Sports Economics, Management and Policy

Series Editor: Dennis Coates

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The Sports Business in The Pacific Rim

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The Sports Business in The Pacific Rim

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Preface

Pacific Rim sports institutions are not well understood and academic research on sports business in the Pacific Rim appears only occasionally. Thus, academically, the sports business in the Pacific Rim presents an extremely fertile yet relatively untouched area of analysis. But there is also a growing (and we believe pressing) need for understanding the sports business in this portion of the world based on the rapid growth of the sports business sector in these economies. Following consistent and rapid general economic growth, Pacific Rim countries have grown and joined other major international forces in sports.

For example, four countries (Australia, China, Japan, Korea) populated the top ten medals list at the 2012 London Olympics. Moreover, Pacific Rim countries are major consumers of international sports and domestic professional sports have expanded continuously over time. Nippon Professional Baseball and the Korean Baseball Organization are the second and third largest baseball leagues, measured by attendance and revenue, behind Major League Baseball in the USA. This growth in size and stature assures that there is already demand for the types of comprehensive study of the sports business in the Pacific Rim in this volume.

This volume of collected industry studies, *The Sports Business in the Pacific Rim* is the first comprehensive effort in this direction. It covers sports industries in five different countries (Australia, China, Japan, South Korea, and Taiwan) and it was our express purpose to cover a wide variety of sports. Industry studies of well-known team sports (baseball, soccer, and basketball) comprise part of this book. However, sport is just as varied (and at times unique) in the Pacific Rim as in the rest of the world and other chapters will also cover horse racing, bowling, and rugby. Sports unique to this region are also special features—Sumo and Australian Rules football. At the same time, the volume does not shirk on the issues of highest interest to those studying sports, from competitive balance in Pacific Rim leagues to sports governance structure.

The studies in this volume use economic and business analysis to examine the institutions that exist in the Pacific Rim sporting world. These include descriptive analyses of professional sports leagues that discuss history, regulations, attendance, competitive balance, and revenue. In addition, there are chapters containing in-depth analysis of the relationship between attendance and competitive balance, the components of fan demand in common the world over, and business decisions concerning attendance and pricing. There are overviews of the different ownership models in Pacific Rim sports and the interaction between business and government. There also are event studies of team ownership, assessment of human capital markets, sports participation, and community impacts of sports. Of course, the international championship component, shared with the rest of the non-American world, is covered as well.

Specifically, Part I includes studies on competitive balance, attendance and revenue. Humphreys and Watanabe kick off the volume with a comprehensive introduction that includes the foundation and growth of professional sports leagues in East Asia, their hybrid use of North American and European methods of business, and their regulation of sport leagues. Hirata and Szymanski examine the impact of World Cup on league attendance in European countries compared with the 2002 Cup held in Japan and Korea. Joo and Oh overview the history of Korean Basketball League (KBL) and analyze the impact of influx of foreign players on fan demand and competitive balance in KBL. Jang and Lee consider the attendance determinants of the Korean Professional Football League. They examine the heterogeneity of governance structure, dynamic changes in territorial definition, and competitive balance and their effects on attendance. Kim and Lee explore the evolution of the sports broadcast market in Korea, identifying both common and unique features of the Korean case and others around the world. Jane considers television viewership of the World Baseball Classic held recently in Taiwan. In particular, Jane assesses empirical evidence of Taiwanese consumer discrimination and the uncertainty outcome hypothesis in that international competition. The Zheng and Fort chapter focuses on the highest-level professional basketball league in China. In addition to providing an economic characterization of the evolution of that league, they also track the behavior of competitive balance, with and without promotion and relegation. Watanabe and Soebbing analyze attendance for professional football in China. The Chinese Super League has introduced pricing structures unique in China and the empirical analysis investigates how that pricing strategy affects attendance.

Part II focuses on sports governance structures in the Pacific Rim, which vary dramatically from their counterparts around the rest of the world. Generally speaking, major corporations support most professional sports teams in the Pacific Rim; only a few teams operate business independently. In addition, international competition is of growing importance and government oversight is often in play. This heterogeneity provides some "natural experiments" for studying the relationship between governance structure and fan demand. Leeds and Sakata estimates the advertising value of teams for parent companies by evaluating the impact of purchase and sale of Japanese baseball teams on the profits of their parent companies. Fort, Kang, and Lee provide an overview of the economic and business evolution of professional baseball in Korea, with highlight comparisons to Major League Baseball. They cover the state of revenues, costs, profits, team values, and the player labor market as well as the state of competitive balance. Chen and Chen provide event studies on Taiwanese sports leagues, as well as regression analysis, to analyze the effect of sports teams on the value of parent companies. Macdonald and Burton provide the legal and economic evolution of sports governance for the Australian National Basketball League (NBL). They argue that continual financial instability, along with power struggles between powerful individuals in the Australian sports scene, has produced ineffective governance to date. Booth, Gilligan, de Zwart, and Gordon-Brown move the analysis of sports governance in Australia to the level of generic models, concluding that sports do not really provide a "special case" for these models but that specific governance forms have had more influence in that country's sports non-profits.

Part III assesses human capital markets. Saito considers the effect of educational background on players' careers in Japanese professional baseball. A Mincer-type salary regression provides evidence that educational background influences not only player salary, but also eventual coaching careers for those players that move on to that occupation. Lee and La Croix attempt to draw implications relevant to human capital development from sumo wrestling. Their analysis supports labor market theories on the relationship between worker performance and their portfolio of skills; sumo wrestlers possessing a diverse portfolio of techniques that utilize those techniques in unpredictable ways win more matches. Nakamuro, Yamasaki, and Inui are interested in the question of whether investment in sports and athletics matter for adulthood outcomes. Using a sample of Japanese twins to control for innate ability and family environment, they find that sports participation during childhood and adolescence can enhance likelihood of future employment, reduce adulthood obesity, and improve health status. The Dabscheck chapter examines the labor market environment for jockeys in Australia. Dabscheck offers two quite different contributions. In the first, Dabscheck shows how the labor market institutions governing jockeys in Australia harm both jockeys and the evolution of the sport, suggesting that jockeys should be employees rather than independent contractors. In the second, the evolution and impacts of collective bargaining are presented for two different Australian leagues in soccer and rugby; the soccer bargaining agreement evolved before rugby, providing a historical panorama of learning by one league from another.

Part IV on Sports and Community contains two chapters. The Yamamura contribution compares two professional sports leagues (one with a short history and another with a long history) for their enhancement of social capital formation. Even though it was formed decades later, Yamamura's bivariate probit regression suggests that the Japanese Professional Football League (JPFL) has contributed more to social capital formation than has the Japanese Professional Baseball League (JPBL); people in the home city of JPFL teams play football with their neighbors more than people in the home city of JPBL teams play baseball. Kim and Kwak provide the history of the Korean professional football league (K-League) and a case study focusing on the first supporter-owned club, Daejeon Citizen. The chapter presents how local and regional identity helps construct team identification and team loyalty from a social identity perspective.

Covering a novel sports business geographic location, a wide variety of governance structures, from a wide variety of academic perspectives, for a wide variety of sports proved challenging. We hope that the reader new to this area is treated to quick and easy access to sports business in a fascinating part of the world and that old hands to the analysis of sports find that stimulates additional interesting research questions, expanding their analytical horizons. In any event, we had fun collating the work of so many esteemed colleagues and learned much in the process.

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Part I
Competitive Balance, Attendance and Revenue

The History and Formation of East Asian Sports Leagues

Brad Humphreys and Nicholas M. Watanabe

Abstract This chapter considers the creation and growth of professional sport leagues throughout East Asia. In this, the different leagues and sport are examined, and noted for their hybrid use of both North American and European methods of business and regulation of sport leagues. Notably, prominent Japanese, Chinese, South Korean, and Taiwanese sport organizations are covered in their emergence as the top sport businesses within the region. The creation of these leagues varies from the old (Japanese baseball) to the new (Chinese football). As the dynamics of political and economic power has shifted in East Asia in the last several decades, so has the popularity and importance of many of the sport leagues in the region. At the same time, as these leagues have grown, many of the top stars have begun to leave for more popular and competitive leagues in North America and Europe. This chapter concludes in considering the future potential of sport leagues in Asia, and whether the teams and leagues will be able to continue to survive in their current formats.

Introduction

Relatively little attention has been paid to the professional East Asian sports leagues in the academic literature. In part, this is because professional sports leagues in East Asia developed long after similar leagues in North America and Europe. Humphreys and Watanabe (2012) noted that East Asian professional sports leagues follow a "hybrid" model of organization where these leagues adopt the rules, regulations, and structure used by prominent North American or European leagues playing the same sport. For example, the Nippon Professional Baseball (NPB) league, the top professional baseball league in Japan, employs a league structure similar to that used by Major League Baseball (MLB) in North America. Likewise, many of the football (soccer) leagues in East Asia adopted promotion and relegation ladders like professional football leagues in Europe and South America.

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Although East Asian sports leagues emulate North American and European league structures, they exhibit radically different ownership forms, with the predominant ownership form being significant corporate investment or outright ownership of sport franchises by industrial corporations. Although some Major League Baseball teams are owned by large corporations—notably the Seattle Mariners, purchased by Japanese consumer electronics giant Nintendo in 1992—some other major North American professional sports leagues, and some European football leagues, explicitly ban corporate ownership of teams. The East Asian "hybrid" model of league organization has important implications for league outcomes and team operations. In this chapter we discuss this model, the operation of professional sports leagues in East Asia, and also discuss some uniquely East Asian professional sports like Sumo and attempts by North American and European leagues to gain footholds in the large and growing East Asian professional sports market.

There are many reasons for the existence of corporate ownership in East Asian professional sports leagues, and it is common for this ownership method to extend across different sports, no matter what ownership structure is common in that sport in other parts of the world. One reason for corporate ownership of professional sports teams in Japan and South Korea is that, prior to the creation of professional leagues, the strongest sport clubs often played in industrial leagues. Corporations in Japan and South Korea formed these industrial leagues in order to help develop and manage players as if they were semi-professional athletes. In this manner, industrial leagues helped develop much of the structure in regards to professional sport franchises, as well as to foster connections to local communities in sports such as baseball, football, and even basketball.

China, on the other hand, did not allow private corporations to own and operate sports teams before the 1990s. Thus, teams were often part of state backed organizations. Beijing Guoan, a popular football club in China, were owned by a state owned enterprise, and were often considered to be one of the teams which was to develop talent for the Chinese national team. When business regulations were changed in China to allow organizations to operate sport teams as a business, the Chinese football leagues moved from clubs of state-owned enterprises to clubs owned and operated by private (industrial) businesses. Once private companies were allowed to purchase sport teams, many of the largest corporations in China invested in sport teams as their counterparts had done in Japan and South Korea. While there have been different paths to corporate ownership of sport teams in East Asia, this ownership form is now widely employed throughout the region.

In this chapter, we survey the state of play in professional sports leagues in East Asia. The chapter focuses on football, baseball, and basketball leagues in Japan, Korea, China, and Taiwan. Note that we follow the convention of referring to the sport North Americans call "soccer" as "football." While other professional sports leagues exist in East Asia, these are the oldest and highest profile leagues in this region. We also discuss some factors common to East Asian professional sports leagues, and the attempts by North American leagues to expand their footprint into the region.

Figure 1 shows total attendance in the most recent season (2012 or 2013) for eight professional sports leagues in East Asia: Nippon Professional Baseball,

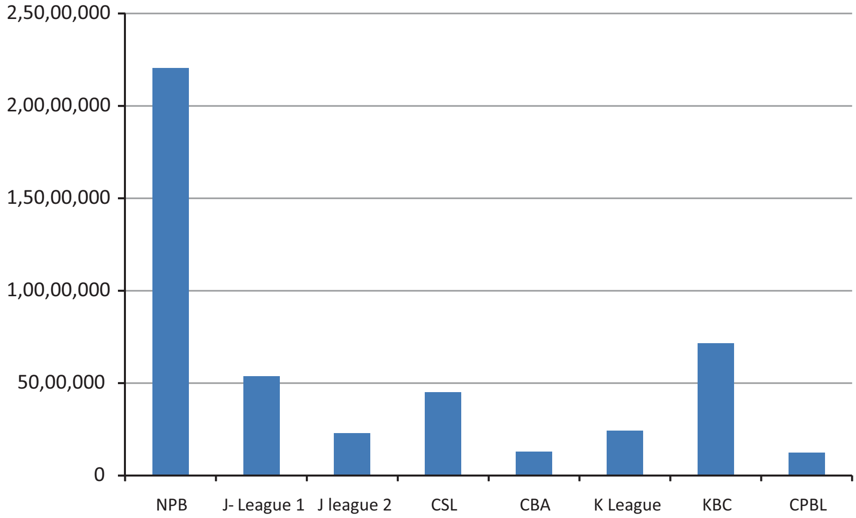

Fig. 1 Total attendance, East Asian Leagues

J-leagues 1 and 2 (football in Japan), the Chinese Super League (football in China), the Chinese Basketball League, the K-League (football in Korea), the Korean Baseball Championship, and the Chinese Professional Baseball League (baseball in Taiwan). Professional baseball in Japan attracted almost as many fans as the other leagues combined, and professional baseball in Korea is the second most popular team sport in the region. Nippon Professional Baseball is the oldest of these leagues (founded in 1950). After the NPB, the next three largest leagues, in terms of attendance, are the Korean Baseball Championship and the professional football leagues in Japan and China.

