Chapter 3

Sports Franchises as Profit-Maximizing Firms
Profits: A Touchy Subject

• Team owners are condemned if they worry about profits
  – Mark Cuban (like individuals) maximizes utility
• Corporate CEOs are condemned if they don’t worry about profits
• Bad things happen if teams ignore profits
• Consider the 2002-2003 Ottawa Senators
  – They had the NHL’s best record
  – They also filed for bankruptcy
Learning Objectives

• Describe the various possible team goals and how those goals influence team behavior
• Analyze team revenues and explain differences in revenues and operating income across sports
• Describe how owners can manipulate their costs to make profits look like losses
• Explain the role that leagues play in teams’ pursuit of wins or profits
• Show how alternative league structures affect teams’ behavior
3.1 Maximizing Profits or Wins?

- We usually assume that firms maximize profits
  - Stockholders expect firms to do that
  - Sports teams and leagues are different because fans prefer wins to profits

- Different teams might have different goals
  - The Kansas City Royals seem to maximize profit
  - The New York Yankees seem to maximize wins
  - See Table 3.1
    - The two goals can be traded off
## Table 3.1

<table>
<thead>
<tr>
<th>Team</th>
<th>Winning Percentage</th>
<th>Attendance</th>
<th>Revenue(^a)</th>
<th>Operating Income(^a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phillies</td>
<td>0.630</td>
<td>3,680,718</td>
<td>439</td>
<td>-11.6</td>
</tr>
<tr>
<td>Yankees</td>
<td>0.599</td>
<td>3,653,680</td>
<td>249</td>
<td>10</td>
</tr>
<tr>
<td>Indians</td>
<td>0.494</td>
<td>1,840,835</td>
<td>178</td>
<td>30.1</td>
</tr>
<tr>
<td>Royals</td>
<td>0.438</td>
<td>1,724,450</td>
<td>161</td>
<td>28.5</td>
</tr>
</tbody>
</table>

\(^a\) In millions of dollars

Maximizing Profits

- Profit is the difference between $R$ and $C$

$$\pi_i = R(W_i) - C(W_i)$$

- Revenue ($R$) increases with wins ($W$) but at a decreasing rate
  - Fans do not want to see a team win all the time
- Costs ($C$) also increase with wins
  - For simplicity, we assume that costs rise linearly

- The difference between revenue and cost is greatest where $MR = MC$
  - See Figures 3.1a and 3.1b
Figures 3.1a and 3.1b

- **Figures 3.1a**:
  - TC (total cost)
  - TR (total revenue)

- **Figures 3.1b**:
  - AR, MR, AC, MC
  - MC = AC
  - AR = D
  - W*₁, W*₂
Maximizing Wins

• Teams cannot ignore profit entirely
  • They cannot go bankrupt
  • The Ottawa Senators did in 2002-2003 and had to reorganize

• In Figure 3.1b wins are maximized where $P = AC$
  • Win-maximizers win more than profit-maximizers
  • Win-maximizers make lower profits than profit-maximizers
3.2 Revenues and Costs

- Table 3.2 presents median team revenues and gate revenues, as well as teams payroll for all four major leagues
  - We saw that the relationship between revenues and costs influences team behavior
- The table also shows median market values and incomes of teams
- To show the dispersion of all these statistics, Table 3.2 provides the figures for the top three and bottom three teams in each league
### Table 3.2 Franchise Value, Total Revenue, Payroll, and Gate Revenue for 2011 (Millions $)

