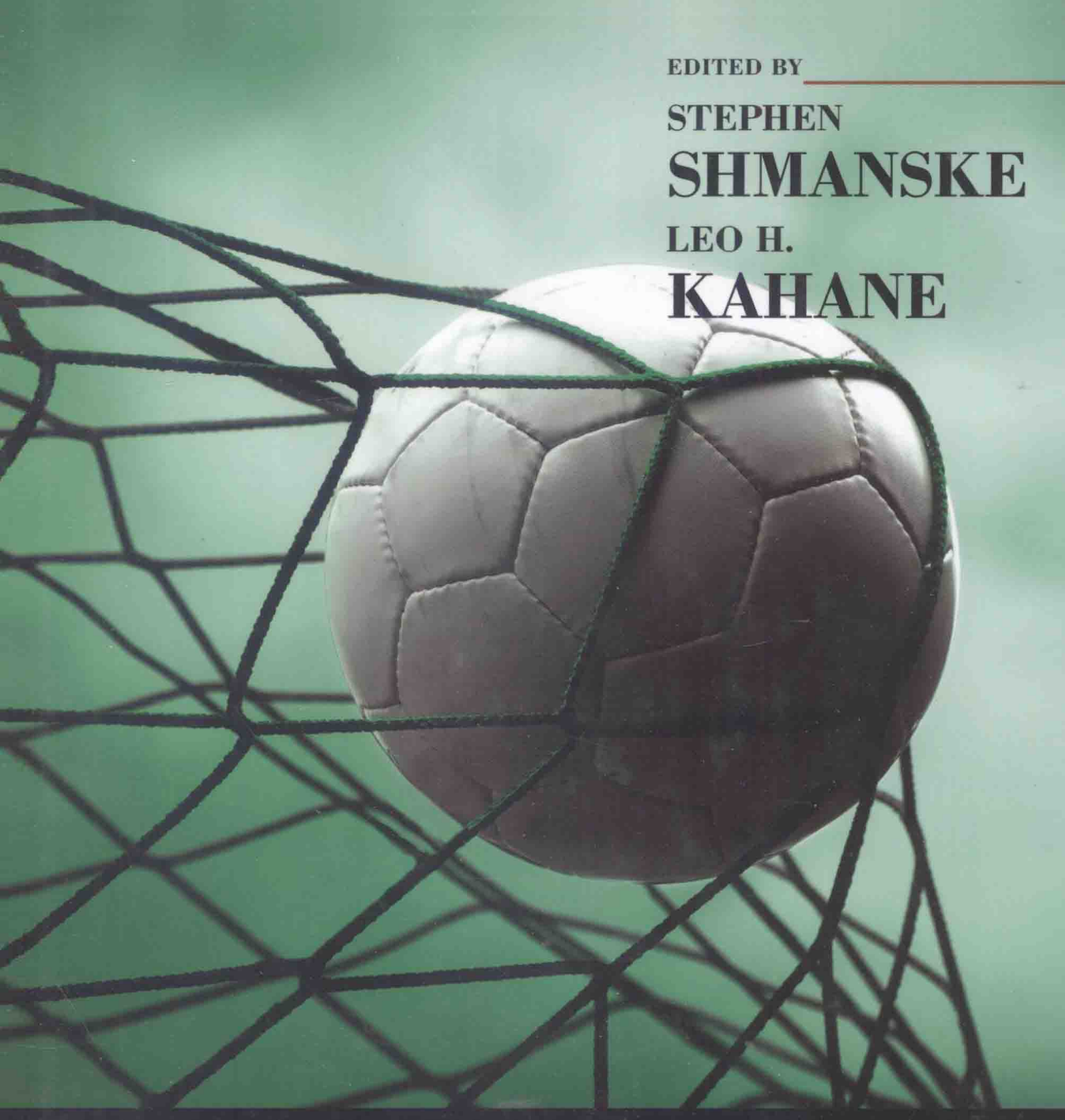

EDITED BY

STEPHEN SHMANSKE

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The Oxford Handbook *of* SPORTS ECONOMICS