Professional League Sports in Japan

Nippon Professional Baseball

Although Sumo operated professionally in Japan from the mid-seventeenth century, when baseball became a professional sport in Japan, initially at the club level in 1929, and then as a full-fledged league in 1950, the organization of Nippon Professional Baseball (NPB) did not adopt the structure of Sumo, probably because Sumo originated in Edo period (1603–1867) Japan and had its roots in samurai culture. Rather, as had been the practice during the modernization projects in Japan during the Meiji Period (1868–1912), the country turned to industrial experts to learn how to best operate their organizations and business institutions. As MLB was the predominant professional baseball league in the world at that time, it was only natural for the NPB to try to emulate the success of MLB in North America. In 1950, the NPB began play with 12 teams divided into two different leagues, similar to the American League and National League in MLB. The Pacific League of NPB followed the structure of the American League employing a designated hitter, and the Central League of NPB followed the National League by forcing pitchers to bat.

Since its founding, there have always been 12 teams in the NPB, with 6 teams in each league. While the total number of teams has remained constant over time, there has been significant turnover in the composition of teams in the league. In all 17 different teams have played in the NPB; 5 teams merged with other teams because of financial difficulties. This happened as recently as 2004 when the Kintetsu Buffaloes were forced to merge with Orix BlueWave to form the team that is now known as Orix Buffaloes. Naturally, when these two teams merged, a vacancy was created in the league leading to the creation of the expansion Tohoku Rakuten Golden Eagles in order to have six teams in each league and maintain a balanced schedule. NPB teams currently play a 140 game regular season. Salaries in the NPB are relatively high. In 2010, the average salary was about \$ 421,000 (Jane et al. 2013). Top players earn millions of dollars per season.

Research on Asian sports economics has mostly focused on the NPB, as researchers are able to draw parallels between the NPB and MLB (Leeds and Sakata 2012). Prior studies into the NPB focused on attendance in the league, and have found that the Central League has been more popular with fans (LaCroix and Kawaura 1999; Yamamura and Shin 2009; Leeds and Sakata 2012). There is some debate as to whether the larger attendance in the Central League is predominantly because of the Tokyo Giants (Yamamura and Shin 2008), or whether the positive boost in attendance provided by Giants is only marginal at best (Leeds and Sakata 2012). In this group of research studies, the NPB has provided a context through which to examine an Asian sport league, however it is worth noting that despite the popularity and long existence of the league, there is still but these few examinations in Western research journals.

The NPB has strived to ensure that the league has stayed balanced and operated in an organized manner. However, while the league tries to operate like MLB, there has been significant criticism of the business practices of Japanese baseball franchises. Specifically, the public perception is that most of the franchises in Japan are not run as independent business entities, but rather as marketing and public relation arms for the corporations which own the teams. This is evident when teams win championships or league titles; these events often coincide with commemorative sales in the stores and/or products produced and sold by the parent corporation.

Considerable disparity exists in team payroll and broadcast rights fees in the NPB. Figure 2 shows total team payroll (major and minor leagues) for NPB teams in 2010, in billions of Yen. The Tokyo Yomiuri Giants spent around 4.58 billion ¥ on player salaries, while the next closest team in the Central League, the Chunichi Dragons, spent only 2.96 billion on player salaries. The lowest spender in the NPB, the Hiroshima Carp, spent only 1.44 billion. Many NPB clubs receive subsidies from their controlling corporations to fund payroll and operations. The Tokyo Yomiuri Giants are believed receive an annual subsidy of around 6 billion ¥ from

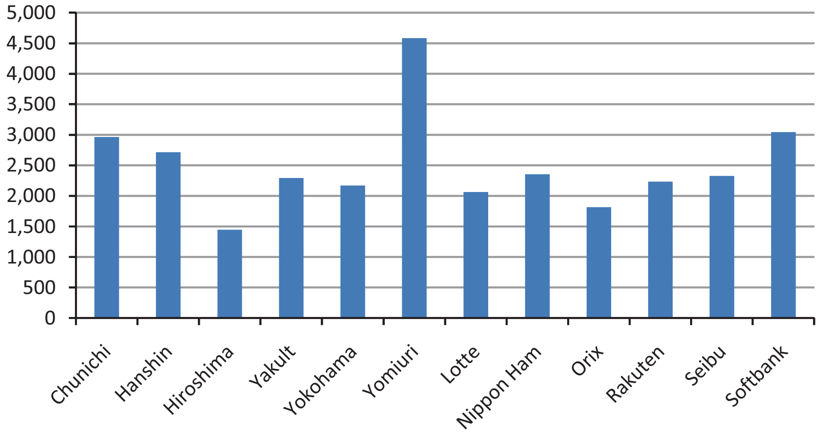

Fig. 2 2010 NPB team payroll (millions of Yen)

the Youmiuri Group, the Giants' owner and Japan's largest media conglomerate (Rosner and Conroy 2010). This makes it difficult for other NPB teams to compete with the Giants for talent.

Broadcast rights fees are also unequally distributed in the NPB. Because the Tokyo Giants are owned by the Yomiuri Newspaper and Broadcasting Group, the team has been able to dictate how much all NPB teams receive for each home game broadcast (Rosner and Conroy 2010). The Tokyo Giants receive around 100 million ¥ for each game broadcast, while their nearest competitors receive only ten percent of that amount for each game. Rosner and Conroy (2010) reported that the Seibu Lions only received 700,000 ¥ per game, and the Chiba Lotte Marines 150,000 ¥ per game in 2006. The Tokyo Giants received more than 600 times the revenue from media broadcasts of their games than other teams in the league.

The NPB championship is decided by the Japan Series, where the top team from the Pacific League faces the top team from the Central League, much like MLB's World Series. While this postseason format was used for decades, eventually the league realized that expanding its playoff structure would provide more excitement, as well as generate additional revenue for clubs and the league. This expansion of the postseason came about because regular season attendance in the league had been on the decline for several years, with the 2007 season having especially poor attendance. Again, the NPB emulated the playoff expansions in MLB, by adding what is called the "Climax Series" in each league. The Climax Series first made its appearance in 2007, with the second and third place teams meeting in the first stage of the Climax Series. The winner of the first stage (best-of-five series) advances to the second stage where they meet the first place team in each respective league. The Climax Series system is somewhat complicated by the fact that the second series, between the league champion and the winner of the first-stage playoff, is a best of six format, where the team that finished in first place in the league starts with a "free" win and a 1-0 advantage. In other words, the first team to get four wins advances to the Japan Series, with the team that won the regular season title given the advantage of a free win. The NPB postseason has been criticized for years, first for not allowing enough teams into the postseason, and second for changing the system in a way that does not give the underdog an equal chance to advance and win the Japan Series. Despite this criticism, the Climax Series playoff system has been successful to some degree in creating interest around in the league, and allowing more teams to compete for the postseason championship.

Because of the natural ties to their parent corporations, professional baseball teams in Japan are often subsidized heavily in order to make payroll and keep operations running smoothly. It is believed that only a few of the teams in NPB actually turn a profit. The Tokyo Yomiuri Giants, often compared to the New York Yankees, are the dominant team in Japanese baseball in terms of history, tradition, past performance, and star power. Because of this, the Giants have a large following through the country, and are able to profit from this popularity. In addition to Yomiuri, the Hanshin Tigers are the only other profitable team in the league. In *You Gotta Have Wa*, Whiting (2009) noted that the Seibu Lions may be the team which are run most like a business. That is, despite the profitability of the Tokyo Giants and Hanshin Tigers, it could be inferred that these franchises are able to earn profits because of their popularity, and not because they are operated like a successful professional sports team. In his profile of the Seibu Lions owner, Whiting (2009) notes the owner's disinterest in the sport of baseball, and demand that the Seibu Lions be run like a business, in the same way that the Seibu Railway Company is operated. Curiously, while the Lion's owner is against having the Lions being fully subsidized by Seibu Railway Company to the same extent as other teams in the NPB, the owner has heavily subsidized a professional, industry-sponsored ice hockey league, as he is fan of that sport. The business of professional baseball in Japan is dependent on the economic success of the parent companies. In this sense, it is possible that economic downturns and recessions have a very negative effect on Japanese professional baseball.

Like North American leagues, the NPB employs a reverse-order draft to allocate top amateur talent to the teams. In this familiar system, the team with the worst record is given the first pick in the amateur entry draft. The idea behind this is that the worst team will naturally select the best available talent and hopefully improve the quality and talent level of the franchise. In Japanese baseball, the Tokyo Giants have long been seen as the dominant team, and some critics claim that the team has too much control over NPB rules, regulations, and policy. This claim is supported by recent changes in the NPB draft system. The league recently determined that the reverse-order draft system was not fair, and decided to install a new system for allocating incoming talent to teams. Under this new system, called "gyakyushimei," or reverse designation, NPB teams jointly decide which player is the best amateur player in Japan before the draft. This player is then allowed to choose which team he would like to play for. After the top player picks his team, the rest of the teams get to pick from the remaining eligible players in the standard reverse-order format. One problem with this change in draft regulations is that it often allows the best players to go to the championship or high paying teams like the Tokyo Giants. This system has again changed in recent years, with teams being picked via a lottery system to select players in the draft. For example, in the 2013 NPB draft, the overall consensus was that the first player to be picked would be high school pitcher Yuki Matsui. Five teams put themselves into a lottery to be able to draft Matsui. In the end, the Tohoku Rakuten Golden Eagles, who were also competing in the Japan Series, gained the rights to Matsui. Under this lottery system, successful teams still able to obtain the rights to the best incoming player in the league, as the Golden Eagles were able to do in this case (Nagatsuka 2013).

One function of sports leagues is to standardize rules and the condition of play across the league. The NPB experienced a controversy in 2013 because of the characteristics of the balls used during games, suggesting that the league has problems standardizing playing conditions. 2012 was one of the worst years in the NPB history in terms of the total number of home runs hit, and the league was concerned that the lack of offensive output might adversely affect attendance and revenues. The lack of offensive production, combined with increasing numbers of the best players moving to North America to play in MLB, led the NPB to try to reinvigorate the game. To do this, the league decided to use game balls that were uniform across all clubs in the league; these balls were livelier than ones used in the past. In previous seasons, the NPB did not have a standard league-wide sanctioned ball. Rather, individual franchises were able to pick and choose which balls they would use for games as long as they met certain standards set by the league. The initial complaints over using different balls first occurred when Japan was competing in the World Baseball Classic (WBC). Players returning from the WBC noted that the balls used in the WBC were consistent, and that many of the teams in Japan were using baseballs that behaved differently depending where games were played.

When the NPB decided to adopt a standard game ball, it made this decision without the knowledge of the teams or players, and made no official announcement about this change. In the early part of the season, offensive production increased significantly in the league, with more home runs being hit. When players, coaches, and the media became suspicious about the increase in offense in the NPB, the league admitted that they had changed the balls without informing anyone. The public backlash against the league was strong, including calls for the head of the league to resign. Commissioner Ryozo Kato resigned in September, several months after it was determined that the game balls had been surreptitiously changed by the league (Calcaterra 2013). As evidence of the effect that the new "juiced" balls had on offensive production, Wladimir Balentien set a new NPB record for homeruns in a season, hitting 57 out of the park. While some noted that Balentien had benefitted from the juiced ball as he had only hit 62 combined homeruns in the previous two seasons, the NPB denied that the new balls had any effect on setting a new home run record.

Another way the NPB has copied changes made in MLB, has been to adopt interleague play, or "kouryusen" as these games are called in Japan. Interleague games began in 2005 as a move by the NPB to try and combat declining attendance, and recapture the interest of fans, which started to follow star Japanese players like Ichiro Suzuki and Hideki Matsui who moved from the NPB to the USA to play in MLB. The initial interleague games were between pairs of teams in home-and-away three-game series between every team in each league. The NPB found that this format created too many interleague games and diminished the traditional rivalries that exist between league members, and reduced all of the series to two games. To further add excitement to the interleague games, the NPB decided that, instead of spacing interleague games out through the season, as is done in MLB, all interleague games would be played in a span of about two months. Under this system, all teams would play their interleague games simultaneously, and the team with the best record would be awarded the "interleague" title. From 2005 through 2013, Pacific League teams have won the interleague title every year, indicating that there may be a lack of balance between the leagues.