<table>
<thead>
<tr>
<th>League/Team</th>
<th>Market Value</th>
<th>Revenue</th>
<th>Total Payroll</th>
<th>Gate Revenue</th>
<th>Operating Income</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MLB</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Top 3</td>
<td>Dodgers: 2,150&lt;sup&gt;b&lt;/sup&gt;</td>
<td>Yankees: 439</td>
<td>Yankees: 203</td>
<td>Yankees: 300</td>
<td>Indians: 30.1</td>
</tr>
<tr>
<td>Middle 2</td>
<td>Mariners: 449</td>
<td>Braves: 203</td>
<td>Rockies: 88</td>
<td>Mariners: 63</td>
<td>Twins: 16.6</td>
</tr>
<tr>
<td></td>
<td>Nationals: 419</td>
<td>Nationals: 200</td>
<td>Braves: 87</td>
<td>Nationals: 60</td>
<td>Pirates: 15.9</td>
</tr>
<tr>
<td>Bottom 3</td>
<td>Rays: 331</td>
<td>Rays: 161</td>
<td>Pirates: 45</td>
<td>Athletics: 29</td>
<td>Angels: –1.2</td>
</tr>
<tr>
<td><strong>NBA</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Top 3</td>
<td>Knicks: 655</td>
<td>Knicks: 226</td>
<td>Lakers: 90</td>
<td>Lakers: 96</td>
<td>Knicks: 64</td>
</tr>
<tr>
<td></td>
<td>Bulls: 511</td>
<td>Bulls: 163</td>
<td>Mavericks: 86</td>
<td>Celtics: 68</td>
<td>Rockets: 35.9</td>
</tr>
<tr>
<td><strong>NHL</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Top 3</td>
<td>Maple Leafs: 521</td>
<td>Maple Leafs: 193</td>
<td>Flyers: 71</td>
<td>Maple Leafs: 93</td>
<td>Maple Leafs: 82</td>
</tr>
<tr>
<td></td>
<td>Rangers: 507</td>
<td>Rangers: 169</td>
<td>Sabres: 70</td>
<td>Canadiens: 83</td>
<td>Canadiens: 47.7</td>
</tr>
<tr>
<td>Middle 2</td>
<td>Oilers: 212</td>
<td>Wild: 97</td>
<td>Ducks: 58</td>
<td>Wild: 44</td>
<td>Stars: –1.1</td>
</tr>
<tr>
<td></td>
<td>Coyotes: 134</td>
<td>Islanders: 63</td>
<td>Islanders: 30</td>
<td>Coyotes: 18</td>
<td>Coyotes: –24.4</td>
</tr>
</tbody>
</table>
Table 3.2 Reveals

- Profit-maximization is a reasonable first approximation of team behavior
- It pays for a team to be in a big city
  - One more win adds more to revenue in a big city
  - See Fig 3.2
- The advantage of being in a big city varies across the different sports
- Some sports are much more profitable than others
Figures 3.2

$TR$ (total revenue), $TC$ (total cost)
Differences Among Leagues

• The NFL is by far the most profitable
  – Median operating income in 2011-12: $29 million
  – Only two teams lost money

• MLB came second
  – Median operating income in 2011: $16 million
  – Only three teams lost money
  – Two of those had high revenues but higher costs

• The NBA and NHL trailed badly
  – Median operating income in 2011: -$2 million
  – 17 teams in each league lost money
Details of Revenue

• Professional teams generate revenue from five principal sources
  – Ticket sales or gate receipts (RG)
  – Local and national broadcasting rights (RB)
  – Licensing income (RL)
  – Other venue-related revenues, including luxury boxes, concessions, and stadium naming rights (RV)
  – Transfers from other teams in the league (RT)

\[ TR = RG + RB + RL + RV + RT \]
Gate Revenue

- This revenue comes from ticket sales
- Figure 3.3 shows the gate revenue for all teams in the four major North American leagues in 2011 (or 2010–2011)
- Overall, the gate revenues are comparable
- Baseball has the largest variation in gate revenue and the NFL has the smallest
  - The differences among leagues are caused by revenue sharing
Gate Revenue (cont.)

• NFL shares the most gate revenue
  – Home team keeps 60%; 40% is shared league-wide
  – Policy originated from the early weakness of NFL
  – Policy explains why team profits are close & high
• NHL has a complex gate revenue-sharing rule
• NBA teams share nothing
  – This will change under the new agreement
• MLB now shares 31% of gate revenue
Broadcast Revenue

• The advent of television has permanently changed team finance
• All four major sports currently enjoy huge revenue streams from both local and league-wide national broadcast rights
• The leagues have profited differently
  – See Table 3.3
Table 3.3

