

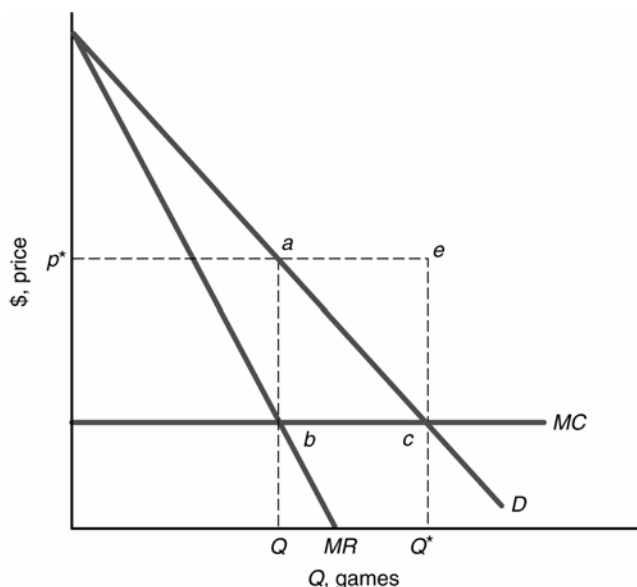
Chapter 6

The Public Finance of Sports: The Market for Sports Franchises

■ Solutions to Back-of-Chapter Problems

- 6.1 Use the all-or-nothing demand curve to explain why the IOC is unlikely to accept a bid by Los Angeles to host only the track and field events in its bid for the 2016 Summer Olympics.

Answer: In Figure 6.1 below, the deadweight loss that results from a simple monopoly price is area *abc*. When the monopolist sets price p^* and quantity at Q^* , the deadweight loss is transferred to the monopolist's revenue, and is not a loss to society. The consumer loss that is created (*aec*) is not a deadweight loss but a transfer to the monopolist as well. Thus efficiency improves (but, of course, equity is adversely affected from the consumers' standpoint). In the case of the Los Angeles Olympic bid, in effect the city is forced to purchase more events that it would normally choose (such as, say, equestrian, rifle, rhythmic gymnastics, and (in homage to Saturday Night Live) men's synchronized swimming) in order to get the events it wants such as men's basketball and track and field.



- 6.2 Use the rent gradient to show why New York is not like to build a new stadium for the Yankees in midtown Manhattan.

Answer: The city would not likely build a new stadium for the Yankees in the middle of town due to the relative value of the land that would be required (a high value of the rent gradient). The land that lies on the outskirts of town is less valuable than the land at the center. That is one reason why Yankee Stadium and Shea Stadium were built in the “outer” boroughs of Bronx and Queens. Similarly, in 2005 New York City’s bid to host the 2012 Olympics faltered when public support for a new upper-West Side stadium for the NFL’s Jet’s (an integral piece of the city’s Olympic bid) waned due to estimated construction costs that exceeded \$1.1 billion mainly due to the cost of the land required for the project.

6.3 Critics of referenda often complain that this method of determining expenditure often results in the community spending more than it really wants to. Do they have a point? Explain your answer.

Answer: The referendum itself is likely to bias expenditure upwards due to the “all-or-nothing” nature of the choice. Voters do not get to decide on the precise public commitment. If they view it as better than nothing, they will support it. Additional overspending can occur for several additional reasons. First, the referendum may commit the city to building a stadium that subsequently suffers significant cost overruns for which the city may be responsible. Second, once a referendum is approved, it may increase the bargaining strength of the team with respect to the details of the stadium amenities, which may also increase the cost to the city, as was the case in Cleveland. Finally, because the benefits from the project are concentrated in the hands of a few owner and players while the costs are small and diffuse, spread over many taxpayers, political economy suggests the owners will have an advantage over the taxpayers. The owner has the incentive to commit significant resources to campaigning while no individual taxpayer has a strong incentive to strongly oppose the plan. Therefore stadium proponents typically outspend opponents on election lobbying by a wide margin.

6.4 What happens to a city’s bid to host the Olympics if:

(a) Stadium construction costs rise?

Answer: If stadium construction costs rise, the costs to the city will increase by that amount, as the IOC imposes an all-or-nothing demand curve. Once committed, the city must build the venues regardless of cost.

(b) The city’s NFL franchise offers to buy the Olympic stadium after the Games?

Answer: The city’s expected surplus increases as it builds in the revenues that will come from the sale of the stadium. If this occurs before the bid is submitted, it increases the maximum that the city is willing to bid to the Games.

(c) Interest rates rise from 5 percent to 10 percent?

Answer: When the interest rate increases, it increases the cost of borrowing, and reduces the value of future benefits (as they are discounted back to the present using the interest rate). Thus, the net benefits to the city fall.

6.5 While football and baseball teams have gone from multipurpose to football- and baseball-only facilities, basketball and hockey continue to share arenas. Why?

Answer: Basketball and hockey still typically share arenas because unlike football and baseball, they utilize surfaces that are similar in shape and size. Although a basketball court is slightly smaller than the ice surface, both sports can be accommodated in a single building without seriously compromising the views of fans in either case. As shown in Figures 6.5 and 6.6, baseball and football are poor complements as stadium partners.

- 6.6 Suppose that New Orleans wants to host the Super Bowl. Arrange the following in order of their impact on the price that New Orleans is likely to pay.

Answer: Monopsony power allows the NFL to increase the price it charges cities such as New Orleans (in the form of stadium improvements, free hospitality, etc.), thereby claiming some of New Orleans' consumer surplus. In fact, the NFL has explicitly used the lure of the Super Bowl and a carrot to prod otherwise reluctant cities to build new stadiums, often at significant taxpayer expense. Can you think of any other reason why the NFL would want to put the Super Bowl in less than glamorous winter locales at Detroit (2006) or Jacksonville (2005). Both all-or-nothing demand and winner's curse rely on monopoly power to extract still more consumer surplus. Since the Super Bowl is a single event, the NFL can automatically exploit the all-or-nothing demand curve, so it can charge a higher price. This price will, in the limit, reflect the value of the Super Bowl to New Orleans and hence extract all of its consumer surplus. Finally, the winner's curse may cause New Orleans to bid more than the Super Bowl is worth to the city. (Frankly, I'm not really sure about which one of these is most important, but one potentially ordering is (c), (b), (a).)