VOLUME 2: ECONOMICS THROUGH SPORTS

THE OXFORD HANDBOOK OF

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THE OXFORD HANDBOOK OF

SPORTS ECONOMICS

VOLUME 2

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Preface to Volume Two: Economics Through Sports

This is the second volume of a two-volume effort to capture the essence and variety of the quickly growing field of sports economics. In arranging these volumes we have divided the field into two thematically separate but often overlapping parts: *The Economics of Sports* (the first volume) and *Economics Through Sports* (this volume). Specifically, in thinking about the field it struck us that many lines of inquiry were essentially economic analyses of certain institutions in sports, like league structure, salary caps, the NCAA, and international labor mobility. Meanwhile, the abundant, high-quality data about salary, performance, competition between teams, and expected and actual outcomes of specific games allow economists to test a variety of propositions that have larger social consequences such as discrimination, antitrust, efficient markets, and managerial efficiency. Admittedly, the separation is not always complete, and many of the chapters in these volumes hit on both themes. Nevertheless, the two-volume approach has helped us to organize our thoughts on sports economics and helped us to organize the research we have received from nearly every important author in the field of sports economics.

In Volume 1, the chapters show how the tools that economists have developed are useful in analyzing the sometimes peculiar aspects of the sports industry. Does competitive balance in leagues increase the social surplus? What do salary caps and luxury taxes do? Is the NCAA a cartel? What are the implications of differences in league structure, playoff structure, or the rules of the game? These are some of the interesting questions addressed there. As such, economic analysis can help guide those responsible for institutional structure in the industry of sports.

The tables are turned in Volume 2. Now it is time for the sports industry to help economists and economics. Both the quality and quantity of data that are available in studying sports provide an exceptional laboratory within which to address, by analogy, larger social or economic issues. Thus, the data from sports allow us to test and illustrate economic theories in specific, relatively well-controlled, settings. This allows economists to present theoretical arguments about the workings of the world at large backed up by some supporting empirical evidence. For example, economists can test theories of discrimination by looking at race in baseball, gender in golf, and national origin in hockey. Economists can test alternative forms of production relationships by looking at how inputs are turned into outputs in individual and team sports. And economists can make similar inroads in testing their theories in the areas of finance, public finance, industrial organization, and

econometrics. This volume, divided into seven parts, achieves its goal of looking at economics and economic theories through the lens of sports statistics and institutions because of the remarkable collection of original research by experts in the field of sports economics.

In Part I, the Economics of Discrimination, four chapters address discrimination in four different sports settings. Stephen Walters examines organized baseball's racial record as far back as the 1880s, when segregation took root in baseball, through Branch Rickey's hiring of Jackie Robinson in 1947, up to the present day. Along the way, the models and tests of statistical discrimination are presented and critiqued. Lawrence M. Kahn uses basketball as the laboratory to look at discrimination in pay, hiring, and retention against black NBA players and coaches, and gender discrimination among college coaches. The good news is that the discrimination that was documented in the NBA in the 1980s has declined in the subsequent decades. Stephen Shmanske looks at evidence of gender discrimination in professional golf. Mirroring society at large, males on the PGA Tour consistently earn more than females on the LPGA tour. However, differences in pay are not evidence of discrimination if there are differences in productivity. In industrial society, productivity differences by gender are hard to measure and verify, but not so in professional golf. Males play more and play better, and when controlling for the skills that the golfers bring to the tournament, evidence of gender discrimination disappears. Finally, Neil Longley replicates for hockey what others have done for baseball and basketball, with the interesting exception that alleged discrimination in hockey falls along the lines of language and national origin rather than along racial grounds. Although less so than in earlier years, there may still be some evidence of de facto segregation with fewer French Canadian players on English Canadian teams than might otherwise be expected. As was the case for the chapters on baseball, basketball, and golf, interesting avenues for future research are laid out for hockey as well.