In either case, the NPB has become a more dynamic organization within the last decade. Where in earlier times the organization had been very resistant to change, it is now the case that the organization has attempted many changes in the structure, scheduling, rules, and play to try and make the game more attractive. In this, the NPB has realized that while they still be the most attended sport in Asia in regards to total attendance, the support for their organization has been worn down by the popularity of other foreign leagues on satellite television, as well as the growth of domestic soccer in Japan in the form of the J-League.

J-League

The J-League, the top tier of professional football in Japan, began play in 1994. The J-League was rushed into existence when Japan was competing for the rights to host the 2002 FIFA World Cup, which were awarded in 1996. The J-League (like Major League Soccer in the USA) was created because FIFA said they would only allow countries to host a World Cup if they had an established professional football league in operation. The J-League was initially composed of clubs of teams from an industrial league known as the Japan Football League. The J-League began its inaugural 1994 season with ten clubs; most of these clubs were located in the Tokyo/Kanto region in eastern Japan. When the J-League began play, it lacked a lower division because of the push to get the league established for the World Cup bid. Thus, in the early years, the J-League did not have a promotion and relegation system in place.

The first season of the J-League proved to be a great success with an average attendance of almost 20,000 fans per game. However, this initial novelty effect dissipated quickly, and by the mid-1990s the J-League was averaging 10,000 fans per game. Though much of the structure of the J-League was modeled on European football leagues, the league actually divided the season into two parts, like the Apertura and Clausura ("opening" and "closing" in Spanish) employed throughout professional football leagues in Latin America. The champions of the first half of the J-League season would face the champions of the second half of the season to decide the league champion. If the same team won both the first and second half, that the team would be named the league champion with no playoff. The J-League eliminated this system in 2004, adopting a single season format in 2005 to better emulate the European league structure. Additionally, by moving to this format, J-League teams had schedules that better matched the rest of the professional football leagues in Asia. This coincided with the Asian Football Confederation (AFC) schedule, and also providing easier scheduling for J-League teams competing in international competitions like the Asian Champions League.

Since parent corporations subsidized J-League teams, the league needed a long-term strategy for operation of franchises and the league as a whole to compete with professional baseball. The J-League instituted several measures to help expand the popularity, reach, and sustainability of the league. First, in 1999, the league created a two-tier system with the top league renamed J1 and the second tier named J2. At this time, J1 expanded to 16 teams, and J2 had 10 teams. J1 would eventually expand into its current 18-team format, with 22 teams in J2. Additionally, as part of the growth plan for the league created by the Japan Football Association (JFA), the J-League started a plan to establish and expand lower level football leagues to create more players and clubs at the grassroots level. The Japanese promotion and relegation system is now setup so that the teams can move from low-level prefectural leagues, up to Japanese Regional Leagues, up to the Japan Football League, then to J2 and finally to J1. In this way the J-League and JFA created stronger ties and links to regions across Japan, and fully adopted a European promotion and relegation ladder.

In 2013, it was announced that the J-League would make additional structural changes to the league. In September of 2013, it was decided that starting in 2015, the league would return to a two-part season, to heighten interest. This change comes as many young Japanese football players have begun to leave the league for better, higher paying leagues in Europe; the J-League is trying to create interest in the game, but not trying to promote and retain domestic talent in the league.

The Japanese professional sports leagues are clearly some of the more successful leagues in East Asia. While they have set the standard for business practices, league organization, and professionalism, the model of corporate subsidization and financing may not be an ideal model for other Asian leagues to follow. Additionally, as the Chinese economy has continued to grow, the corporations owning and sponsoring Japanese professional teams have found themselves competing, and losing ground to professional teams in China. Once many star players throughout East Asia would head to Japan to play baseball or football, but now young Asian players set their eyes on moving to the USA to play professional baseball, and Europe to play professional football. This movement of young talent presents a great challenge for professional sports leagues in Japan, Korea, and China. While Japanese leagues clearly understand that losing young players to US and European leagues is an issue, the response by league administrators to date has not been adequate to stem the outflow of players. One of the biggest problems facing professional sports leagues in Asia is to retain domestic talent.

Sumo

The history of professional sport in Japan can be traced to the traditional sport of Sumo wrestling. In this highly ritualized sporting event, two men compete to push the other out of a ring drawn on the ground, or down into the ground inside the ring. Sumo is a professional sport, as the winner of Sumo matches win large cash prizes. Sumo also employs a complex ranking structure where it is important to have a winning record in order to move up into higher tiers, with stiffer competition and larger prizes.

The current format of professional Sumo competition dates back to the 1950s, when it was decided that there would be six Sumo Grand tournaments each year. Three of these tournaments are held in the main Sumo hall, known as Ryogoku, in Tokyo; the other three tournaments are held in the cities of Osaka, Nagoya, and Fukuoka. A Sumo Grand tournament runs for 15 days, with all of the higher-ranking wrestlers scheduled to fight once a day on each day of the tournament, and lower ranking wrestlers fighting about seven bouts during the competition. Professional sumo tournaments use a ranking structure, where individuals who win eight or more matches become eligible to move up in rank, while those who lose eight or more matches risk demotion. Through this system, wrestlers are able to advance from lower divisions such as the “Makushita” (literally, below the curtain), all the way up to the top Makuuchi division. In Makuuchi, wrestlers who win the matches advance through a series of titles from komusubi to seikwake up to ozeki. Above the ozeki title is the rank of Yokozuna (Grand Champion), which is reserved for only an elite few wrestlers who are able to constantly display championship-level Sumo wrestling in every Grand tournament. After becoming an ozeki, a wrestler must usually win at least two tournaments in a row to become a Yokozuna. This feat is made especially difficult because an aspiring Yokozuna will face many other ozeki and potentially one or more Yokozuna to win a Grand tournament. Once a wrestler has attained the rank of Yokozuna, they are expected to continue to win bouts, and if their performance falters, they are expected to retire from Sumo rather than continue wrestling.

Sumo wrestlers are compensated for their performance in several ways. Sumo wrestlers in the Makuuchi division are paid a salary of around $ 11,000 a month for low- ranked wrestlers to $ 30,000 a month for Yokozunas. In addition, wrestlers earn income from bonuses provided by corporate match sponsors. Notably, sponsors will pay more for matches involving highly ranked and more popular wrestlers; so much of this bonuses money goes to higher-ranking wrestlers. In some cases, a match may have no sponsors; in this case there will be no payout to the winner. Finally, Sumo wrestlers earn other bonus money based on their annual performance, especially the number of tournaments in which they have winning records. While organizers claim this system encourages high performance, it has also generated incentives to fix matches.

In 2011, Japanese police seized the cell phones of many coaches, trainers, match organizers, and some wrestlers (Hongo 2011). The ensuing investigation uncovered evidence of a large match-fixing ring. The Japan Sumo Association previously denied all allegations of match-fixing, including allegations dating back decades. As the investigation continued, rumors that several wrestlers were involved in match-fixing sent the Japan Sumo Association into crisis mode. With the evidence of match-fixing surfacing, closely following a 2010 national scandal where Sumo wrestlers were found to be betting on baseball games with bookmakers run by the Yakuza (Japanese organized crime syndicates), Sumo's image took a beating in the eyes of fans, sponsors, the government, and media. The March 2011 Grand Sumo tournament was cancelled, only the second tournament was cancelled since the end of World War II. Eventually, a group of 14 wrestlers admitted they had fixed matches, and were forced to retire from the sport. Despite this positive development, the Japan Sumo Association continued investigations into match fixing and ultimately concluded that they were possibly more wide spread than previously thought. These scandals have led to a decline in the popularity of Sumo. With the rise of other professional sport leagues, Sumo has lost much of its attraction, especially among younger Japanese who have grown up watching both professional baseball and football.

Professional League Sports in South Korea

KBO—The Korea Baseball Championship

Compared to Japan, professional baseball in South Korea is relatively new. The league, previously the Korean Professional Baseball League, now called the Korea Baseball Championship, was founded in 1982, just 1 year after the founding of the Korea Baseball Organization (KBO). It is a bit confusing in translation but "KBO" is now used as the brand name of the league as well; it now means both the league as well as the governing body. We will use KBO throughout and the correct context as needed. The KBO was initially composed of six teams, and was not able to divide into divisions, like the NPB and its model, MLB. Like in Japan, KBO teams are all owned or affiliated with corporations or industrial groups.

In 2013, the average salary for players in KBO was \$ 87,000 per year. Foreign players can be paid up to \$ 300,000 per year, and rookie players earn about \$ 22,500. Foreign players and rookies are subject to a salary cap.

The KBO employs a playoff system different from that used in MLB or NPB. Because of the single league structure, the league holds several rounds of playoffs. In the first round, known as the "semi-playoff" the third and fourth place teams play each other in a best-of-five series. The winner of the first series then plays the second place team in the league in another best-of-five series. Finally, the winner of the second playoff series faces the first place team in a best-of-seven series, the Korean Series.

The growth of baseball in Korea includes growth in the number of teams in the KBO. While many expansion franchises have joined the league, there have also been changes in the sponsor company of many of the existing teams, as well as teams leaving the league. The KBO has grown from the original six teams, to nine teams currently in the league. The league plans to expand to ten teams in 2015. Currently, teams in the KBO play 128 regular season games, a number that has been reduced because of expansion. Because of its small size, KBO teams play each other many times in the regular season. Before the league expanded to nine teams, the league played a 133 game regular season. After expanding, each team played every other team 16 times for a 128 game regular season schedule. If teams played each other 17 times, this would add an extra eight games into the schedule, which would have made the regular season longer than the KBO wanted.

K-League

Founded in 1983, the K-League is the second oldest professional football league in East Asia (after one formed in Hong Kong in the early 1900s). Originally this league was known as the Korean Super League and was composed of five corporate sponsored or owned teams. The K-League maintained this structure until 1998, when the league was renamed the K-League, and expanded from 5 to 16 teams. In 2013, the K-League moved from a single league structure to a two-league format with promotion and relegation. The top division was renamed to the K-League Classic, and the second division the K-League Challenge.

The average salary in the K-League was about $ 124,000 in 2013. Before 2013, K-League salaries were not public. By adding a promotion and relegation component in 2013, the K-League moved to a more open structure, but has yet to become a fully open league like the J-League or European leagues. Currently, teams are promoted from a semi-professional league called the National League to the K-League Challenge, and from the K-League Challenge to the K-League Classic. The concept of promotion and relegation is not entirely new to the league in 2013. In earlier years, the league employed a promotion and relegation system under which teams in the National League could be promoted under certain circumstances. Despite this possibility, many eligible teams rejected promotion.

Like other East Asian leagues, the K-League has experienced periodic match fixing scandals. While the K-League was not the first league in East Asia to experience match fixing, it was one of the most widely publicized cases of corruption in sport. In the K-League match-fixing case, several players, coaches, and referees were found to be the part of a group that conspired to fix matches, in cooperation with bookmakers and organized crime. FIFA ultimately helped with the investigation (Duerden 2011). Multiple matches in both the K-League and K-League Cup were fixed in 2010 and 2011. The scandal started with the suicide of a player, Yoon Ki-Won, involved in the match-fixing ring (Kim 2011). At the conclusion of the investigation, 31 former and current K-League players were sentenced to prison and fined, and another 8 individuals were forced to pay fines. Duerden (2011) noted that South Korea has one licensed sports book, but that there were between 500 and 1000 illegal gambling sites in the country at the time of the match-fixing scandal. While the police and league have worked to crackdown on these sites, the reorganization of the K-League could partly be traced to the need to rebrand the league after these match-fixing scandals.

Professional League Sport in Taiwan

Chinese Professional Baseball League

The Chinese Professional Baseball League (CPBL) is the top professional baseball league in Taiwan. The league was founded in 1989, and currently has four teams. Like the NPB and KBO, large Taiwanese corporations own all teams in the CPBL. The CPBL has undergone contraction over the last 10 years, and had six teams in the 1990s. Like MLB teams, Taiwan has a minor league system with four teams; each of these teams is owned and operated by a CPBL team as a “farm” team. CPBL teams play a 50 game regular season. In 2003, the average salary for a Taiwanese player was $ 58,000 per year and the average salary for foreign players, mostly former US major or minor league players, was $ 96,000 per year.