- 6.7 Why does the fact that the NFL does not have a franchise in Los Angeles give its teams greater leverage with their host cities than teams in the other sports have?

Answer: Los Angeles has the second largest fan base and second largest media market. The potential profit from the Los Angeles market gives NFL franchises a more lucrative alternative market for franchises that are thinking of moving. Since teams can make a credible threat to move to L.A., this, in turn, gives the NFL teams much more bargaining power with their home cities than teams in other leagues have. In MLB and the NHL, due to recent (over-)expansion, there are few remaining cities that could host a team, therefore when teams threaten to leave, cities can often call their bluff. This is one reason MLB attempted to contract two teams back in the early 2000s. Further evidence of the value of an open market to the NFL comes from the last expansion of the league. The NFL had two lucrative offers of \$600 million each from Houston and L.A. during the last expansion. The league easily could have accepted both offers and expanded by two teams but decided that the value to the league of an open market in L.A. exceeded the value of an immediate \$600 million paycheck.

- 6.8 If a new baseball stadium has only a very short-term impact on a team's attendance, why do MLB teams still pursue them.

Answer: While attendance falls back to previous levels after a few years, the teams still have the potential to increase their profits because of new revenue sources. New stadiums have had far more luxury boxes than the stadiums they have replaced. In addition, teams generally get a larger percentage of the revenue from luxury boxes and other sources of venue revenue, such as parking or concessions. Next, the tickets themselves are generally more expensive in the new facilities. Finally, if the overwhelming majority of the stadium is paid for by taxpayers, even a short-term increase in ticket sales is worth the very small outlay that some teams must provide.

- 6.9 Suppose the International Olympic Committee announced that it would hold all of its Summer Games in Athens and all of its Winters Games in Osaka. What is the likely impact on the monopoly power of the IOC, the IOC's ability to exploit an all-or-nothing demand curve, and the winner's curse?

Answer: If the IOC designated single host sites for the Winter and Summer Olympics, then it creates a bilateral monopoly in which one seller confronts one buyer. This gives the host city much more bargaining power than it has when it is bidding against other candidate cities. The IOC would have much less power to exploit the all-or-nothing demand curve. Because there is no auction, the winner's curse does not come into play at all.

6.10 Suppose a city is laid out along a major highway, so the city is shaped like a straight-line segment rather than a circle. If the city wants to build a sports arena, where should the city build the arena?

Answer: If the city is located along a straight line, and businesses want to locate where it is most convenient for their patrons, then they will move toward the center of the segment. This drives up property values as one moves to the center of the segment. The city thus faces the same trade off that it faces with a circular city, and the rent gradient looks the same as it would with a circular city. The only difference is that one moves away from the center of town along a given line rather than along many possible radii of a circle. As with a circular city, the impact on policy is not clear. If the city builds the stadium at the center of the segment, there is a greater opportunity for spillovers to surrounding businesses. However, it will also have to pay more for the land on which to build the stadium.

Chapter 7 The Costs and Benefits of a Franchise to a City

■ Solutions to Back-of-Chapter Problems

7.1 Evaluate the following taxes from the standpoint of vertical and horizontal equity:

- a. A 25-cent per-gallon tax on milk.
- b. A tax on stock market transactions.
- c. A sales tax on men's clothing.
- d. A tax on cigarettes.

Answers: Vertical equity is harmed with any flat tax. Horizontal equity is harmed whenever goods that are only consumed by select segments of the population are taxed. The effect on horizontal and vertical equity is as follows:

- a. Milk taxes are horizontally equitable, but not vertically equitable because they have a greater impact on low-income families.
- b. A tax on stock market transactions is likely to be vertically equitable, in that most lower income families do not execute many trades. The extent of horizontal equity depends on how uniform the preference for stocks is among individuals with similar incomes. The more tastes vary, for example, between stocks and other forms of investment such as real estate, the less horizontally equitable the tax will be.
- c. A sales tax on men's clothing is likely to fair poorly on both counts. It is likely to be regressive (thus not vertically equitable), and is also not horizontally equitable in that it falls only on men rather than both genders.
- d. A tax on cigarettes is likely to be neither horizontally nor vertically equitable for the same reasons as a tax on men's clothing.

7.2 Suppose the demand for toothbrushes is perfectly inelastic at $Q(d) = 3,000$. The market supply curve is perfectly elastic and is equal to $p = 2.00$. What would be the deadweight loss associated with a \$0.20 tax on toothbrushes? Based on the Ramsey rule, would this be a good product to tax or not?

Answer: The deadweight loss is zero for any tax on a good for which either the supply or demand is perfectly inelastic. In this case, with perfectly inelastic demand, there is no loss and the incidence falls completely on the buyers. Such a tax is consistent with the Ramsey rule.

7.3 If the marginal propensity to consume in a municipality is 0.8, what is the value of the simple multiplier? If a new stadium that adds \$30 million in new consumption expenditures is built, what is the impact on the economy based on this multiplier?

Answer: The simple multiplier $1/(1 - MPC)$. In this case, with $MPC = 0.8$, the multiplier is 5. An initial expenditure of \$30 million would have a final impact of \$150 million.

7.4 True or False; explain your answer. "The new stadium was entirely privately funded because all the city contributed was a 50-acre site on which to build it."

Answer: False. The land donated by the city represents an opportunity cost to the city. The same land could have been sold to private interests or used by the municipality for a park or any other public good.

7.5 You own a team in San Francisco. What does public choice theory say about what you will do if Los Angeles presses the California legislature to underwrite a new stadium in Los Angeles.