In Part II, Illustrations of Production Theory, five chapters address production theory in five different ways. Anthony Krautmann starts off with an analysis of the baseball production function. Referring to work in earlier studies, Krautmann obtains a list of variables to include in attempting to model a team's number of wins during a season. Thus, along with slugging average, on-base percentage, and earned run average, to capture offense and defense he looks at managerial inputs, league effects, and ballpark-specific effects. David Berri reports on one of his passions, efficiency in production in NBA basketball. He examines several empirical attempts to quantify the productivity of NBA players, and argues that models should be judged both on the consistency of the measures through time and on the correlation with winning percentages. Ad hoc combinations of statistics and incompletely thought through use of plus/minus do not fare as well as the theoretically grounded measure that Berri comes up with. Young Hoon Lee examines another aspect of production theory, namely, the assessment of managerial efficiency using frontier models. Intuitively, teams have skill inputs that managers direct with the goal of producing wins. The

better the manager is at obtaining wins relative to the talent level he has, the better is the manager. But this is not a trivial econometric problem to resolve. Lee discusses several methods that have been used to examine managerial efficiency. Harold Fried and Loren Tauer examine a related problem: How well does an individual manage his or her own talent to achieve high performance in an individual sport? Fried and Tauer's setting is LPGA golf. Their methods, in stemming primarily from an operations research setting rather than a statistical regression setting are somewhat different from those which Lee discusses, but the goal is the same, finding out how well a given set of inputs are utilized to produce output. Once the measures of efficiency are calculated, Fried and Tauer examine whether they are affected by age and experience. Finally, in still another variation on a theme, Leo Kahane examines the issue of salary dispersion and its effect on productivity. Kahane examines two competing hypotheses. Earlier models focus on how salary dispersion can provide incentive to work hard thus increasing productivity. Alternatively, more recent theories suggest that too much salary dispersion could negatively impact employee morale and cohesiveness. Kahane uses salary and performance data from the NHL to distinguish between these theoretical alternatives, thus weighing in on an important issue in labor economics and industrial relations.

In Part III, Illustrations of Econometric Methods, three chapters are able to explore and illustrate advances in econometric specification and testing using excellent data sets that are collected in sports settings. Each of the three chapters concentrates on the demand for attendance at sporting events, while seriously considering critiques that are leveled at simple specifications that regress attendance on price and a set of control variables. In the first chapter, David Forrest carefully pursues the insight that the full cost of attending a sporting event includes the ticket price as well as the time costs and travel costs incurred by the fans. Forrest explains the Travel Cost Method (TCM) and applies it using a detailed data set collected in an annual survey of consumers of games sponsored by the FA Premier League in English football. The improved measure of price and quantity that come out of the TCM and the data developed in the sports industry help explain the puzzle/conundrum that other demand studies have run into. Namely, the empirical finding that demand is inelastic, which is inconsistent with simple profit maximization in the uniform price monopoly model, comes from the misspecification in simpler models and disappears in Forrest's work. Martin Schmidt focuses on another problem that comes up in OLS specifications of demand for attendance, namely, the censoring of the data that comes about because of capacity constraints on game-day attendance. Using high-quality data about NFL attendance, Schmidt explains why and shows how a Tobit estimation technique is superior to OLS for testing propositions about price and demand shift variables in the context of the demand to attend sporting events. Generally speaking, the OLS estimates are biased and provide underestimates of several important explanatory variables. The third chapter in this section, by Richard Burdekin, examines several additional concerns about the estimation of an attendance demand function. In particular, Burdekin notes

that there are multiple prices and multiple categories of consumer with potentially different demand elasticities to consider in the set of those in attendance at a specific game. Burdekin also notes that price is likely to be endogenous when a longer run perspective is taken. For either of these reasons, a simple OLS model with attendance as a function of only one price variable on the right-hand side, will yield estimates that are biased and misleading.