<table>
<thead>
<tr>
<th>League/Team</th>
<th>Market Value</th>
<th>Revenue</th>
<th>Total Payroll</th>
<th>Gate Revenue</th>
<th>Operating Income</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Redskins: 1,555</td>
<td>Redskins: 332</td>
<td>Dolphins: 126</td>
<td>Patriots: 93</td>
<td>Redskins: 65.6</td>
</tr>
<tr>
<td></td>
<td>Patriots: 1,400</td>
<td>Patriots: 333</td>
<td>Texans: 122</td>
<td>Giants: 87</td>
<td>Cardinals: 56.4</td>
</tr>
<tr>
<td>Middle 2</td>
<td>Seahawks: 997</td>
<td>Colts: 252</td>
<td>Jaguars: 197</td>
<td>Cardinals: 49</td>
<td>Saints: 28.9</td>
</tr>
<tr>
<td>Bottom 3</td>
<td>Rams: 775</td>
<td>Lions: 228</td>
<td>Seahawks: 89</td>
<td>Lions: 40</td>
<td>49ers: 1.5</td>
</tr>
</tbody>
</table>

*Revenue figures reflect revenue sharing by teams.

Reflects actual sale price of Dodgers as announced on March 28, 2012, and not the *Forbes* estimate.

Broadcast Revenue: NFL

- TV is the largest revenue source
  - All national contracts are evenly shared
- TV revenue makes the NFL very prosperous and equal
  - On five different networks (See Table 3.3)
  - Each team receives $117M/year from TV
  - The NFL has no big market-small market disparity
    - Broadcast revenue is almost identical regardless of market size
Broadcast Revenue: MLB

• Local TV revenue is still very important
  – The Yankees make about four times as much locally as nationally
  – “Small market” in MLB refers to a small media market

• Cable is the source of the disparity
  – Teams often own the cable network
    • Owners sell broadcast rights to themselves cheaply
    • This is a way to get around local revenue sharing
Regional Sports Networks

• All MLB teams are now part of some RSN
  – RSNs feature numerous sports on one cable station
  – Again, many are owned by MLB teams
• An impending RSN contract made the Dodgers worth $2 billion in 2012
• It is expected to add about $50 million per year to their revenue stream
Broadcast Revenue: NBA and NHL

• Teams get much of their revenue from the national broadcast contract

• Local revenue has become more important
  – It has led to large disparities in income because it is not shared
  – LA Lakers got $150 Million per year – Charlotte Bobcats only $9 Million
  – It will be under the new collective bargaining agreement

• The NHL does not share local TV revenue
  – This is serious because league-wide TV revenue is low
  – Small markets like Winnipeg are at a severe disadvantage
Watch or Attend?

• TV broadcasts are a two-edged sword
  – They are a major source of revenue
  – They can discourage stadium attendance

• Network demand for broadcasts is a derived demand
  – It is driven by sponsors’ demand for commercial time
  – Some networks have sponsored sports even when the broadcast loses money on them
    • Sports lend credibility to new networks
    • Sports attract local affiliates to networks
Licensing Agreements

• MLB and NFL ($2.75 and $2.7 billion) are far ahead of the NBA ($1.75 billion) and NHL ($630 million)

• Licensing is generally shared equally
  – Jerry Jones and Dallas Cowboys challenged sharing and have their own marketing arm

• Digital revenues are increasing in importance
  – Covers arrangements from on-line media to video games
  – Again, the NFL and MLB are far ahead of the NBA and NHL
Venue Revenue

- Revenue from stadium – revenue other than from tickets
  - Parking and concessions
  - Luxury boxes and other special seating
    - This had become most important
  - Naming rights
  - Signage (ads)

- Boxes make the Dallas Cowboys very valuable
  - Dallas shares its media revenue evenly with NFL
  - It keeps only 60% of its gate revenue
  - But it has (& sells) more luxury boxes than any other team
Luxury Boxes

• Cowboy Stadium has 300 luxury boxes
  – Far more than any other team
  – That is why the Cowboys are so valuable

• Boxes are a huge source of revenue
  – Rent for $10s or $100s of thousands per season

• Teams do not share most box revenue
  – They count only admission in revenue sharing
  – Most box revenue counts as concessions
Venue Revenue and Team Location