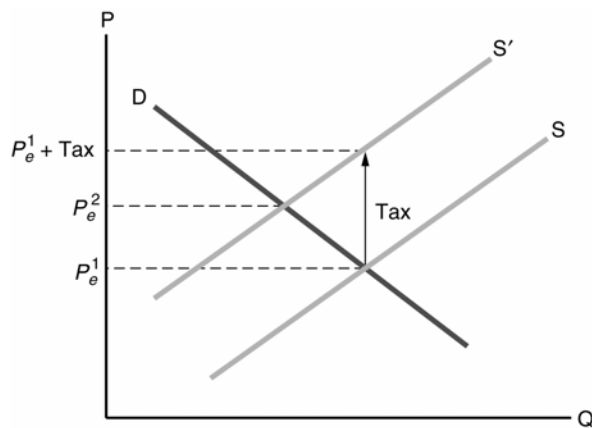
Answer: You would have an incentive to lobby your representatives to back the spending bill only if it also includes funding for a new stadium in San Francisco. This is an example of logrolling.

7.6 Why is the multiplier effect for the Los Angeles Lakers likely to be greater than the multiplier effects for the Sacramento Kings when both are teams in the NBA?

Answer: Los Angeles is much larger than Sacramento, so people are more likely to live and shop in Los Angeles than Sacramento. As a result, the leakages from Los Angeles are much smaller than the leakages from Sacramento, and the multiplier is larger.

7.7 Your city is committed to raising \$100 million for a new arena. The mayor suggests putting a tax on taxicab rides since out-of-towners disproportionately use taxicabs. Is this a good policy decision?

Answer: The tax on taxicab rides shifts the supply curve up by the amount of the tax (a fixed amount if there is a fixed tax per ride).



The price of cab rides rises, passing some of the tax on to out-of-towners. However, the price rises by less than the amount of the tax, from P_e^1 to P_e^2 and not to $P_e^1 + \text{tax}$. The failure of the price to rise by the amount of the tax means that taxicab drivers pay some of the tax. If the elasticity of demand for cab rides is large enough, the cab drivers may have to pay a substantial amount of the tax. If this happens, the tax is not a good idea. Furthermore, the concept of tax fungibility suggests that even if out-of-towners do pay the majority of the tax, this revenue could be used to finance other projects in the city besides the stadium or be used to reduce other taxes paid by local residents.

7.8 Using the information in Table 6.3, which cities would have benefited from using incremental tax financing? For which cities would it have been a bad idea?

Answer: Over a 1-year time horizon, all cities experienced an increase in attendance from the construction of a new stadium. Over a longer timeframe, however, many teams experienced flat or falling attendances including Atlanta, Detroit, Pittsburgh, and Philadelphia.

7.9 Why might a city want to go into debt as a way to fund a stadium?

Answer: Historically, if cities borrowed to build a stadium, they could pass some of the cost of a new stadium on to the residents of other cities. This is because interest income from municipal bonds is deductible from federal taxes. This has two effects. First, because the income is tax-free, cities pay lower interest rates on municipal bonds than private companies pay on comparable bonds. Second, if the holders of municipal bonds pay lower federal taxes, taxpayers nationwide must pay higher taxes to make up the lost income. The city can thus pay interest rates that are less than the market rates at the expense of residents of other cities who have to pay higher federal taxes. Since December 31, 1999, however, IRS regulations stipulate that cities may no longer issue tax exempt municipal bonds to build professional sports stadiums.

7.10 Why would a Super Bowl played in Detroit probably have more of an impact than a Super Bowl played in Miami, even though both were to draw the same amount of fans? Why would a Super Bowl at Ford Field in Detroit have more of an impact on Detroit than a regular season Detroit Lions game that draws the same number of fans?

Answer: A Super Bowl in Miami would displace many business travelers and vacationers who would have gone to Miami even if there were no Super Bowl. This reduces the economic impact of the Super Bowl on Miami's economy. Because far fewer people go to Detroit in January, the net impact of a Super Bowl is much larger for Detroit than for Miami.

Even if a Super Bowl drew no more people to Detroit than a regular season game at Ford Field, far more people who go to the Super Bowl are from outside the Detroit area than is true for a typical Lions game. The out-of-towners are likely to stay at area hotels for several days. In addition, the money they spend in Detroit is new expenditure for the local economy, while a portion of the money that local fans spend would have been spent locally even if they did not go to the game. The net impact on the Detroit economy is thus much larger for a Super Bowl than for a regular season game.

Chapter 8

Introduction to the Labor Markets in Professional Sports

■ Solutions to Back-of-Chapter Problems

8.1 Suppose that the market demand for baseball players is perfectly inelastic (vertical) at 750 players. If the market supply increases due to an increase in the number of available international players, show using a graph how wages will change as a result.

Answer: If the market demand is perfectly inelastic, an increase in supply will lead to a decrease in player wages. The quantity of labor remains constant at L^* , but wages fall from w to w' due to the increase in supply. See Figure 8.1A.

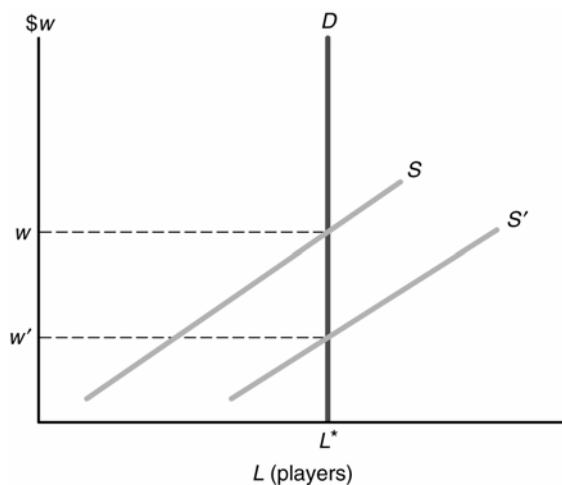


Figure 8.1A

8.2 Suppose that there are two types of players, good and medium. The team demand curve for top-quality players is $Q = 27 - 5w$, and the market supply of top players is $Q = 4w$, where w is the wage in millions of dollars. How many top-quality players will the team hire? What will they be paid?