In Part IV, Illustrations of Industrial Organization, three chapters examine aspects of competition in the sporting world that vividly illustrate theoretical topics in the field. Rodney Fort looks at the history of Major League Baseball (MLB) and examines three cases of competition from rival leagues. In each of the cases the behavior of MLB is best explained as joint venture attempts to exclude entry and eliminate competition in the supply of the highest quality baseball competition. League behaviors like talent raiding and strategic expansion timed to respond to the threat of entry, which would arguably be antitrust targets if pursued in other industries, are carefully documented by Fort. In the second chapter, Robert Baade looks at the market structure of professional sports, focusing on its peculiar uniqueness. What becomes evident is that the interests of the league, on the one hand, and the individual teams, on the other, are in conflict much in the same way that cartel interests diverge from those of individual members. The chapter examines these conflicts for the cases of team relocation and stadium construction, showing how they can be analyzed by simple game theory. Thus, Baade uses the real world sports examples to illustrate theoretical issues in industrial organization and game theory. In the final chapter, Karl W. Einolf also examines the issue of spatial location decisions by leagues. Einolf shows how technical models from management science and industrial engineering that are designed to address the location of a firm's plants or outlets can usefully be employed to study location and entry into sports leagues. One might expect that leagues would locate teams in order to maximize the number of local fans with direct exposure, or equivalently, to minimize a metric of distance between the fans and the teams. However, due to revenue sharing and national media contracts, the local gate revenues may be less important to the league than the ability to negotiate favorable subsidies or tax treatments from local governments. Einolf is able to show discrepancies between "optimal" (based solely on population) location and actual location for each of the major North American sports leagues, and is able to predict where the most beneficial league expansions should occur.

In Part V, Illustrations of Finance, two separate avenues of combining sports-generated data with financial data or financial theory are explored. Eva Marikova Leeds and Michael A. Leeds examine the theory and application of event studies in sports. Event studies correlate movements in asset values to the timing of real world events that might be theoretically expected to affect those asset values. The authors completely explain the methodology and data sources, and they review and critique a number of studies showing the imaginative use to which sports economists have put event analysis. For example, at the micro level, event studies have been used to show whether signing a sports celebrity to an endorsement

contract affects the stock value, whether becoming an official sponsor of events like the Olympics, a NASCAR race, the Tour de France, or a tennis tournament affects firm value, or whether buying the naming rights of a new stadium is valuable. At the macro level, event analysis has been used to study the impact on the economy as a whole of events like staging a successful Olympic Games, winning (or losing) a bid to host the Olympics, or even winning or losing an important World Cup Soccer match. Any economist thinking about starting an event study should make the Leeds and Leeds chapter the first stop. The chapter by Rodney J. Paul and Andrew P. Weinbach examines the literature that uses sports gambling markets as an analogy to financial markets. In financial markets, prices capture the relevant available information in the sense that arbitrage assures that no pure profit opportunities are available. In sports gambling markets, point spreads or odds are set in a similar fashion. Paul and Weinbach call into question the usual assumption that sports books attempt to earn riskless profit by acting solely as a middleman by "balancing the book" so that winning bettors are paid with losing bettor's money. They show that for Major League Baseball, the sports books are not "balanced." The authors describe how setting odds as unbiased predictors of the game outcome, instead of balancing the book, is a profitable long-term strategy despite the extra risk inherent in the unbalanced book on each particular line. Consistent with the theme of this volume, the amount and quality of the data once again allow important inferences to be drawn about real world markets.