- Franchise movement has been a particular problem in the NFL
- The reason is that it shares so much revenue
  - TV revenue is about the same in a smaller city
  - Gate revenue is about the same in a smaller city
The Tragedy of the Commons

• Overuse of a shared resource makes less of it available for everyone
• This is why NFL teams left Los Angeles for Oakland and St. Louis
  – The media audience is the shared resource
  – Stadium deals are the private resource
  – Moving to smaller media markets reduces the potential audience
Figure 3.3
Naming Rights

• Team sells the right to name its facility
• This practice originated in 1973
  – Rich Foods paid Buffalo Bills $1.5 M over 25 years
  – Citigroup pays the Mets $400 M over 20 years
• Rights have extended beyond pro stadiums
  – Soccer and WNBA uniforms bear corporate logos
  – Colleges now sell naming rights as well
    • High Point Solutions Stadium (Rutgers football)
    • Comcast Center (Maryland basketball)
Do Naming Rights Pay?

• Marketers cite name recognition and “branding”
• Economic studies show no impact on the sponsor’s profitability
  – Citigroup was latest sponsor to fall victim to the “naming rights curse”
  – It received a $45 billion bailout from government soon after announcing the deal with the Mets
Figure 3.4

(a) Upstream firm
(b) Downstream firm

\[ MC = p_{up} \]

\[ p_{up} \]

\[ p_{down} \]
Revenue Sharing Effects

- Sharing varies among leagues
  - NFL shares the most
  - MLB and NHL have recently increased sharing
  - NBA will start to share more in new agreement
- Some perverse results of revenue sharing
  - Weak teams might have higher profits
    - If revenues are shared – just hold down costs
    - The 5 most profitable NFL teams in 2011-12: Cowboys, Redskins, Cardinals, Buccaneers, and Bengals
      - They had a combined record of 31-49 and did not make the playoffs
    - Some call revenue sharing a “tax on quality”
Costs

• Largest part is player salaries
• Others include travel, venue costs, marketing, and player development (minor leagues)
• Opportunity costs are a major reason why teams have moved
  – Dodgers were profitable in Brooklyn but were even more profitable in Los Angeles in 1957
  – Midnight flight of the Baltimore Colts to Indianapolis in 1984
3.3 Taxes, Profit and Owner Behavior

• Team owners have other ways of making money than from the teams themselves
• Owners might profit from these other sources while the team loses money
Using Teams to Make Money Elsewhere

• Chris von der Ahe used the St. Louis Browns to boost his beer sales in the 1880s
• We have seen that teams can increase cable revenues for RSNs
• In Japan, baseball teams are used by firms as marketing entities
  – The Seibu Lions advertise Seibu Department Stores
  – The Yomiuri Giants help the Yomiuri media empire
Figure 3.5

(a) Upstream firm

(b) Downstream firm
Figure 3.6

Marginal Revenue and Marginal Cost

$MC$ (marginal cost)

$MR_1$ (marginal revenue)

$MR_0$ (marginal revenue)

League size

0 $Q_0$ $Q_1$
Paper Losses and Real Profits

• Operating Income v. Book Profit
  – Operating income does not include depreciation expenses
• Bill Veeck depreciated his players
  – Declared players to be 90% of the team value
  – Wrote off 10% of their value per year
• This cost – on paper – cut team profits
• Lower tax burden added to operating income
Vertical Integration

- Vertical integration explains two paradoxes
- Ted Turner once owned both the Atlanta Braves and TBS, which showed the games
  - But the Braves made very little TV revenue
- Augustus Busch once owned the St. Louis Cardinals and Anheuser-Busch
  - But the Cardinals earned very little from “pouring rights”
- Owners and consumers gain form integration: lower team income is “good”
Separate Monopolies

• Figure 3.5
  – IO model
• Two monopolists
  – Team provides game: upstream
  – Station broadcasts game: downstream
• If MC is constant
  – Price charged by team becomes MC of station
  – Consumer pays P1
Team and Station Combine