In the late 1990s, the CPBL experienced a match fixing scandal. Three members of the China Times Eagles were convicted of match fixing, many other players on other teams were banned from the league, and the Eagles were disbanded. Attendance fell to half its pre-match fixing level for years after this scandal. Like many other professional sports teams in East Asia, some evidence suggests that CPBL teams operate at a loss and can only survive financially through subsidies provided by their parent corporation.

Interestingly, the CPBL faced a rival league, the Taiwan Major League (TML) that formed in 1996 with four teams and competed with the CPBL for players. The owner of the media conglomerate that broadcast CPBL games from 1993–1996 formed the TML. The rival league was formed after a contractual disagreement about future CPBL broadcast rights. A total of 30 players under contract to CPBL teams left to play in the TML. All four teams in the TML were owned and operated by the media conglomerate that formerly televised CPBL games. In 2003 two of the four TML teams were merged into the CPBL.

In 2014, former MLB star Manny Ramirez signed a contract to play for the EDA Rhinos of the CPBL. His salary was $ 60,000 per month. Attendance increased significantly while Ramirez played in the CPBL; home attendance at games played by the Rhinos increased from about 4000 per game to more than 9000 per game for the three months that he played in Taiwan, and the other three teams saw large increase in attendance at games against the Rhinos. However, Ramirez returned to the USA after 3 months, and attendance declined more than 30 % league-wide after his departure.

Professional League Sports in China

Mao Zedong was reportedly a basketball fan, and his interest in the game may have played a significant role in the development of the sport in China. There exists rare video footage of Mao attending a basketball game and appearing to enjoy himself.

As basketball was a sport of interest for the founder of the People's Republic of China, it was only natural that a governing organization for the sport was created in 1956, shortly after the establishment of the People's Republic. This organization, the Chinese Basketball Association, has the same name as the Chinese Basketball Association (CBA), a professional basketball league that began play in 1995. For simplicity, this paper will refer to the professional league as the CBA, and the overarching organization governing basketball in China as the Chinese Basketball Association.

Chinese Basketball Association (CBA)

The popularity of basketball in China reportedly comes not only from Chairman Mao's love of the game, but also from rules governing the congregation of individuals in the country. In order to prevent large groups of people from congregating together, China once had stringent rules about the number of people who could congregate together in a group. Under this rule, enough people could congregate to play a game of basketball without running afoul of the law, but a full 11-a-side football match constituted an illegal gathering. Since only ten people are needed to play a game of basketball, and the laws of the country allowed the sport to be played without fear of repercussion, basketball flourished in China.

Professional and semi-professional basketball leagues in China emerged over the last three decades. In 1995, the CBA began play as China's top professional basketball league. As of 2013, the CBA has 17 teams divided into two divisions. CBA teams play a 34-game regular season. CBA teams have corporate sponsors that appear as a part of the name of the team, but these corporations do not own the teams, and team sponsors change frequently. The CBA does not follow the common East Asian practice of direct corporate ownership of teams, probably because of the planned nature of the Chinese economy.

The CBA postseason is modeled exactly on the NBA. The top eight teams in the regular season advance to the postseason, which consists of two rounds of best-of-five series (quarterfinals and semifinals) and a best-of-seven championship series. Playoff teams are seeded 1-8 and higher seeds play lower seeds.

CBA player salaries and team revenues and expenses are not public information. However, a player for the Shanghai Sharks 7'3" center Zhang Zhaoxu became a free agent after the 2013 season and has reportedly been offered a multi-year deal by the Xinjiang Flying Tigers that would pay him $ 1.2 million per season. Together with the fact that many foreign players, including former NBA stars Stephon Marbury and Gilbert Arenas have played full seasons in the CBA suggests that average salaries are substantial in the league.

Other leagues that were not necessarily rival leagues also existed at various points in time. These other leagues include the National Basketball League (NBL), which is still in existence and will soon have a two-division structure, as well as the now defunct Chinese New Basketball Alliance (CNBA). The NBL has 16 teams that once constituted single tier structure, but recently was reorganized by the Chinese

Basketball Association into a semi-professional league with ten teams in the top division, and six teams in the bottom division. Like the system in Europe, these two tiers use promotion and relegation to move teams between them.

Although the NBL is sanctioned by the Chinese Basketball Association and follows a European-style promotion and relegation model, the NBL is a minor, semi-professional league. The CBA has adopted a North American closed league model like the National Basketball Association (NBA). This is part of a national plan for developing basketball talent and promoting domestic growth in the sport. The Chinese Basketball Association has developed an organizational model adopted directly from the USA. In the USA, players are developed through a system of high school teams, Amateur Athletic Union (AAU) teams, and college teams. In China, the best players had been developed under the direction of the Chinese Basketball Association or by local basketball clubs. By operating in this manner, Chinese basketball was following a structure that took parts of the other communist regimes, as well as European club sport. While the CBA still develops a lot of players through club youth teams (for example, NBA players Yi Jianlian and Yao Ming were both developed on CBA club rosters), the country has begun to experiment with different methods to develop basketball talent. The NBL operates as a semi-professional league, providing China with a lower level system that can be used to develop young players. At the same time, the Chinese University Basketball Association (CUBA) was created to emulate the National Collegiate Athletic Association (NCAA) basketball system in the USA, using universities instead of clubs and the organizations that develop basketball talent.

The CUBA represents an interesting organizational case study. For most of its existence, CUBA was an organization that allowed college students to compete against teams from other schools in basketball, but was not viewed as a mechanism to develop high level basketball talent. CUBA observed the success of the NCAA in developing young talent, and in generating large revenue streams, and decided to emulate the NCAA approach. The CUBA is an independent organization, and technically is not controlled or related to the Chinese Basketball Association. Despite this, the CUBA has focused on increasing revenues and developing talent like the NCAA, including holding an annual bracket style knock-out tournament. The last four teams in this tournament play in a nationally televised event called the CUBA Final Four, just like in the NCAA. The CUBA hopes to continue to develop basketball talent and promote domestic basketball competition at all levels. CUBA's long-term goal appears to be a system exactly like the NCAA-NBA relationship in the US.

Like Japanese baseball and football, the CBA faces the problem of top Chinese players moving overseas to play in the NBA and other professional leagues around the world. Yao Ming started this migration. However, no Chinese player has fully reproduced the success Yao Ming had in the NBA. The CBA competes directly with the NBA for fans watching games on television. Although the CBA features a high level of competition, it is hard for any league to compete against the star power and excitement of the NBA. In order to build popularity, the CBA has also begun to import foreign basketball players to raise the level of domestic play. The CBA has signed many former NBA stars including Stephon Marbury, Gilbert Arenas, Tracy McGrady, and Steve Francis. Through these star players, the CBA has managed to develop a large following among the basketball fans in China by providing some NBA level talent, while still being including top domestic players.

Although Mao Zedong was an avid fan of basketball, he passed away two decades before any of the professional Chinese leagues came into existence. Mao's successor Deng Xiaoping is reportedly a fan of football. It may be a coincidence, but it is interesting that after the development of basketball in China, the next sport to develop professionally was football.

Chinese Super League

The Chinese Super League (CSL), is the top professional soccer league in China. The league was formed from the remnants of the Jia-A, an earlier professional league that was rebranded because of concerns about the business practices and management of clubs and the league as a whole in the early 2000s. Jia-A, the original professional football league in China, was formed from club teams that were primarily controlled and owned by government-backed businesses. In this sense, the Jia-A was formed as a semi-industrial league, which was backed by the Chinese central government. Jia-A appeared to be headed towards success until a series of match fixing scandals rocked Chinese professional football in the late 1990s.

The CSL has a structure similar to the other football leagues in Asia, following a hybrid model that copies the organization of professional football in Europe, while following the East Asian practice of corporate ownership of teams. In addition to the CSL, professional football in China includes two lower leagues, China League 1 and China League 2, on the national promotion and relegation ladder. China also holds an open domestic competition, the FA Cup. CSL teams are either owned by state-owned industrial conglomerates, like Beijing Guoan which is owned by CITIC Group, a state-owned investment company, or by individual industrial tycoons, as is increasingly common in European football leagues.

Salaries appear to be high in the CSL. Like other East Asian leagues, player salaries are not public information. But media reports indicate that the average salary of a domestic CSL player in 2011–2012 was 1.57 million yuan, $ 260,000 at 6 yuan to the dollar (Compton 2012). The average salary of international players in 2011–2012 was 5.49 million yuan, or $ 900,000. A number of high-profile international football players have signed contracts to play in the CSL for significant sums of money. Didier Drogba, a former striker for Chelsea of the English Premier League, reportedly signed a contract with Shanghai Shenhua paying him $ 15.19 million per season for 2012–2013; a number of other international players have CSL contracts paying more than $ 1 million per year.

Payrolls have increased significantly in the CSL in the last few years. Compton (2012) reported that league wide payroll doubled from $ 64.2 to $ 144 million dollars from 2010 to 2011. Predictably, most teams in the league reportedly lose money. Guangzhou Evergrande, a very successful CSL team owned by billionaire real estate tycoon Xu Jiaying, reportedly spent 228 million yuan on salaries in 2012 and reported only 17 million yuan in ticket sales (Compton 2012). Media rights fees in the CSL are not known, but the league recently signed an agreement with European sports broadcaster Eurosport to televise CSL games in Europe.

The CSL has also experienced match-fixing scandals. In the past, CSL teams, players, and officials of the Chinese Football Association (CFA) have been convicted of fixing matches in CSL league play. The most famous CSL match-fixing scandal is known as the “Black Whistle” scandal, took place in 2003. Even in 2013, there are still trials ongoing and punishment being handed out to the teams and individuals across China. The match-fixing scandal reached as far up as the head of the CFA, who was dismissed from his post and subsequently arrested in 2010, when police found evidence of his role in match fixing in the CSL. These scandals significantly reduced fan support and interest in the league.

To regain the trust of Chinese football fans, the central government instituted a series of reforms in the mid-2000s. The league was renamed the Chinese Super League in order to break ties with the past corruption in Jia-A. Since these reforms, the CSL has witnessed historic growth in terms of performance of clubs, attendance, and investment into professional football. Several large corporations have purchased or sponsored CSL teams. The most prominent example is the purchase of a Guangzhou-based club by the Evergrande Real Estate Group. Jiayin Xu, a regular on the annual Forbes Top 100 richest people in the world list, controls the club, renamed to Guangzhou Evergrande, as well as the real estate corporation that oversees it. With a multi-billionaire’s backing, Guangzhou Evergrande rocketed from the second division to the top of the CSL table in a single year. The financial support was so great that the team went the entire season without losing a game. This did not satisfy Xu, who fired his coach, brought in even more player talent, and hired former Italian World Cup winning coach Marcello Lippi to manage the team. From this point, Guangzhou has become one of the top teams in Asia, despite being relatively unknown just three years ago. Additionally, Guangzhou Evergrande became the first Chinese team to win the AFC Champions League Final in 2013.

The influx of money into Chinese professional football has been a blessing to the domestic game which has witnessed its largest crowds ever; the CSL now has the highest average attendance of any football league in East Asia and has surpassed the J-League and K-League in terms of domestic popularity; of course China has a much larger domestic population than either Japan or Korea. With that said, attending CSL matches appears to be more of a middle-class activity in China, in terms of the cost of attending a game and the time it takes to travel and attend a match.

While the CSL has grown in popularity in recent years, the status of the Chinese national football team has gone in the opposite direction. Unlike in Korea and Japan, where growth in domestic leagues was accompanied by increased success by the national teams, in China the national team reached its apex when qualifying for the 2002 FIFA World Cup, and has enjoyed little international success since.

The rise of the CSL, and the concomitant decline of the Chinese national team, raises an interesting question. What factors caused the domestic league to improve yet had no impact on the success of the National team? One possible answer is that

China still has not put an effective grassroots youth development system in place that generates homegrown talent. The improved performance of the CSL in continental competitions has come alongside increases in the number of foreign players allowed on CSL rosters. In this, the drive for success in the CSL has potentially come at the cost of developing domestic young talent, as aging international players take roster spots on CSL teams that would have gone to young domestic players. As the CSL has had more success and invested more money into payrolls, they have brought in famous star players from abroad such as Didier Drogba. While the Drogba deal ended with the player leaving China after only playing a short time, it is one example of how far many CSL clubs have gone to attract fans and win league matches. Much of the focus in China is placed on domestic professional football, and not on international competition. This emphasis is interesting in light of the importance the Chinese central government placed on performing well in international competitions like the Olympic Games.