Answer: To solve, set the quantity demanded equal to the quantity supplied.

$$27 - 5w = 4w$$

$$w^* = \$3 \text{ million per season}$$

$$Q = 12 \text{ top-quality players}$$

8.3 Use a graph similar to Figure 8.5 to show the effect on league salaries of

- An increase in the number of players available.
- A decrease in television revenues due to fan preferences for drama shows

(c) A minimum salary set above the equilibrium wage.

Answers: For parts (a) and (b), the graph should show the appropriate shift in the supply or demand curve.

- (a) The supply curve shifts rightward, increasing quantity and decreasing the equilibrium wage.
- (b) The demand curve shifts to the left (due to the decrease in demand for output). The equilibrium quantity and wage both fall.
- (c) See Figure 8.2A. The wage increases, but employment decreases.

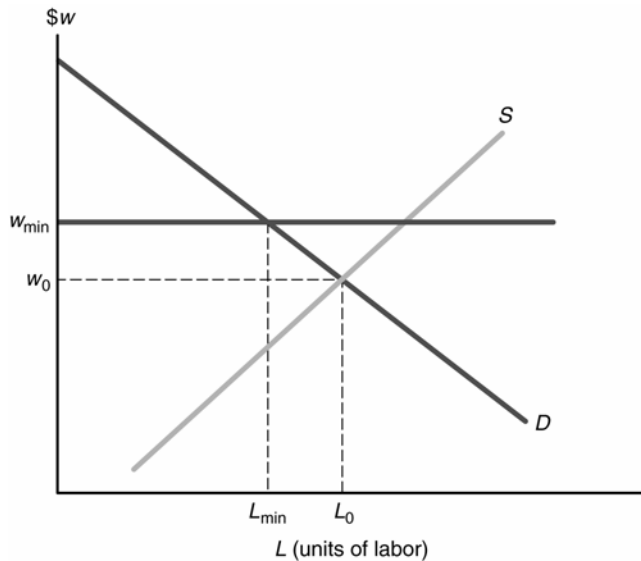


Figure 8.2A

8.4 Log on to the Economics of Sports website at http://www.aw.com/leeds_vonallmen.and download the data from the icon marked “hockey salary data.” Use regression analysis to estimate a wage equation. If players are paid their marginal product, how much is an extra goal to the team. What performance indicators matter the most? Least?

Answer: The data for this exercise will be updated on an annual basis. Using the current data, estimate an equation, using salary as the dependent variable, and the various available performance measures to estimate the best possible equation. The coefficient on the “goals” variable shows the value of an additional goal. Discuss the importance of checking the statistical significance of the coefficients as well as the overall goodness of fit of the regression.

8.5 Based on the following player statistics, compute the Wins Score values. Assuming the players have equal star power to attract fans and players are rewarded only based on Win Score values, which player deserves to be paid the most? Who should be paid the least? How would you answer change if players were only rewarded for scoring?

Statistic	Players			
	Joe	Bob	Fred	Jim
Points	17	25	10	20
Total rebounds	7	5	10	6
Steals	3	0	4	2
Blocks	2	2	0	0
Assists	3	4	6	8
Field goal attempts	18	28	8	13

Free throw attempts	10	9	4	5
Turnovers	2	3	2	4
Personal fouls	4	5	3	3

Answer: Win score = points + rebounds + steals + ½ blocked shots + ½ assists – field goal attempts – ½ free throw attempts – turnovers – ½ personal fouls. For the four players the win scores are:

Statistic	Players			
	Joe	Bob	Fred	Jim
Points	17	25	10	20
Total rebounds	7	5	10	6
Steals	3	0	4	2
Blocks	1	1	0	0
Assists	1.5	2	3	4
Field goal attempts	-18	-28	-8	-13
Free throw attempts	-5	-4.5	-2	-2.5
Turnovers	-2	-3	-2	-4
Personal fouls	-2	-2.5	-1.5	-1.5
Win Score	2.5	-5	13.5	11

By win score, Fred is the best player, but if players are paid by their scoring average, Bob gets paid the most despite being the worst player by win score.

8.6 Explain and show using a graph why, at any given wage, a monopoly firm will hire less labor than the total employment if the industry were competitive.

Answer: See Figure 8.3A below. If the marginal cost of effort increases, the marginal revenue (prize difference between, for example, first and second) must also increase in order to get the player to elicit the same level of effort E^* . With no increase in the reward, the player's effort would fall to E' .

