that the profit associated with the optimal employment level is $122.50.

*24d. Find the equation for the isoprofit curve associated with a profit level of $122.50. That is, find an expression for the wage and employment combinations that yield the same profit level as the combination in 24b. Express your answer with the wage on the left side of the equation and employment on the right.

*24e. Plot the isoprofit curve on the same graph as the marginal revenue product curve.

24f. Now suppose the union raises the wage to $30. Find the optimal employment level. What is the resulting output of the firm? Verify that the firm’s profit falls to $40.

The Effects of Unions on Wages

25. Consider a labor market with union and non-union sectors. The demand and supply curves for union (U) labor are given by the equations

Demand: \( L^D_U = 30 - 0.5W \),

Supply: \( L^S_U = W \).

The demand and supply curves in the non-union (N) sector are given by

Demand: \( L^D_N = 60 - 2W \),

Supply: \( L^S_N = W \).
25a. Find the equilibrium wage and employment levels in each sector.

25b. Now suppose that the union succeeds in negotiating a wage for its members of $22. What is the absolute wage effect of the union in percentage terms? Compute the labor surplus that is created by the new wage.

25c. Suppose the labor surplus in the union sector spills over to the non-union sector. Assume the union supply curve shifts left by the amount of the surplus and the non-union supply curve shifts right by the amount of the surplus. Find the non-union wage and employment level. What is the relative union wage advantage in percentage terms?

25d. Find the expected earnings in each sector after the labor spillover. Is this situation likely to represent a labor market equilibrium?

25e. Suppose that the fraction of time any individual will be employed is related to the unemployment rate \( UR \) in that sector according to the equation

\[
F = 1 - UR.
\]

Letting \( E \) be the number employed and \( U \) the number unemployed, the unemployment rate is given by the formula

\[
UR = \frac{U}{U + E}.
\]

Find the expected wage in each sector if 2 of the workers who had previously sought work in the non-union sector return to the union sector to wait for a job opening. Does it make sense for a certain amount of wait unemployment to occur in this labor market?

25f. Find the expected wage in each sector if 3 of the workers who had previously sought work in the non-union sector return to the union sector to wait for a job opening. Will any wait unemployment that occurs in this market lead the relative union wage advantage to understate or overstate the absolute wage effect of the union?

26. Consider again the supply and demand curves initially given in the Summary section Example problem. As the union initially raises the wage to $12, suppose that it also succeeds in raising the demand for union labor to

\[
L^D_U = 24 - 0.5W.
\]

This increase comes at the expense of labor demand in the non-union sector which is now reduced to

\[
L^D_N = 36 - 2W.
\]

26a. What effect would the change in demand have on the wage and employment in the union sector?

26b. What effect would this change in demand have on the wage and employment in the non-union sector?

26c. Would this change in demand cause the relative union wage advantage to overstate or understate the absolute wage effect of the union?
Arbitration and the Incentive to Bargain (Appendix 13A)

27. Consider a situation where two parties (call them A and B) are negotiating about how to split a certain level of profit. The utility function for A and B are given by the equations

\[ U_A = \sqrt{S_A} \quad \text{and} \quad U_B = \sqrt{S_B}, \]

where \( S_A \) and \( S_B \) represent the share of total profits received by A and B. These shares must add to one. If the two sides can not agree on how to split the profits, the decision will be made by an arbitrator.

27a. How much utility would A derive if the arbitrator awarded him half of the profits with certainty?

27b. How much utility would A derive from receiving one-fourth of the profits? What about three-fourths?

27c. If the probability of A receiving a one-fourth share was 50%, and the probability of receiving a three-fourths share was also 50%, what is the average level of utility person A could expect? How does this average level of utility compare with the average level derived from receiving a 50% share with certainty? What does this say about A’s attitudes toward risk?

27d. What is the minimum share A could receive with certainty that would yield the same average level of utility that is expected from arbitration?

27e. Assuming person A receives this minimum share, what is the maximum share B could receive?

27f. What is the minimum share B could receive with certainty that would be acceptable? What does that imply about the maximum share A could receive?

27g. What is the contract zone over which the two sides can bargain?

27h. Suppose that uncertainty about the arbitrator’s decision decreases. Half of the time she is expected to award A a share of one-third, while the rest of the time she is expected to award A a two-thirds share. What happens to the size of the contract zone? Is a negotiated settlement more or less likely? State any assumption you make.

Applications

Comparing Private and Public Sector Unions

28. One of the unique characteristics of public sector labor markets is that the percentage of employees that are members of a bargaining organization increased throughout much of the 1960s and 1970s and has been roughly steady ever since. In contrast, the percentage of union members in the private sector has been steadily declining. At the same time, numerous studies also suggest that public sector unions have had less of an effect on their members’ wages than private sector unions. If public sector unions have had less success raising wages, why have they been more successful attracting and retaining members?