In Part VI, Illustrations of Public Finance, two chapters use the sports economics setting to theoretically describe and critique important issues in the field. Peter von Allmen examines the multiplier model in the context of the local impact of expenditures on sports infrastructure. The topic, of course, is much wider than sports. Government expenditures on highways, housing, mass transit, museums, parks, golf courses, and even stem cell research are often claimed to bring generalized macroeconomic benefits that are a multiple of the original direct spending. However, there are many theoretical reasons to question the size of the multiplier, if not its very existence. These arguments are explicated in the context of investments in sports stadiums, and the record of such is examined to cast doubt upon the magnitude of the multiplier and the verity of the multiplier argument. Bruce K. Johnson and John C. Whitehead take up the task of using surveys to quantify ex ante the value of a public investment project that offers both an excludable benefit stream and an intangible, subjectively valued benefit stream. The Contingent Valuation Method (CVM) attempts to find out how much a person would be willing to pay, say in increased taxes, to receive the benefits of a public investment project such as a subsidy to a sports stadium. The authors point out several biases that can creep into such calculations. In an examination of the evidence, it appears that the intangible benefit stream is only a fraction of the public cost, and calls into question the wisdom of such public subsidies. The CVM line of research has been most developed in the context of subsidies to sports, but as the authors point out, is potentially useful in many other areas as long as the drawbacks of the technique are recognized and accounted for. Once again, we have an example of

research in the sports economics arena having valuable spillover benefits to public finance in general.

Finally, Part VII, Miscellany, includes four chapters that do not fit neatly into any of the other categories. There actually could be many more chapters in this section as a quick review of any recent issue of any of the several journals in the field could attest. The editors apologize for including only those that our limited imaginations could come up with when we put the volumes together. Joseph P. McGarrity uses data on hit batsmen from Major League Baseball to illustrate a mixed-strategy, game theoretic approach to the decisions of the pitcher and the batter. The societal implications come from analogizing from this situation to the real world situation of criminal behavior and optimal, costly, deterrence/enforcement. In the analogy, the batter is the "criminal" by crowding the plate, and the pitcher is the "police" exerting costly deterrence by throwing inside pitches. The cost of the deterrence to the pitcher is that a hit batsman reaches first base. Meanwhile, the amount of the criminal sanction depends on how hard the pitcher throws. The results indicate that when the criminal penalty increases, as in greater pitch velocity, the costly enforcement effort of the police decreases, as in fewer inside pitches. Daniel A. Rascher and Andrew D. Schwarz use a baseball laboratory in a completely different manner. They examine the ticket pricing behavior of the clubs to illustrate the theory of price discrimination. Our rough count identified at least 37 different kinds of price discrimination in the chapter. Rascher and Schwarz also show that as price discrimination becomes more refined and more profitable, it also opens new opportunities for various subsets of demand and thus amounts to a win-win situation for both the baseball teams and their fans. Helmut Dietl, Egon Franck, Martin Grossman, and Markus Lang examine contest theory in their chapter. The authors show how contest theory has been greatly refined in the sports economics literature to focus attention on issues such as fixed versus flexible talent supply and outcomes such as "overinvestment" in talent. But these issues and outcomes have application in a variety of settings other than sports competition, including: promotion contests, market-share contests, patent race contests, litigation, art competitions, beauty pageants, political campaigns, and military conflicts. Sporting contests are in many ways cleaner, more open, and more easily observable, so that theoretical and empirical study of them provides a useful knowledge framework within which to examine the multitude of examples cited above. Finally, Michael L. Bognanno examines a seven-year period of Professional Bowling Association tournaments to examine the effectiveness of the incentive structure in bringing about effort and performance. The beauty of looking at the bowling data is that the prize structures are not as uniform from tournament to tournament as in other sports. Thus, variation in the prize structure can be used to tease out the incentive effects. The essence of tournament theory is that increased differences in prizes lead to increased effort and performance, a result that is strongly upheld in the bowling data. Outside of the sporting world, institutional salary structures largely depend upon this positive

relationship between effort and reward, so it is nice to have empirical verification of the result.

We are sure you will enjoy the chapters in this volume. For those new to the field, the work is invaluable in highlighting and characterizing the existing literature and in pointing the direction to new unanswered questions. For those already familiar with sports economics and with the work of those authors included herein, such as ourselves, there is always something new to learn. We found the organizing and editing of these volumes to be interesting, entertaining, and informative. This job was so enjoyable that we sometimes marvel that we actually get paid to do it. We suspect that you will want to read these volumes from cover to cover.

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