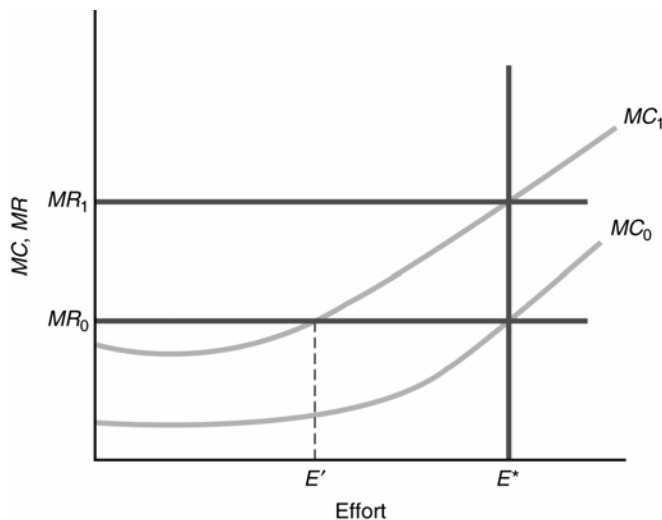


Figure 8.3A

8.7 Explain how reserve-order entry drafts and the reserve clause create monopsony power for teams within a league.

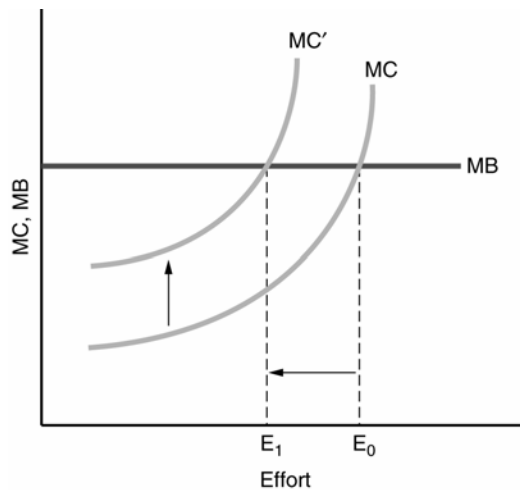
Answer: A player who is drafted is restricted to playing for only the team that drafts him. Therefore, the team becomes a monopsonist buyer of that player's talent. On the other hand, however, the team is restricted from buying the talent of any of the other players who were drafted, so the player becomes somewhat of a monopolist seller of his talent as well.

8.8 European soccer players are free to sell their services to any team in any league. How would it affect the profitability of these teams if instead players were bound by a reserve clause? Use a graph to show how wage rates would differ under the two scenarios.

Answer: Under a reserve clause, teams would be able to extract monopoly rents from players and would earn higher profits. Wages for players would be lower as they lose the power to bargain with other teams.

8.9 Using a graph, show what happens to player effort in a tournament if the marginal cost-of-effort curve shifts upward.

Answer: If the MC of effort curve rises, then the optimal degree of effort falls, as shown below.



When the MC curve shifts up, the cost of a little more effort catches up sooner to the MB of a little more effort, so the optimal degree of effort falls from E_0 to E_1 .

Chapter 9

Labor Unions and Labor Relations

■ Solutions to Back-of-Chapter Problems

9.1 Draw a graph similar to Figure 9.1 to show the effect of a union advertising campaign designed to increase demand for the product.

Answer: Figure 9.1A shows that the demand for labor increases from D to D' due to increased demand for the product. Union wages increase from w to w' , as does the magnitude of the deadweight loss.

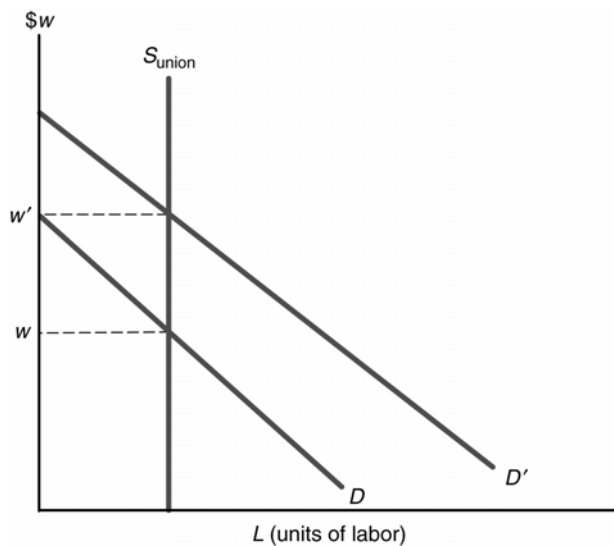


Figure 9.1A

9.2 What happens to the magnitude of the deadweight loss in Figure 9.2 if after the wage is agreed upon, demand for the sport falls.

Answer: When demand for the sport falls, the demand for labor falls as well. With a constant wage and falling demand, the magnitude of the deadweight loss increases. See Figure 9.2A below. The original deadweight loss is the area efg . The new deadweight loss is area abc .

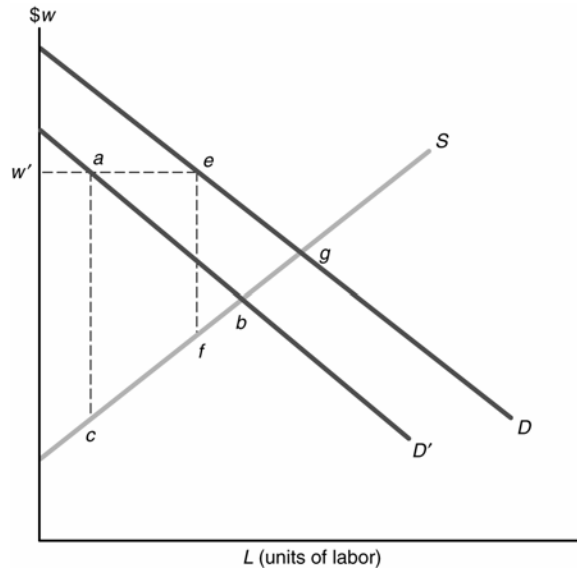


Figure 9.2A

- 9.3 Would a craft union or an industrial union be more inclined to argue against the designated hitter? Why?

Answer: A craft union would be more likely to argue against the designated hitter, as the craft union works to increase wages through exclusivity—reducing the size of the available labor pool.

- 9.4 Suppose Congress repeals MLB's exemption from the antitrust laws. How might this affect the contract zone between MLB and the MLBPA?

Answer: The repeal of the antitrust laws would reduce MLB's bargaining power shifting the contract zone towards the union. This should lead to higher wages for players. It should be noted that Congress repealed MLB's antitrust exemption with respect to labor dealings in 1998 with the Curt Flood Act. Therefore, repealing the rest of the exemption shouldn't have too much effect on the contract zone in practice.

- 9.5 Using the Internet, log on to the official site of each of the leagues and the official sites of the respective players associations. Describe any differences you see in how players associations depict the game compared with the leagues' descriptions. Are there significant differences across sports?

Answer: The websites change frequently, so the answer to this question will vary, but typically the unions' sites focus on players' contributions to the game while the league sites examine the sport more broadly.

- 9.6 What effect might the dramatic increase in players from European countries have on the NHLPA's ability to negotiate a collective bargaining agreement?