• Is 1 big monopoly worse than 2 small ones?
• Integration: Monopolist charges itself a lower price than it charges an outside firm
  – Revenue stays within firm
  – Charges MC < \( P_0 \)
• Station has lower cost
  – Charges \( P_2 < P_1 \)
  – Everyone is better off
3.4 The Importance of Leagues

- Leagues are ubiquitous in professional sports
- They provide teams with financial stability
- This section shows how leagues
  - Set rules
  - Limit entry and competition
  - Promote competitive balance
  - Promote, market, and advertise their product
Origin of Leagues

- Leagues did not always exist
  - National League was formed in 1876, seven years after the first professional baseball team formed (Cincinnati Reds)
  - The NFL was formed in 1920, 44 years after William Heffelfinger became the first professional football player in 1876
- Before this teams *barnstormed*
  - They traveled from town to town – that is what the Reds did
  - The returns were very uncertain – tied to winning
Setting the Rules

• A league is a voluntary association that promotes the common interests of its members
  – Consequently, teams cooperate
• There is a tension within the league, as teams must compete
• The most important function of a league is to set the rules of play
• Some rules predate the leagues, but the leagues subsequently shape them
Rules

- Rules helped the sport to spread when the sport was introduced
  - Teams must agree on how to play the game
  - For example, Association Football (Aassoc--soccer) started in England in 1863
  - The first football (soccer) league (FL) formed in England in 1888
- Baseball grew only after it adopted the “Knickerbocker Rules” (NY rules)
  - National Association of Base Ball Players (1858)
  - National League appears in 1876
Rules (cont.)

- Rules help sports become more popular
  - NBA has changed several rules
    - Allowed the 3-point basket
    - Outlawed – then reintroduced – zone defenses
  - NFL—Restricts violent tackles
  - NHL—Long passes; Shootouts to avoid ties
- Rules outlaw undesirable behavior off the field
  - Not showing up for games (individuals & teams)
  - Players’ betting on games
  - Players’ use of performance enhancing drugs
  - Drunken behavior by fans
Limiting Entry

• The league seeks to control its size
• Too many teams hurt competition & fan interest
• Too few teams leave room for competing leagues to enter
• All major leagues have 30 teams
  – Except the NFL with 32
College Conference Realignment

• In 2012
  – The Big 10 had 12 teams
  – The Big Twelve had 10 teams
  – The Pacific 12 had a team from Colorado
  – The Big East was welcoming San Diego State
    • Practically on the Pacific Ocean
    • But 3,000 miles away from the University of Connecticut

• Realignment has been driven by football
  – TV has driven huge revenue streams
  – The NCAA requires 12 teams for a lucrative championship game
The Economics of Clubs

• Proposed by Nobel laureate James Buchanan, known for Public Choice Theory
• What is right size of a club (or league)?
• New members are a source of revenue
  – Pay entry fees of hundreds of millions of dollars
  – Provide access to new markets (cities)
• New members also drain revenue
  – Old teams share revenue with new members
  – Competitive balance may become a problem as some teams lose a lot of games
Finding the Right Size

- MLB had only one league in the 1890s
  - That’s why the National League is the “senior circuit”
  - National League feared having too many teams, so it kept to only 8 teams
- But many cities grew rapidly in the 1890s
  - More cities were able to support teams (recall growing leisure from Chapter 2)
  - National League became vulnerable to entry
  - In 1901, Ban Johnson created the American League; teams entered “open” cities
Theory of Clubs and MLB

Perceived by NL

Actual

MB, MC

MB, MC

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Sharing of Market

• The league can also determine where teams locate

• Figure 3.7 looks like monopolistic competition
  – Market is profitable with $D_o$

• Entry of a new team in a profitable city reduces demand of other teams
  – Reduces prices and profits
  – Not a parallel shift to $D_1$ in Figure 3.7
Figure 3.7

Graph showing the relationship between price ($ per ticket) and quantity of tickets (Q). The graphs illustrate different demand curves (D₀ and D₁) and marginal revenue (MR₀ and MR₁) along with marginal cost (MC). The price (p) and quantity (Q) are plotted on the vertical and horizontal axes respectively.
Limiting Entry as Cooperative Behavior