Future Directions: The NFL in East Asia

As revenues in the National Football League (NFL) began to grow in the 1980s, the league turned its eyes toward building a global audience for the sport. The NFL realized that expanding beyond the traditional North American audience could translate into increased revenues and enhanced brand values for teams, players, and the league as a whole. The NFL began its international expansion with a series of games called the American Bowl, a series of pre-season games begun in 1986 in countries outside of the US and Canada. The series initially included games in London, but it soon included games in Japan. Games broadcast during US primetime were held in large venues in Japan in the early hours of the morning. This scheduling practice did not attract many Japanese fans to the NFL. Another problem was that the NFL's attempt to build a global audience was based on playing exhibition games in Japan and Europe, while other North American leagues like the National Hockey League (NHL) were playing meaningful regular season games in these countries. The American Bowl ended in 2005.

After the cancellation of the American Bowl in 2005, the NFL replaced it with the NFL International Series in the rest of the world, staging regular season games abroad. But the NFL failed in its only attempt to stage a regular season game in Asia, the "China Bowl" attempt in Beijing. The game was scheduled one year before the start of the 2008 Beijing Summer Olympic Games to build NFL visibility in China and around the world. Interest was high for one of the scheduled competitors, The New England Patriots, since they had already established business operations in the country. However, after the game was rescheduled twice, and eventually cancelled in 2009, the Patriots and other NFL teams eventually pulled almost all of their operations out of China.

The failure to gain footholds in East Asian markets by the NFL is not a unique outcome. In a book examining the growth of domestic soccer in China, Simons (2008) notes that even large successful European football clubs have been unsuccessful in bringing their sports/leagues to China. However, the NBA has adopted a more focused operation in China focusing on building grassroots interest among fans. The joint NBA/CBA coaching program has trained more than 700 Chinese basketball coaches and in 2011 an NBA run training center, the Dongguan Training Center, opened and has trained more than 1200 elite 12–17 year old players.

Future Directions: AFC Champions League

In 2002, the Asian Football Confederation (AFC) consolidated all three regional competitions and organized them under the single banner of the AFC Champions League (an earlier attempt under the same name floundered and died in 1971). Modeled after the UEFA Champions League, this competition had a group stage and 16 teams advancing to knockout rounds after group play, with a home-and-away championship format. The initial launch of the AFC Champions League appeared to be successful, but the 2003 season was canceled because of the SARS virus outbreak in East Asia, which made travel for the competition impossible. After a year break, the AFC Champions League returned in 2004 with 29 clubs competing in the group stage. Learning from the excessive travel budgets and other travel-related issues from previous competitions, the 2004 Champions League divided teams into regional groups.

With these changes, more teams and leagues were willing to join the competition, which grew in 2005 and again in 2009 when it moved to its current format with 32 teams participating in group play. One final change that was made in 2009, when the competition moved away from a home-and-away final, and moved the finals to a single championship game played at a neutral venue. Between 2009 and 2012, the neutral venue finals were hosted twice in Japan and twice in South Korea. Both matches in Japan featured teams from South Korea and the Middle East, and the interest by Japanese fans in these matches was low, with attendance around 25,000 for both finals matches. The 2011 and 2012 finals had a greater boost in attendance, with around 42,000 attending both matches that again featured South Korean and Middle Eastern clubs. The single venue final was clearly not a format that would guarantee large crowds and media success. The key to large crowds at the AFC Champions League matches was teams from the host nation being present in the match. In 2013, the AFC Champions League returned to a home-and-away finals format, with Guangzhou defeating Seoul to decide the winner of the ultimate title in Asian club football.

Although the growth and success of the AFC Champions League can be attributed to the explosion of professional football in East Asia starting in the mid-1990s, it is important to note that West Asia has also played an important role in the growth of the competition, and the AFC as a whole. There has always been a difficult coexistence between East and West Asian leagues in the AFC. Regional differences in terms of culture and race have generated a rivalry between East and West Asian league champions that has spilled over to the management, organization, and leadership of the AFC. Winning the AFC Champions League has become important not only for club and country, but also in signaling the football and business prowess of the region.

In terms of sponsorship, Emirates Airline based in West Asia and Nikon and Asahi in East Asia have played heavy roles in funding the competition. Competition for business and prominence in Asian markets has helped to drive organizations to bid higher to be official partners and sponsors of the AFC. The Asian based marketing company World Sport Group (WSG) has also invested heavily into both the AFC and the AFC Champions League, understanding the potential importance the competition has with audiences across Asia. The WSG reportedly signed an eight-year sponsorship agreement with the AFC that was valued around $ 1 billion. As the AFC Champions League has continued to grow, the competition and the federation overseeing all football in Asia has profited.

The payoffs for the AFC Champions League are structured like those in the UEFA Champions League. Teams are paid based on how far they progress in the competition. While the pot of money for the UEFA Champions League continues to grow, there has been fluctuation of the total sum of money paid out in the competition. The amount offered in 2009 was valued around $ 20 million; five times the amount that was offered the previous year. This jump in the total tournament payout was partly due to increased sponsorship deals. However, the AFC reduced the total payout in subsequent years, with the total amount given out to clubs each year estimated at around $ 14–$ 15 million. More than $ 1 million is awarded to the winner of the tournament. While the AFC has awarded larger sums of money to the winning club over time, many early rounds still have more money given out in travel subsidies for teams than for actually winning or advancing in the tournament. The addition of Australia to the AFC in 2007 increased travel costs for East Asian clubs.

Possibly, the most interesting development in the AFC Champions League (and potentially the AFC as well) has been the emergence of powerful Chinese professional clubs backed by domestic billionaires. The emergence of strong East Asian football began at the national team level with South Korea, followed by Japan who would develop a professional league which set the standard for professional football in East Asia. Now that Chinese teams have the backing of deep-pocket owners who want to field winning teams, it appears that China would be poised to dominate professional club football in East Asia. There have been 31 winners of the AFC Champions League and the earlier pan-Asian club competitions. Though professional leagues are relatively recent developments in East Asia, the clubs from this region have won 16 of 31 titles, with another 10 teams having been runner-up. In the AFC Champions League, South Korean and Japanese clubs have won six of the ten titles, and have been runners up three times. With the 2013 final to be played between a Chinese and Korean club, it appears that the poser in the AFC has shifted from the Western Asia to the Eastern Asia.

Conclusions

A boom occurred in professional sports leagues in East Asia over the past three decades. Not only did the number of leagues and franchises continued to grow, but the revenues, financial sponsorship and backing of professional sport organizations has continued to grow as well. However, this growth has not generated stability, as a significant amount of reorganization of franchises, leagues, and pan-Asian championships have also taken place. Although it is natural for some upheaval to take place when an industry undergoes rapid growth and expansion, there are some reasons to believe that East Asian professional sports leagues and teams may experience some problems in the future. There has already been evidence of some teams having difficult times being able to stay financially solvent, especially for teams in smaller markets or with relatively small corporations backing them.

The city of Fukuoka, Japan has experienced several cases of financial difficulties with sports teams. The NPB team in Fukuoka, the Softbank Hawks, was purchased by the Softbank Corporation after their previous owner; the Daiei Corporation underwent financial distress. As noted earlier in this chapter, professional teams in Japan have not always focused on proper business operations. By treating teams as part of a corporation's marketing or public relations department, it is only natural to expect sport organizations to experience financial loses. Thus, when the parent corporations experience financial problems, the sports franchise is usually one of the first things sold, or in some cases, abandoned. In the Fall of 2013, it was discovered that the professional football club in Fukuoka (Avispa Fukuoka) had been struggling financially and had lost about half a million US dollars in the previous year. Avispa Fukuoka is a club with no corporate ownership and is a publicly traded stand-alone corporation. Because Avispa lack the power of a parent corporation to fully sustain them, the losses have hit the club hard, and there is question about whether the club will be able to remain in J-League. To date, there has not been any other J-League club which has gone bankrupt and been removed from the J-League, and Avispa Fukuoka are the closest team in the league has come to such a dire financial situation.

The presence of teams owned and operated by industrial groups or large corporations is an interesting feature of East Asian professional sports leagues. Other leagues around the world have not adopted this ownership form, although corporations owned some early teams in the National Football League; for example, the Green Bay Packers were started by a large meat-packing firm. This ownership form either disappeared early or was not present in most of the professional sports leagues in the US and Europe. It remains to be seen if this ownership model can support significant growth in leagues to make East Asian football and baseball leagues competitive with the US and European leagues they modeled their competitions on.

However, the emergence of billionaire team owners in China may signal increased problems there, and in other East Asian leagues if Chinese billionaires turn their attention to buying teams in other nearby countries. The presence of deep-pocket owners willing to spend large amounts on start players and sustain large operating losses has led to problems in many European football leagues, in terms of on-pitch outcomes and increased player costs across all leagues as demand for star players drives up salaries all salaries. If a sufficiently large number of East Asian teams are bought by "sportsmen owners" like Russian billionaire Roman Abramovich, owner of the Chelsea Football Club in England and United Arab Emirates billionaire Sheikh Mansour bin Zayed Al Nahyan, owner of Manchester City Football Club in England, these leagues could experience financial problems like those currently taking place in Europe. The prevalence of corporate-owned teams could exacerbate this problem, if the corporate owners sell teams or refuse to compete with billionaire owners of other teams.

East Asian leagues have also experienced a large number of match fixing scandals over the past 30 years. In part, these scandals can be attributed to the relatively low salaries paid to players and referees in these leagues. Forrest and Simmons (2003) showed that low salaries were key factors in explaining match fixing incidents, as players and officials with lower salaries have a lower cost of fixing matches, and a higher expected net payoff. As salaries in these leagues rise, match fixing should decline as players are less likely to risk loss of these high salaries if they are caught fixing matches.

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The J. League and the World Cup

Takeo Hirata and Stefan Szymanski

Abstract This chapter examines the impact of the 2002 World Cup held in Japan and Korea on the domestic soccer league of Japan, the J. League. We first consider the impact of World Cups on league attendance in some European countries and then compare with the Japanese case. We find that demand increased substantially in the years just before and after the World Cup. These effects seem to be associated with new stadiums built for the event.

Introduction

Economic research on the impact of new stadium construction for major league teams is now well established (see, e.g., Noll and Zimbalist (1997) or Siegfried and Zimbalist (2000), but there is a growing literature on the economic impact of major sports events. Most of this research concerns the potential of public investment by host governments to stimulate economic activity, both through public works (stadium and related infrastructure investment) and through attracting visitors to the events. This is especially true of the Olympic Games (see, e.g., Preuss 2004). Less attention has been paid to the FIFA World Cup, which is surprisingly given its claim to be the world's largest sporting event.

Some papers have examined the impact of the World Cup held in the USA in 1994 (e.g., Baade and Matheson (2002)), but relatively little attention has been paid to (a) the impact of a World Cup on demand for professional league competition, and (b) the impact of a World Cup on demand for professional clubs that use the facilities constructed for the event. In this chapter we examine the impact of the FIFA World Cup held in Japan and Korea in 2002 on attendance at games played

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in the Japanese J. League. We find that the World Cup is associated with a boost in attendance overall, but especially at clubs that play in facilities constructed for the World Cup.

This research provides an interesting contrast to the American research on "honeymoon" effects of new stadia Zygmont and Leadley (2005a, b) and Poitras and Hadley (2006). This research shows that there is a substantial impact of a new stadium on attendance and team revenues in American major leagues. Indeed, according to Poitras and Hadley the honeymoon effect would be large enough to make these stadiums commercially viable on a privately funded basis, notwithstanding the claims of team owners that they need substantial public subsidies. This issue has been the source of much public debate in the USA, since stadium subsidies from local governments are substantial. The issue seldom arises in the soccer world since within an open entry system of promotion and relegation, a team's threat to relocate if a stadium is not built at public expense is largely an empty one (see, e.g., Szymanski (2003)). By contrast, competition between governments to host the prestigious World Cup is intense, and in this way public subsidies for stadium construction are often substantial. Here we are able to estimate the private value to teams of being a World Cup host, as well as the benefit to the league as a whole.

The chapter is set out as follows. In the next section we review some statistical evidence related to FIFA World Cups held in Europe. Section "Background" provides some background information on the J. League and Section "Measuring the Impact of the World Cup on J. League Attendance" examines the impact of the World Cup on J. League attendance. Section "Niigata and Urawa Case Studies" discusses the case of two particular teams, Niigata and Urawa. Section "Discussion and Conclusions" concludes the chapter.

World Cup Impact on Professional Leagues in Europe

In the past half-century there have been six FIFA World Cups staged in Europe, 1966 in England, 1974 in West Germany, 1982 in Spain, 1990 in Italy, 1998 in France and Germany in 2006. Following the very successful World Cup in Germany in 2006, attendance in Bundesliga 1 actually fell from 12.5 million tickets to 12.2 million (a drop of 2 %), but this must be set against the fact that between 2000 and 2006 attendance had already increased by 28 %. It is reasonable to suppose that at least some of this increase was attributable to the increased exposure of German soccer in anticipation of the World Cup and the substantial investment in stadium development and rebuilding.