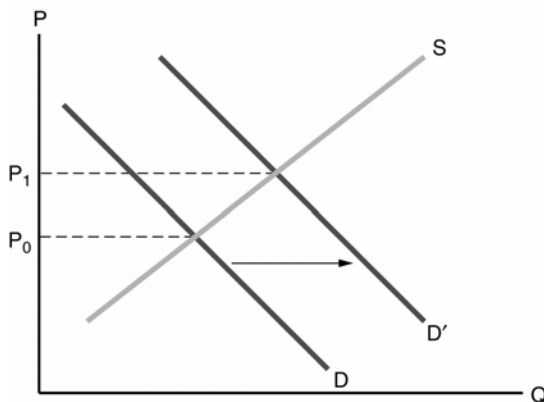
Answer: The increase in European players is likely to decrease the bargaining power of the NHLPA. Unions are better able to bargain successfully for their constituents when members have more homogeneous tastes and preferences. By employing players from around the world, much more diversity is introduced into the labor pool. In addition, some of the European players come from previously socialist economies with significantly lower living standards. Thus, they are less likely to be willing to strike for higher wages, given that they are probably already earning much higher wages than they would be in their home countries.

9.7 Is it likely that professional golfers will unionize? Why or why not?

Answer: There is nothing suggesting that athletes in individual sports are more or less likely to unionize than those in team sports. The success of the two tennis associations is proof of this. In fact, the Professional Golfers Association (PGA) serves as a *de facto* craft union for professional golfers and professional golfers have experienced similar increases in earnings over the past few decades as their counterparts in tennis and the team sports.

9.8 Why do unions advertise the sports (not just the players) that they represent?

Answer: By advertising the sport, the union hopes to increase the demand by fans for the sport, which corresponds to increasing the output of the industry. If the demand for the product goes up, the price of the product goes up, as seen below:



As the value of the output rises, the value of the labor that produces it also goes up. This, in turn, increases the bargaining power of the union in its negotiations with the industry.

9.9 Under what circumstances would a union favor the once-proposed contraction of Major League Baseball?

Answer: If the teams that the league wishes to eliminate fail both on the field and at the box office, they could diminish the profitability of all the teams in the league. If all teams' output is less valuable, then—as noted above—the labor they employ also becomes less valuable. Eliminating the teams that drag down the value of the other teams may therefore increase the value of the workers they employ. It is important to note, however, that the increase in the wages paid to the remaining players due to the contraction would have to exceed the loss of wages for the players who are contracted. In fact, the MLBPA strongly opposed contraction for this reason.

9.10 Use supply and demand curves to show how the ATP and WTA increased the prize money offered on the men's and women's professional tours.

Answer: The tennis associations restricted supply raising prices as in Figure 9.1 in the textbook. Coupled with an increasing demand for professional sports in general, and tennis in particular, this has led to significantly increased wages for both male and female professional tennis players.

Chapter 10

Discrimination

■ Solutions to Back-of-Chapter Problems

10.1 Suppose that a competitive wage in minor league baseball is \$20,000 per season. A minor league owner has a taste for discrimination against all nonwhite players. Her coefficient of discrimination against Latinos is 0.20, and her coefficient of discrimination against blacks is 0.18. What would she consider the wages of people who are members of these two groups to be? If the supply of players were perfectly elastic, how many of each group would be hired?

Answer: In each case, she would feel as though she were paying the nonwhite players $w(1 + d)$. For Latinos, she would perceive a \$20,000 salary to be \$24,000. For blacks, the perceived wage is \$23,600. If the supply of white players was perfectly elastic, she could hire any number of white players at \$20,000, and no nonwhite players would be hired.

10.2 How can you determine if a running back in the NFL is suffering from wage discrimination? Would the process be the same for linemen?

Answer: This question relates back to the determination of marginal product (and marginal revenue product) discussed in chapter 8. For running backs that have similar statistics, a regression model would predict similar wages. If the wages differ for unexplained reasons (i.e. reasons that are not attributable to productivity differences), then it may result from discrimination. The process would be much more difficult for linemen, as their productivity is not as easily measured using game statistics that can be entered into a regression equation.

10.3 Under what circumstances would an owner be able to practice employer discrimination over a long period of time?

Answer: Employers who are monopsonists may be able to practice discrimination for extended periods because the players have no other opportunities to play. The key to the elimination of discrimination in Becker's model is the force of competition. Because monopsonistic markets are not competitive, as long as the employer is willing to "pay" for their taste for discrimination in the form of lower profits, they will not be forced from the market by competing firms.

10.4 Why is it difficult to isolate gender discrimination in professional leagues of team sports?

Answer: Because of physiological differences between men and women, men and women rarely compete directly against one another and rarely have playing statistics that are comparable.

10.5 Use Becker's model to explain why sponsors who discriminate will likely experience lower profits for doing so.

Answer: By engaging in discrimination, sponsors will pay a premium to advertise at their preferred venues or with their preferred spokespersons. For example, given the choice between two celebrity spokespersons, each of whom would spur identical sales, a discriminating sponsor will choose the one with their preferred race/gender/nationality even if that celebrity charges a higher fee. This leads to lower sponsor profits.

10.6 Using supply and demand graphs, show how positional segregation can occur even if only the players (including potential future players) believe such discrimination exists.

Answer: This is an example of statistical discrimination. If current and future players believe that positional discrimination exists (even if it does not), then they may self-select into those positions where they will not be victims of discrimination. For example, if whites believe that they are discriminated against at the position of cornerback, and treated favorably at the position of middle linebacker, and blacks feel the reverse, each group will tend to concentrate its training in those positions at which it will receive favorable treatment. The supply of white middle linebackers increases, the supply of black middle linebackers decreases, while the opposite occurs for cornerbacks. As even non-discriminating employers fill positions, the differences in supply by race create positional differences by race. In Figure 10.1, the supply of Black middle linebackers shifts to the left. At the market wage w , the equilibrium quantity of Black middle linebackers decreases.