- Leagues give teams local monopoly power
- No other team can move within 75 miles
  - If they do – they must compensate the original team
- When the Nationals moved to DC, they had to compensate the Baltimore Orioles
- The Athletics are negotiating with the Giants over a move to San Jose
Advertising

- Individual teams advertise (Figure 3.8)
  - Teams have little incentive to pay for advertising that benefits mostly other teams
  - Everyone wants to free ride
- League-wide advertising is a public good
  - Non-rivalry
    - Team A’s benefiting from league-wide advertising doesn’t prevent Team B from benefiting
  - Non-exclusion
    - Team A cannot prevent any other team from benefiting from league-wide advertising
Figure 3.8
Demand for Public Goods

• See Figure 3.9
• For a private good, we add demand (MB) horizontally
  – Each consumer needs another unit to consume the product
• For a public good, we add demand (MB) vertically
  – Each unit can be consumed in common (shared)
  – If each person (850) enjoys a park ($100) and if the park costs $80,000 to maintain—should it be?
    • Assume it was donated to the city
Figure 3.9

\[ MB = D = (15)d_{\text{small}} + (15)d_{\text{large}} \]
The Free Rider Problem

• In practice it is hard to find out what teams are willing to pay for a public good
  – Teams know they can benefit even without paying
  – They can free ride on the expenditure of others
• If all teams free ride, the good is not provided
  – Leagues need a way to get teams to tell the truth
  – Alternatively they need another way to finance it
    • Base the payment on a team’s ability to pay – not the value of good
    • Alternatively, make all teams pay an equal share
3.5 Soccer’s Business Model

- Table 3.6 provides the list of the most valuable soccer clubs
  - All are European; none of the top 20 is from South America
- The top teams are very valuable; smaller teams much less so
- Many lesser teams in England are periodically bankrupt
# Table 3.6

<table>
<thead>
<tr>
<th>Team</th>
<th>Country</th>
<th>Market Value</th>
<th>Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manchester United</td>
<td>England</td>
<td>1,864</td>
<td>428</td>
</tr>
<tr>
<td>Real Madrid</td>
<td>Spain</td>
<td>1,451</td>
<td>537</td>
</tr>
<tr>
<td>Arsenal</td>
<td>England</td>
<td>1,192</td>
<td>336</td>
</tr>
<tr>
<td>Bayern Munich</td>
<td>Germany</td>
<td>1,048</td>
<td>396</td>
</tr>
<tr>
<td>Barcelona</td>
<td>Spain</td>
<td>975</td>
<td>488</td>
</tr>
<tr>
<td>AC Milan</td>
<td>Italy</td>
<td>838</td>
<td>289</td>
</tr>
<tr>
<td>Chelsea</td>
<td>England</td>
<td>658</td>
<td>313</td>
</tr>
<tr>
<td>Juventus</td>
<td>Italy</td>
<td>628</td>
<td>251</td>
</tr>
<tr>
<td>Liverpool</td>
<td>England</td>
<td>552</td>
<td>276</td>
</tr>
<tr>
<td>Inter Milan</td>
<td>Italy</td>
<td>441</td>
<td>275</td>
</tr>
</tbody>
</table>

Limits on Profit

- Profit maximization is “hindered” by custom
  - England—long banned paying club directors
  - France—direct limit on borrowing
  - Germany—indirect limit on borrowing
- Revenue has grown with TV coverage
  - State-run networks initially had monopsony power
  - Privatization of the media has created competition by broadcasters
Promotion and Relegation

- Most soccer leagues are open leagues
  - The best teams are promoted to a higher league
  - The worst teams are relegated to a lower league
- This can make the season exciting for bad teams, but it can create perverse incentives
  - Teams spend huge sums to avoid relegation or to seek promotion
  - If it works, added revenue makes the expense worthwhile
  - If it fails, teams must shed players or face bankruptcy, as Leeds United did
Two Ownership Models

• Franchise League
  – Each team can independently
    • Set goals (Profit maximize? Win maximize?)
    • Make personnel decisions

• Single Entity League
  – Owners have shares of the league
  – The league makes league-wide decisions; can “minimize” costs
  – This may be best for emerging leagues: the new women’s professional leagues have this model