A longer view can be obtained by examining the earlier World Cups. Figure 1 illustrates the levels of attendance at top division games in England, Germany, Italy, and France (data for Spanish attendance is not available), indexed to the season prior to the staging of the World Cup.

In each case there was a substantial increase in attendance in the season following the world cup, ranging from 11 % (West Germany 1974), 14 % (England),

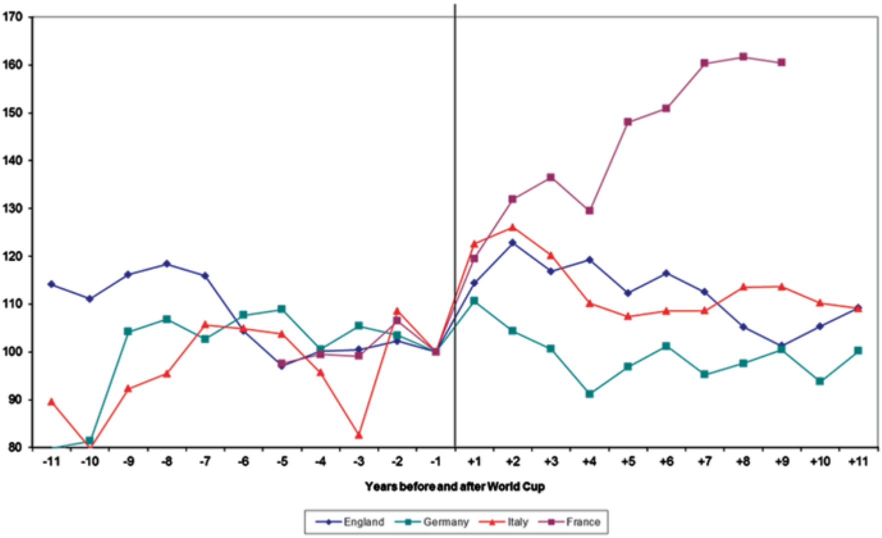


Fig. 1 Index of attendance at top division leagues in England, Germany, Italy, and France Year before World Cup = 100

20 % (France) to 23 % (Italy). However, the experience following this season varied widely. In West Germany, attendance fell in the following three seasons and were 10 % below the pre-World Cup level 4 years after the event. In England and Italy the honeymoon seemed to last a little longer, but attendance started to regress back toward pre-World Cup levels three seasons after the event. By contrast in France the World Cup triggered a much longer renaissance in French soccer, with attendances 60 % higher than pre-World Cup levels nearly a decade after the event. These different experiences may simply reflect the different eras in which these events were held. During the period following the England and West Germany World Cups (in both of which the hosts were also the winners) the game was suffering from a number of problems, notably the hooliganism crisis, and therefore the World Cup provided only a temporary respite. Italia 90 coincided with the influx of substantial new revenue sources from pay TV, and during this period Italy's Serie A was dominant league in Europe. France is perhaps an unusual case, in that prior to the World Cup its league was substantially weaker than those of its major European rivals (average attendance closer to 10,000 per game than the 20,000–30,000 typical of the other three leagues.

For England, West Germany, and Italy it is possible to obtain average annual attendance data by club, enabling us to examine the impact on clubs that acted as host for World Cup games compared to those that did not. We have pooled this data and Table 1 reports a panel regression of league attendance on lagged attendance, league position and series of dummies for years before and after the World Cup, for the league as whole and for host teams. The first set of coefficients is a simple Ordinary

Table 1 Estimated World Cup impact dummies on league attendance and host club attendance (dependent variable is the log of average annual attendance)

	Coefficient	Se		Coefficient	Se		Coefficient	Se
Constant	0.815	0.093	***				3.180	0.175
Attendance (−1)	0.865	0.015	***	0.492	0.079	***	0.484	0.028
League position	0.034	0.004	***	0.039	0.025		0.040	0.005
WC −6	−0.042	0.036		−0.011	0.041		0.014	0.069
WC −5	−0.045	0.037		−0.029	0.057		−0.129	0.101
WC −4	−0.060	0.036	*	−0.070	0.018	***	−0.107	0.106
WC −3	−0.036	0.036		−0.069	0.016	***	0.071	0.104
WC −2	−0.008	0.036		−0.041	0.040		0.010	0.047
WC −1	−0.014	0.038		−0.053	0.015	***	−0.091	0.048
WC +1	0.080	0.037	**	0.044	0.015	***	0.030	0.047
WC +2	0.010	0.036		0.007	0.055		0.027	0.046
WC +3	0.016	0.036		0.025	0.034		−0.023	0.056
WC +4	−0.016	0.037		−0.004	0.126		−0.104	0.072
WC +5	−0.061	0.036	*	−0.059	0.045		−0.006	0.083
WC +6	0.042	0.037		0.013	0.053		0.102	0.081
Host team −6	0.066	0.056		0.014	0.044		−0.058	0.061
Host team −5	0.051	0.056		0.024	0.110		−0.006	0.059
Host team −4	0.062	0.055		0.061	0.058		0.076	0.059
Host team −3	0.029	0.056		0.048	0.053		0.055	0.058
Host team −2	0.056	0.056		0.059	0.059		0.029	0.058
Host team −1	−0.112	0.055	**	−0.091	0.065		−0.072	0.059
Host team +1	0.115	0.054	**	0.083	0.054		0.071	0.059
Host team +2	0.053	0.055		0.076	0.057		0.054	0.060
Host team +3	−0.050	0.056		−0.036	0.058		−0.055	0.059
Host team +4	0.009	0.056		−0.019	0.056		−0.010	0.060
Host team +5	0.042	0.057		0.029	0.053		0.060	0.064
Host team +6	−0.008	0.057		0.009	0.050		0.017	0.065
Club dummies	No			Yes			Yes	
Year dummies	No			No			Yes	

League position is expressed in the form $-\log(P/(N+1-P))$ where P is league position and N is the total number of teams in the division
WC world cup
***significant at the 1% level
**significant at the 5% level
*significant at the 10% level

Least Square (OLS), the second set includes club-specific fixed effects and the third set includes club- and time-specific fixed effects.

The results do not suggest that hosting the World Cup exerts a powerful impact on attendance either on the league or the host clubs. Lagged attendance is important, although the size of the coefficient is halved by the inclusion of fixed effects, and league position has the expected sign and is strongly significant. Only in the OLS version without fixed effects are any of the world cup dummies significant. The league as whole obtains an increase of around 8% in attendance in the season following the world cup, while host teams in addition obtain an increase of about 11%. However, note that this latter effect is almost exactly offset by a loss of attendance in the season before the World Cup, which may be associated with stadium construction and renovation. However, some caution must be exercised in interpreting these results given that these dummies are insignificant once the fixed effects are added. The size of the league impact effect falls to around 3–4 % in the year immediately following the World Cup, while the host effect falls to around 5–7 %.

Overall these results do not suggest that hosting a World Cup has a very strong impact on established professional leagues such as those of England, Germany, and Italy. The case of France is interesting, since it does suggest the possibility that they event might help to stimulate demand for an underdeveloped league. FIFA itself sees the award of the World Cup as a catalyst for the development of the game in host countries (consider, e.g., USA 1994 and the award of the 2010 competition to South Africa, as well as Japan/Korea 2002). We will now examine the case of Japan 2002 in more detail.

Background

Soccer in Japan Before the J. League and the Popularity of Baseball

It is said that an Englishman called Jones, the same year that baseball was introduced by the American Horace Wilson, introduced soccer to Japan around 1873. During the Meiji Restoration the Japanese experimented with most western sports, but by the end of the twentieth century baseball was established as the most popular imported sport. In 1936 the Japan Professional Baseball League was established with seven teams. A split in 1950 led to the creation of the Pacific and Central Leagues, which constitute Nippon Professional Baseball, and between them they now boast 12 teams.

Despite its early introduction soccer did not catch on in Japan. The national association was not founded until 1921 (affiliated to FIFA in 1929), and although the national team had some early successes (e.g., defeating Sweden 3–2 in the 1936 Olympics and winning the bronze medal in the 1968 Mexico Olympics), the game did not take off as a major spectator sport. However, at the end of the 1980s the growing popularity of the game with students (especially women) persuaded Suntory and several other major corporations to decide to invest in the creation of a professional league.

Foundation of the J. League

The J. League was inaugurated on May 15th, 1993, with the three missions of promoting and spreading the sport of soccer, in order to improve the quality of the Japanese game, furthering the development of a rich sporting culture and the physical and mental well-being of the Japanese people, and making contributions to international society through friendship and exchange activities.

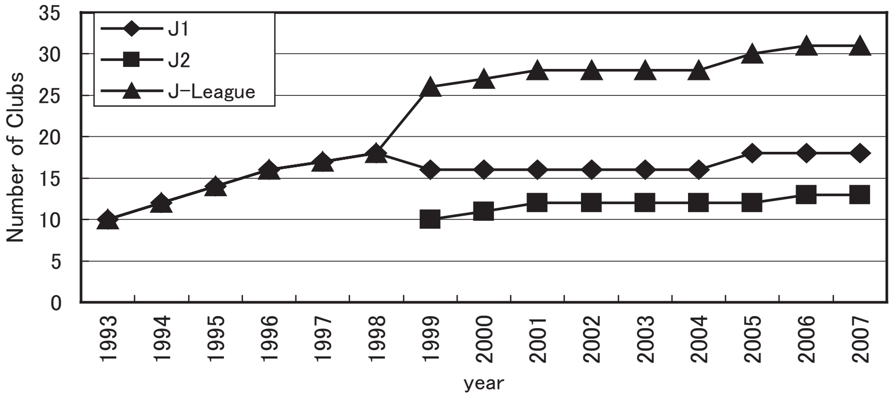


Fig. 2 Number of clubs in J. League

The J. League designated the core activity areas of each club as that club's hometown. What this means is that the J. League expects each club to develop as an integral part of its community and engage in the promotion of soccer and other sporting activity within it (J. League Regulations, Article 21). The J. League hometown is, therefore, very different from the franchise concept found in Japanese professional baseball, whereby the franchise is a protected zone with regard to all baseball-related earnings that arise within that given region.

Since its foundation the league has steadily expanded its membership, introducing a second division (J2) in 1999. There were 31 teams in the two leagues, 18 in J1 and 13 in J2 in 2007 (see Fig. 2). The J. League teams are symbols of local pride. The home stadium becomes a festive space where many people gather at home matches, roughly once a fortnight, during the season. The supporters who cheer on their team with the name of their town never feel more surely a part of their own hometown community than at such moments. The team represents the locality and the team name, accordingly, consists of a geographical name plus a nickname.

During the first 12 seasons of the league the top division played as a split season (except in 1996). Until 1995 each team played with every other team home and away in each half of the season (so in total each team played with every other team four times in a season. Since 1996 each team plays each other twice only; in 1996 there was no split, but between 1997 and 2004 there was a split with a single encounter between each team in each half season. The champion from each half of the season (the team winning the highest number of points) then played each other for the national title. J2 has always played on a simple home and away basis, and from 2005 J1 does so too (Table 2).

With the introduction of J2 a system of promotion and relegation started at the end of season 1998 (no relegation but promotion existed before this). The J. League has been characterized by a willingness to experiment with the rules. As well as the split season, in the first two seasons the number of wins defined position, whereas since then points have decided it. Until 1998, games tied at 90 min were settled with

Table 2 J. League attendance

Season	J total	J1 total	J2 total	J1 games	J2 games	Average J1	Average J2
1993	32,37,048	32,37,048		180		17,984	
1994	51,70,704	51,70,704		264		19,586	
1995	61,93,382	61,93,382		364		17,015	
1996	32,04,825	32,04,825		240		13,353	
1997	27,55,680	27,55,680		272		10,131	
1998	36,66,492	36,66,492		306		11,982	
1999	36,11,055	27,97,995	8,13,060	240	180	11,658	4,517
2000	39,96,385	26,55,525	13,40,860	240	220	11,065	6,095
2001	54,77,109	39,71,385	15,05,724	240	264	16,547	5,704
2002	57,37,591	39,28,245	18,09,346	240	264	16,368	6,854
2003	62,48,560	41,64,390	20,84,170	240	264	17,352	7,895
2004	64,50,426	45,46,260	19,04,166	240	264	18,943	7,213
2005	77,17,545	57,42,209	19,75,336	306	264	18,765	7,482
2006	76,08,148	56,00,140	20,08,008	306	312	18,301	6,436

extra time and a penalty shoot-out if necessary. After 1998 the penalty shoot-out was abolished, permitting the possibility of tied results, and then in 2003 extra time was also abolished. The points-allocation scheme was also more complicated than in most soccer leagues. Thus a win in regular time is worth 3 points, but a win in extra time was worth two points and a win on penalty kicks was worth 1 point, and in 1995 and 1996 a club losing on penalties was also given one point. A tie, as in most leagues, is given 1 point.