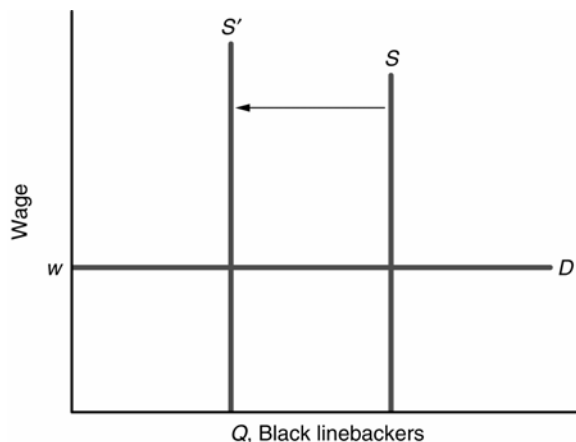


Figure 10.1

10.7 True, False, or uncertain: Title IX compliance requires equal expenditures on men's and women's sports. Explain your answer.

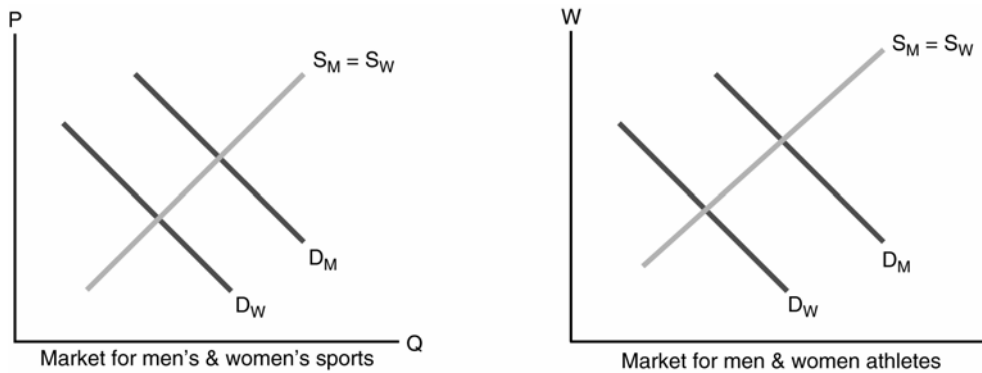
Answer: False. Title IX only requires equal opportunities to participate. If women's sports can be provided at a lower cost than men's sports, equal expenditures are not required. Furthermore, compliance can be met by showing proportionality, increasing opportunities for the underrepresented gender, or full accommodation of the interests of both gender. All three of these conditions can be met with spending an equal amount on each gender.

10.8 Use what you know about prisoners' dilemma to explain why the British Premier League teams such as Arsenal have so many foreign players even when as a group, the Premier League teams agree that they want to limit the number of foreign-born players.

Answer: While each team may wish to increase the number of native-born players in the league, their preference for British players is outweighed by their desire to hire the best players for the lowest price. Therefore, while each team may prefer a league with primarily British players to one with primarily foreign players, teams will always prefer to add players that will help them win even if this player is foreign-born. Note: European labor laws prevent European teams from limiting the number of players from other EU nations on their teams although non-EU players can be restricted.

10.9 Would it be possible to have legislation similar to Title IX that governed professional sports? Why or why not?

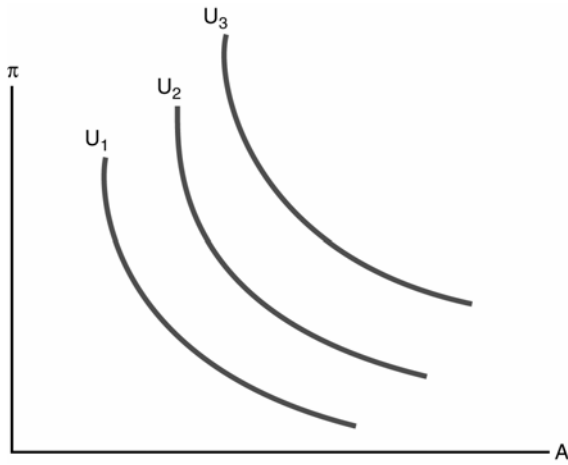
Answer: Title IX would be hard to impose on professional sports, as the quantity of men and women athletes involved in a specific sport and the salaries they are paid depend on the market for those sports. If the demand by fans for women’s sports is less than the demand for men’s sports, then the price of the output of women’s sports will be less, and the value of women athletes will be lower. The quantity of women athletes employed will be lower and their salaries will be lower.



Because colleges are not supposed to maximize profit, they are not as sensitive to market conditions as professional sports leagues. From a legal standpoint, since professional sports franchises are generally not recipients of federal funds, either directly or indirectly. Therefore, Title IX as currently written does not apply to professional teams while college receive federal funding either directly through grants or indirectly through subsidized student aid.

10.10 Draw a set of indifference curves (as described in Appendix 2A) depicting an owner with a taste for discrimination against Francophones. Put Anglophones on the horizontal axis.

Answer: The indifference curves would be drawn with English-speaking players (Anglophones) on the horizontal axis and profits on the vertical axis. A prejudiced employer would regard both English-speaking employees and profits as goods, so his utility function would be $U = U(\pi, A)$. If the arguments of U —profits and Anglophones—are both goods then the indifference curve must be downward sloping, since losing some of one good can be offset by gaining more of the other.



In this picture, $U_3 > U_2 > U_1$ because the amount of profits and the number of Anglophones both rise as one moves up and to the right.

Chapter 11

The Economics of Amateurism and College Sports

■ Solutions to Back-of-Chapter Problems

11.1 Show, using supply and demand for labor diagrams for Divisions I and III, the effects of a new rule allowing Division III schools to pay athletes a one-time bonus for enrolling at their schools.

Answer: The supply of potential college players available to each division would not change, but the quantity supplied likely would. Prohibitions against scholarships act as a price ceiling. Allowing payments to Division III players would have the same effect as the removal of a price ceiling. If many Division III schools felt compelled to offer generous bonuses to recruits it could result in a prisoners' dilemma. That is, each school would fear that if it did not offer bonuses, it would suffer in recruiting. Thus, all schools may be forced to offer the bonuses, increasing payments to players at the Division III level overall, but leaving the relative quality between Division III schools unchanged.

11.2 Use the prisoner's dilemma model to show why schools have an incentive to violate NCAA rules.

Answer: Schools have an incentive to violate NCAA rules because of their fear that if they do not, but other schools do, they will be at a disadvantage in recruiting. In Table 11.1, the dominant solution is in the upper left, though both schools are better off in the lower right.

Table 11.1

		University A	
		Cheat	Don't Cheat
University B	Cheat	Recruit evenly Both violate rules	B dominates
	Don't Cheat	A Dominates	Recruit evenly/Both obey rules

11.3 Use human capital theory to explain why colleges might not pay students their full marginal product.

Answer: Colleges may not pay students their full marginal product because those students may be receiving general training in two forms. The first is that, through attendance at classes, the student athletes increase their stock of general human capital, which can be used to increase future earnings. The second is that student athletes also receive general training in their chosen sport, which can be used to increase productivity (and so also wages) at the professional level. In other words, the education student athletes receive (both in the classroom and on the field) should be considered part of their compensation.

11.4 Assume that you are the newly appointed head of the NCAA. Construct a framework for a new scholarship program that would entirely replace the existing system. Describe what should be its fundamental tenets if:

- (a) The primary goal is to ensure that athletes were not being exploited.
- (b) The primary goal is to ensure student athletes receive degrees.
- (c) The primary goal is to simplify the system and reduce violations.
- (d) Your primary goal is to be reappointed.

Answers: This is a problem that does not have a simple, straightforward answer. It might well be made into a class project, or small group project. In each case, the emphasis is on a different interest group or criterion for success. Consider dividing the class into four groups and assigning each group one of the four options. Have the class present and defend their choices.

11.5 What effect do the following have on a person's decision to invest in athletic training versus academic training? In each case, explain the direction and likely significance of the effect.

- (a) Risk of career-ending injury.
- (b) The probability of success in athletics.
- (c) An increase in the cost of college tuition.
- (d) An increase in the demand for professional sports.

Answers: (a) An increased risk of a career ending injury should shift the student's incentives away from investing in athletics towards increased investment in academics. For those who continue to seek a professional career, it will increase the likelihood of turning pro before finishing college, thereby diminishing both forms of training.

(b) As the probability of success in professional athletics increases, the expected returns from an investment in athletic training also increase. This would lead to greater investment in athletics and less investment in academics.

(c) An increase in the cost of college tuition would increase the probability that an athlete may seek athletic training outside the collegiate ranks, such as in a minor league if the individual must pay some or all of the tuition. If the student still attends college, and receives a scholarship that pays full tuition, there is no incentive to change his or her behavior.

(d) An increase in the demand for professional sports increases the equilibrium quantity and salary of professional athletes, thereby increasing the probability and profitability of a professional career. Thus the expected gains from investing in athletics increases, and the student would shift their efforts away from academics towards sports.

11.6 Use game theory to describe how an effort by two universities to recruit a top basketball player might result in both committing NCAA recruiting violations.

Answer: The prisoners' dilemma described in Table 11.1 is relevant for this question as well. If landing the recruiting is more valuable to a school than the cost of a potential NCAA violation, each school has the incentive to cheat to get the recruit regardless of whether the other school is cheating or not. Since a school afraid that the other school may commit a violation, it will have an incentive to violate NCAA rules as well or risk losing the recruit.

11.7 What unselfish and selfish motives might be behind the attempts by some schools to set academic standards for student-athletes?

Answer: Schools might want to set academic standards because they believe that colleges should subject athletes to the same standards that they apply to other students. Standards are one way to ensure that universities fulfill their academic mission. Alternatively, admissions standards could be a way that existing athletic powerhouses prevent rivals from challenging their positions. Academic standards limit the number of potential athletes available to rival schools. Because they are already attractive, the existing schools have a better chance of skimming off the more qualified athletes. Schools wishing to break into the upper echelon thus cannot compete by offering higher wages or lower academic standards.

11.8 Use supply and demand analysis to show and describe the dramatic increase in “basketball academy” prep schools following the creation of proposition 16.

Answer: Since proposition 16 allows students with low SAT scores to be eligible for intercollegiate play as long as they had a high enough GPA, this gives students the incentive to attend “basketball academies” that will ensure that students receive satisfactory GPAs. In addition, this time period also overlapped with the surge in high school students heading directly to the NBA. By increasing the immediate returns to athletic skills, investment in athletic human capital became more valuable at a younger age (high school instead of college).

11.9 How might failing to graduate from college be an optimal investment in one’s human capital.

Answer: An investment in human capital is an addition to one’s skills. These skills can be academic or athletic. Some athletes are in college for the purpose of developing their athletic skills. While college is a good place to develop human capital, it is not the only place where this capital can be developed. Thus, leaving college for a professional sports team may allow athletes to better develop their athletic skills. In addition, those attending college incur a large opportunity cost since they cannot be paid for their services. If they have the opportunity to sign a top professional contract, even some of those who wish to develop their academic skills would probably be better off leaving college early in order to enjoy the return to their investment in their athletic skills. It should be noted that the decision of whether to leave college early is not one faced solely by athletes. Entrepreneurs such as Bill Gates and e-Bay’s Mr. Omidyar also left college early to pursue business interests.

11.10 Use human capital theory to explain why graduation rates for women’s basketball players are so much higher than those for men’s basketball players.

Answer: Because the salaries in the WNBA are a small fraction of the salaries in the NBA, women have much less of an incentive to focus solely on their athletic skills. They therefore typically come to college more academically prepared than their male counterparts, so the return to investing in academic skills is higher. Because of higher academic returns and lower athletic returns, the monetary value of a career in the WNBA does not dwarf the value of an academic degree, so there is less temptation for women to leave school early.