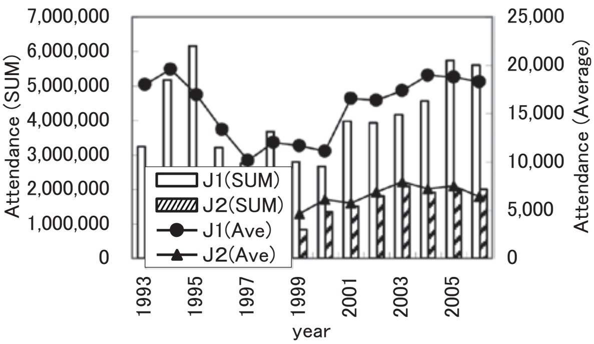
The early history of the J. League is characterized by boom and bust. Total attendance in the first season was 3.2 million, and as soccer fever gripped Japan the figure grew to 5.2 million in 1994 and 6.2 million in 1995. Then came the bust in 1996, when attendance halved to 3.2 million, the same total as in the first season (see Fig. 3), and then to 2.7 million in 1997. However, a recovery began in 1998 when attendance rose again to 3.7 million. It would appear that the introduction of J2 in 1999 entirely cannibalized J1 teams, since attendance fell slightly in this year to 3.6 million and rose only slightly in 2000 to 4 million.

Since 2000 the J. league has enjoyed a significant growth in attendance. By 2006 J1 attendances had reached 5.6 million despite playing fewer games than in the 1995 peak. Total J. League attendance in this season reached 7.6 million, boosted by the success of J2.

World Cup 2002

In May 1996 FIFA awarded the 2002 World Cup to Japan and Korea as cohosts. The decision was undoubtedly motivated by the desire to see soccer grow in Japan and to support the development of the J. League (one of the conditions on which the USA had won the 1994 World Cup was the establishment of Major League Soccer).

Fig. 3 Attendance of J1, J2



The hosting of the World cup involved considerable cooperation between central and local government, the Japanese FA and the J. League. As part of its commitment to hosting the 2002 World Cup Japan decided to build nine new stadiums and renovate an additional stadium, in order to host Japan's share of the games played (32 of the 64). This represented an unprecedented investment in construction, given that previous hosts did not build as many stadiums to stage all 64 games. The total cost of this investment is estimated at 333.8 billion yen (about US$ 4 billion) and it was reported that 64% of stadium construction expenditure was met by local government.[1] The principal long-term beneficiaries of this investment are the clubs that play in these new stadiums, although the stadiums remain under the ownership of the local government.[2]

Fifteen candidate cities bid to host World Cup matches and the Japan FA selected ten winners in December 1996. According to the Japan FA the selection criteria included issues relating to the locality, the extent to which new infrastructure would represent a significant improvement on existing facilities, the availability of accommodation and transport capacity. Bidding cities also had to be the hosts to a J. League Club.

The J. League as a whole benefited from the World Cup, both through the general promotion of soccer in Japan associated with the World Cup and specifically provision of more attractive showcases for their games. However, this latter effect might be offset by the negative image associated with excess capacity. The World Cup stadiums provided capacity in the range of 34,000–72,000, while in 2002 the average attendance at J1 games was only around 16,000. Table 3 provides details of the World Cup stadiums and the stadiums they replaced, which in nearly all cases had much lower capacity.

Not every World Cup stadium has become the permanent host of a J. League club. The Miyagi stadium and the Shizuoka stadium do not have a permanent J. League resident, although they have been used to stage some J. League games. In addition, some of the stadiums that have a permanent resident have also hosted other teams on a temporary basis.

[1] Nihon Keizai Shimbun 2002/8/19.

[2] While clubs do not appear to possess a guaranteed tenancy, it is currently unimaginable that any club could be evicted.

Table 3 World Cup stadiums and clubs

Stadium	Opened	Capacity during WC	Capacity after WC	Cost billion yen[a]	Home club	Clubs using stadium on temporary basis	Home Stadium pre-WC	Capacity pre-WC
Sapporo Dome	June 2001	42,000	42,831	42.2	Sapporo, Nippon Ham (baseball)		Sapporo Atsubetsu	20,005
Miyagi Stadium	March 2000	49,000	50,000	26.9		Sendai		
Kashima Stadium	May 2001	42,000	40,728	23.4	Kashima		Kashima	16,000
Saitama Stadium	Oct 2001	63,000	63,700	35.6	Urawa	Omiya	Komaba	21,500
International Stadium Yokohama	Oct 1997	70,000	72,370	60.3	Yokohama F.M.	Yokohama FC	Mitsuzawa	15,046
Niigata Stadium	March 2001	42,300	42,300	31.2	Niigata		Niigata Rikujyo	18,671
Shizuoka Stadium	March 2001	51,000	51,349	29.8		Shimizu, Iwata		
Kobe Wing Stadium	Oct 2001	42,000	34,000	23	Kobe		Kobe University	60,000
Oita Stadium	March 2001	43,000	43,000	25.1	Oita		Oita Rikujyo	16,000

WC world cup

[a] During the construction phase the yen dollar exchange rate fluctuated between 100 and 125 yen to the dollar

Measuring the Impact of the World Cup on J. League Attendance

Given the significant increases in attendance following the World Cup, we now consider whether the extent to which this can be attributed to the event. We consider three possible explanations:

1. The World Cup raised attendance at all stadiums (general interest in soccer)
2. The World Cup raised attendance at teams which were endowed with a new stadium (local marketing effect)
3. The World Cup raised attendance at teams which were endowed with a new stadium (increased capacity effect)

The first of these, the *general interest effect*, implies that we should be able to detect a trend increase in attendance at all clubs. The second, *local marketing effect*, works only on clubs receiving the benefit of a new stadium. In particular, additional capacity may raise the profile of the local team, attracting new fans. We distinguish this from the related *capacity effect*, which depends on the number of games played at the new stadium. We are able to distinguish this from the local marketing effect because not all teams played 100 % of their games in the new stadium. The capacity effect may arise simply because there was excess demand at the old stadium (although this was seldom the case) or because the new facility has more pleasant environment to watch soccer.

Data

Our data consists of information on seasonal attendance and ticket prices for all J. League clubs between 1993 and 2006. Ticket price data takes the form of minimum and maximum prices charged, for advance tickets and tickets bought on the day, although we only have a complete data set for advance tickets. In addition we have information on team performance from league tables.

Descriptive Statistics

Table 4 illustrates the average attendance in each division for clubs that received the benefit of a World Cup stadium. From Table 3 it can be seen that in most cases these stadia first opened in 2001. It is striking that the clubs that eventually received this benefit started with average attendance below the average in the first 2 years of the J. League, but from 1995 onward had consistently higher average attendance than their rivals. Looking at the clubs that played in J1, these clubs had an advantage even before their new stadium was opened, the advantage seems to have increased since opening, from around 30 % higher attendance on average to 50 % higher on

Table 4 Average attendance at J. League Clubs 1993–2006

	J1 WC clubs	J1 Others	J2 WC clubs	J2 others
1993	14,159	19,623		
1994	17,395	20,681		
1995	17,508	16,741		
1996	15,265	12,485		
1997	12,145	9,033		
1998	14,226	10,554		
1999	14,767	9,793	6,099	3,839
2000	13,549	9,935	9,665	4,055
2001	19,192	14,490	11,649	4,515
2002	19,694	14,372	13,956	4,486
2003	19,815	15,436	20,553	5,363
2004	23,183	14,702	9,466	7,008
2005	22,860	14,671	11,133	7,150
2006	24,988	14,046	8,694	6,025

WC clubs refers to those clubs which were endowed with a new facility as a result of the World Cup

average (before 2000 around one third of J. League teams were in the "WC stadium" group, but since 2000 they have accounted for around half of the J1 total). The advantage of the J2 teams playing in a World Cup appears even more pronounced, but in most years there are only one or two such teams in the league.

One problem with understanding changes in attendance is that these may be triggered by changes in club policies rather than purely stadium effects. Moreover, there may be changes in policy caused by moving to a new stadium. Given the significant excess capacity, one obvious possibility is that teams cut prices in order to attract fans. From this point of view it is probably most useful to look at minimum rather than maximum prices, as these are more likely to attract fans at the margin. Table 5 compares minimum ticket prices. The data suggests that prices respond the demand rather than vice versa. Thus prices increased notably in the second season of the J. League when demand was high, but fell substantially from 1997 onward when demand fell. Prices start to rise again from around 2001, as World Cup fever started to set in, and by 2006 were again approaching the level of 1993 prices (the figures are not adjusted for inflation, which has in any case been negligible over this period). There is clearly little difference in prices between teams that obtained a stadium and those that did not. By contrast, the small number of J2 teams with World Cup stadiums charge significantly higher prices than their rivals, but in both cases price is in general well below those charged in J1.

Regression Analysis

Table 6 reports a regression of club attendance on league position, division, ticket price, and World Cup effects. As with Table 1, the first set of coefficients is an OLS

Table 5 Average minimum advance ticket prices

	J1 WC clubs	J1 Others	J2 WC clubs	J2 others	Average price
1993	2,000	1,929			1,950
1994	2,375	2,013			2,133
1995	2,300	2,011			2,114
1996	2,000	2,009			2,006
1997	1,800	1,809			1,806
1998	1,814	1,691			1,739
1999	1,667	1,690	1,433	1,271	1,542
2000	1,700	1,673	1,525	1,286	1,556
2001	1,786	1,589	1,600	1,380	1,564
2002	1,883	1,800	1,400	1,422	1,654
2003	1,800	1,800	1,750	1,510	1,693
2004	1,825	1,850	1,800	1,482	1,696
2005	1,789	1,867	1,800	1,436	1,683
2006	1,971	1,855	1,400	1,564	1,748

WC world cup

without fixed effects, the second includes club-specific fixed effects and the third includes both club- and season-specific fixed effects. We distinguish between those seasons where a split championship was played and those where it was not. As is typically the case, league position exerts a significant effect on attendance, but not in the first half of a split season. Lagged league position also has a significant impact in seasons where there was no split. Ticket prices only have the expected sign when fixed effects are included, and then only for the top division, with an elasticity of -0.2. The fact that the estimated elasticity is positive for the second division suggests that this is capturing some kind of expectations effect- teams charging higher ticket prices may be more ambitious and therefore attract higher attendance.

There are three ways in which World Cup effects can be inferred from this data. First there is the number of games played in a World Cup stadium. Since the stadium is not always used for all home games, there is some variation. The coefficient from the model with club and year fixed effects implies that each additional game played adds around 1.6% to annual attendance. This may not sound like much, but given a season of around 20 home games, it translates into a figure of around 30% higher attendance compared to when games are not played at the World Cup stadium.

The second effect comes through the World Cup host dummies. These are large and significant from 1997 onward. They increase in size until 2001 and then decrease (Fig. 4). On average they imply that World Cup host clubs have enjoyed attendance around 70% higher on average than other teams. However, this effect is unlikely to have been caused by the World Cup; rather, it suggests that teams which became hosts were already in strong soccer cities that had an advantage over their rivals. The fact that these clubs increase attendance when they play in their World Cup stadium suggests that the World Cup enhanced this existing advantage.

Finally, a third possible effect can be detected by examining the season fixed effects (also in Fig. 4). These dummies track the evolution of the J. League, with a large fall in 1996 and a steady recovery from 2000 onward. Of course, it is not

Table 6 Dependent variable: log of total annual club attendance

	Coefficient	Se		Coefficient	Se		Coefficient	Se	
Constant	0.308	1.139					8.856	2.072	***
League position, no split	0.122	0.023	***	0.105	0.097		0.102	0.014	***
League position, split, first half	0.006	0.023		0.009	0.082		0.010	0.013	
League position, split, second half	0.051	0.023	**	0.043	0.479		0.040	0.013	***
League position, no split (t − 1)	0.101	0.028	***	0.085	0.200		0.074	0.017	***
League position, split, first half (t − 1)	−0.006	0.022		−0.0001	0.444		0.011	0.012	
League position, split, second half (t − 1)	0.035	0.022		0.028	0.321		0.019	0.012	
Division	4.990	1.201	***	2.771	0.690	***	3.441	0.888	***
Division (t − 1)	0.134	0.080	*	0.118	0.325		0.182	0.052	***
Minimum price, J1	0.026	0.102		−0.002	0.103		−0.203	0.092	**
Minimum price, J2	0.583	0.127	***	0.252	359.927		0.207	0.104	**
Games played	1.886	0.180	***	1.957	0.133	***	0.333	0.518	
J. League games played in WC stadium	0.026	0.006	***	0.016	175.894		0.016	0.005	***
WC host 95	−0.008	0.184		−0.101	4.344		0.301	0.163	*
WC host 96	0.156	0.150		0.149	1.700		0.272	0.156	*
WC host 97	−0.097	0.150		−0.099	0.144		0.441	0.156	***
WC host 98	−0.028	0.136		0.025	0.149		0.505	0.152	***
WC host 99	0.183	0.129		0.208	0.252		0.591	0.154	***
WC host 00	0.159	0.104		0.116	0.055	**	0.553	0.145	***
WC host 01	0.309	0.108	***	0.320	0.300		0.652	0.148	***
WC host 02	0.352	0.109	***	0.374	4.340		0.586	0.149	***
WC host 03	0.314	0.116	***	0.379	14.009		0.506	0.154	***
WC host 04	0.391	0.115	***	0.453	0.237	*	0.493	0.153	***
WC host 05	0.282	0.120	***	0.362	1.131		0.449	0.157	***
WC host 06	0.139	0.123		0.222	0.206		0.405	0.158	**
Club effects	No			Yes			Yes		

Table 6 (continued)

	Coefficient	Se		Coefficient	Se		Coefficient	Se	
Time dummies	No			No			Yes		
Log L	−66.04			66.77			135.65		
adj R2	0.666			0.847			0.905		
Parameters	25			55			67		

League position is expressed in the form −log ($P/(N+1-P)$) where P is league position and N is the total number of teams in the division. Ticket prices and games played are also in logs

***significant at the 1 % level

**significant at the 5 % level

*significant at the 10 % level

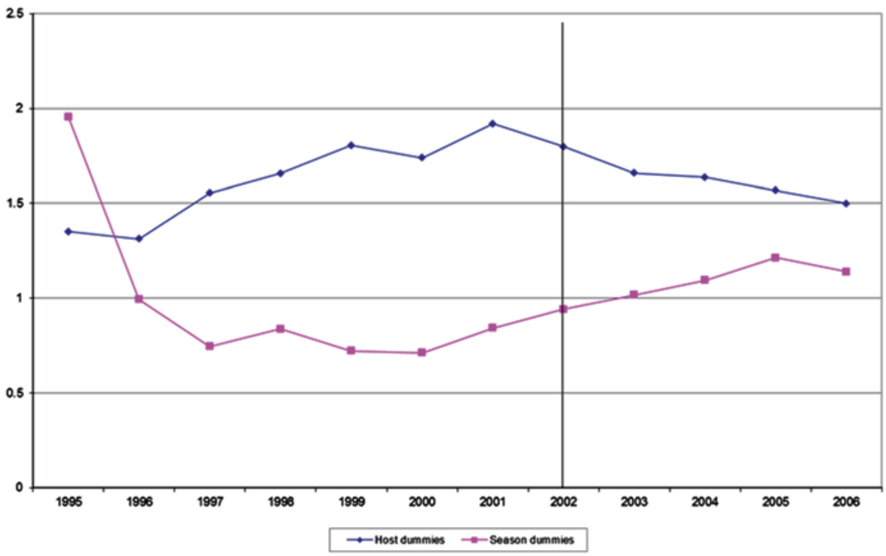


Fig. 4 Attendance multiplier: season and host effects

possible to prove that these impacts can be attributed directly to the World Cup, but the pattern does seem to suggest some influence.

Niigata and Urawa Case Studies

As we have shown the World Cup appears to have had a positive effect on attendance growth in the J. League, and the Japanese experience seems closer to that of France rather than England, Italy, and Germany. Two of the most striking examples concern Urawa and Niigata, both of which were awarded a World Cup stadium. Figure 5 shows the average attendance for these two clubs compared to the J. League as a whole.

It is obvious to say that these clubs have enjoyed much faster attendance growth than the rest of the J. League. Excluding these two clubs, J1 average attendance per game *decreased* by 14% in 2004, 11% in 2005 and 16% in 2006. When these two clubs are excluded it is apparent that J. League attendance has done little more than recovered to the same levels associated with the "J. League fever" experienced at its foundation (the average per game figures have also been depressed by the increasing total number of games per season).

The story behind each of these clubs' success is not the same. Prior to the World Cup, Urawa was an established club operating at close to full capacity (21,500). Its stadium trebled its capacity (see Table 3), but the club has managed to continue operating at close to full capacity, suggesting that there existed substantial untapped

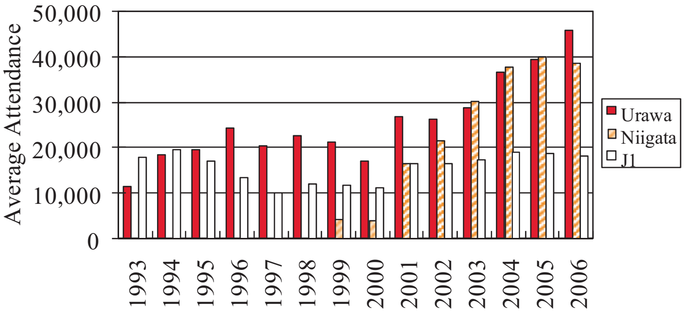


Fig. 5 Average attendance per game in Urawa and Niigata. (Urawa J2 (2000), Niigata J2 (1999–2004))

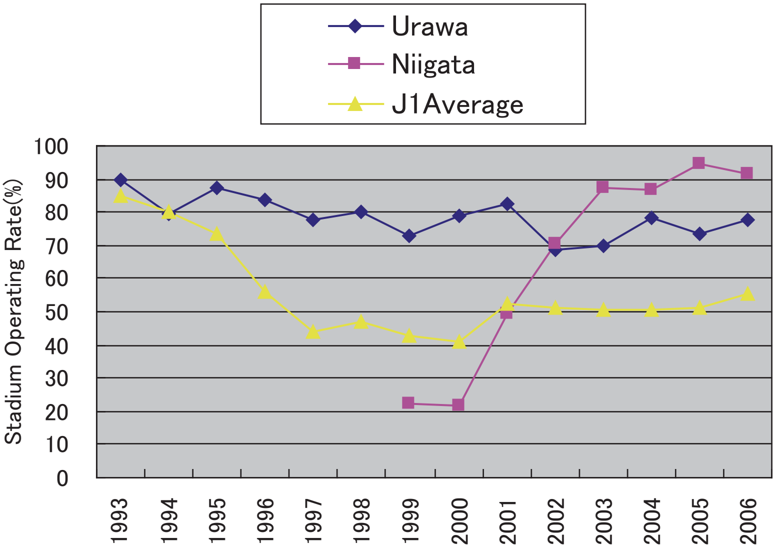


Fig. 6 Stadium capacity utilization in Urawa and Niigata

capacity prior to the World Cup (see Fig. 6). On the other hand, Niigata was established in order to host the World Cup in its region. Since its joining to J2 in 1999, Niigata has recorded 30,339 average attendances in 2003 in J2, a league record ever including J1. It appears that the World Cup stadium was used constantly. Given that there was no history of an interest in soccer in Niigata prior to the World Cup, it is plausible to argue that the event and the stadium themselves created new demand.

J. League clubs derive their revenues from three principal sources: gate revenues, advertising and distributions from the J. League. In this last category the principal component is income from the sales of TV rights that are administered centrally by the J. League. Advertising revenue is perhaps a misleading category, since it is often

Table 7 Revenue of J1 clubs in 2005

	Revenue	Gate	Advertisement	Distribution	Others
Kashima	26.3	5.8	8.7	3.3	8.5
Urawa	48.4	16.2	13.8	4.6	13.7
Omiya	18.7	2.6	11.3	2.1	3.6
Chiba	22.7	3.7	10.7	3.6	4.8
Kashiwa	25.6	4.4	14.9	2.1	10.9
FC Tokyo	26.4	6.6	9.9	3.4	6.5
Tokyo V	25.6			2.7	4.0
Kawasaki	15.9	2.3	10.5	1.9	1.2
Yokohama F.M	40.2	7.8	21.3	2.8	8.4
Niigata	22.0	9.9	7.0	2.2	2.9
Shimizu	25.6	3.9	9.6	2.3	9.9
Iwata	32.4	5.5	14.2	2.6	10.1
Nagoya	31.0	5.2	18.7	2.2	4.9
G Osaka	28.5	4.2	14.0	4.6	5.6
C Osaka	19.3	3.3	9.3	3.4	2.5
Kobe	15.6	3.7	5.8	2.1	4.1
Hiroshima	19.2	2.9	10.6	2.0	3.7
Oita	12.5	3.0	4.6	2.1	2.9
J1 average	25.3	5.3	11.5	2.8	6.0

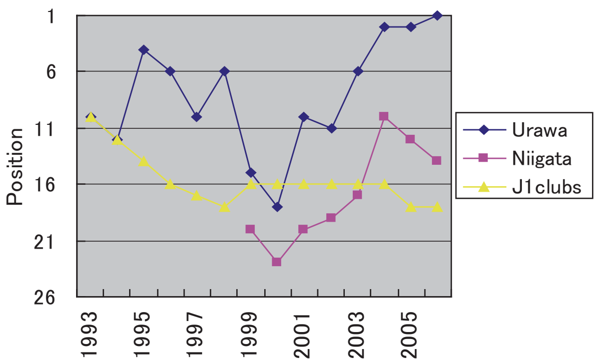
simply a means by which the club's parent company covers a financial loss at the club. Table 7 provides a breakdown of revenue sources by club in the 2005 season (the data comes from J. League website). Urawa is the largest revenue generator in the league, while Niigata is one of the lowest revenue generators and significantly more dependent on gate revenue than the average club (45% compared to 20% on average).

The success of both clubs is associated with a significant improvement in league performance since the World Cup. Urawa was in fact relegated to J2 in 2000, but won promotion back to J1 the following season. Progress of its competitive level can be seen in Fig. 7. In 2006 Urawa won its first J. League title, after coming second in each of the two previous seasons. Its financial strength continues to underpin the acquisition of a strong playing squad. By contrast, Niigata success has not been based on a dominant performance in the league that it entered in J2 in 1999. It was only in 2004 that Niigata was promoted to J1, and since then has maintained no better than a stable position in the bottom half of the division.

Discussion and Conclusions

In this chapter we have identified a significant and positive World Cup effect relating to attendance at professional J. League soccer. The effect appears to be present for both clubs that were given new stadiums funded by local authorities and for other clubs in the league, although the effect is much larger for the former than the

Fig. 7 Position of Urawa and Niigata in J. League. (J1 clubs indicates the number of clubs in top division)



latter. Given that this is essentially a private benefit, it is striking that most of the stadium funding came from public funds. However, some caution is called in for interpreting our results. The World Cup effect appears significant, but the impacts appear to be spread over time while the event itself takes place in a single year. In theory there are many other effects that could have impacted in demand for the J. League at the same time as the World Cup, and hence it would be hazardous to infer direct financial benefits.

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Foreign Players, Competitive Balance, and Fan Demand in the Korean Basketball League

Hailey Hayeon Joo and Taeyeon Oh

Abstract This chapter investigates the Korean Basketball League (KBL). We first review the history of the KBL, and compare its features with those of its predecessor amateur league as well as those of the US professional league National Basketball Association (NBA). In particular, we examine comprehensively the effect of employing foreign players on the business of the KBL. The introduction of foreign players improved not only the absolute athletic level but also the competitive balance of the league. In fact, we found that more stringent regulation of the participation rate of foreign players in individual games resulted in reduced competitive balance for the league. Moreover, fans reacted negatively and immediately to deteriorating competitive balance across the KBL. Fans' potential preferences for player nationalities were not statistically confirmed.

Introduction

Korea's men's professional basketball league (i.e., the Korean Basketball League (KBL)) was launched in 1997. The most noticeable distinction between the KBL and its amateur league predecessor is the presence of foreign players. The introduction of foreign players (mostly from the USA) in the first season dramatically improved not only the league's absolute athletic level, but also its competitive balance.[1] Subsequently, as the KBL restricted the participation rate of foreign players in each individual game through annual rule amendments, the competitive balance declined (see Fig. 1).

In the sports economics literature, various dispersion measures have been constructed based on end-of-season winning percentages, which are used to estimate the competitive balance of a professional league. Noll (1998), Scully (1989),

[1] The relative standard deviation of winning percentage (a measure of competitive balance) has dropped by more than half from 1996 (5.460) to 1997 (2.214).

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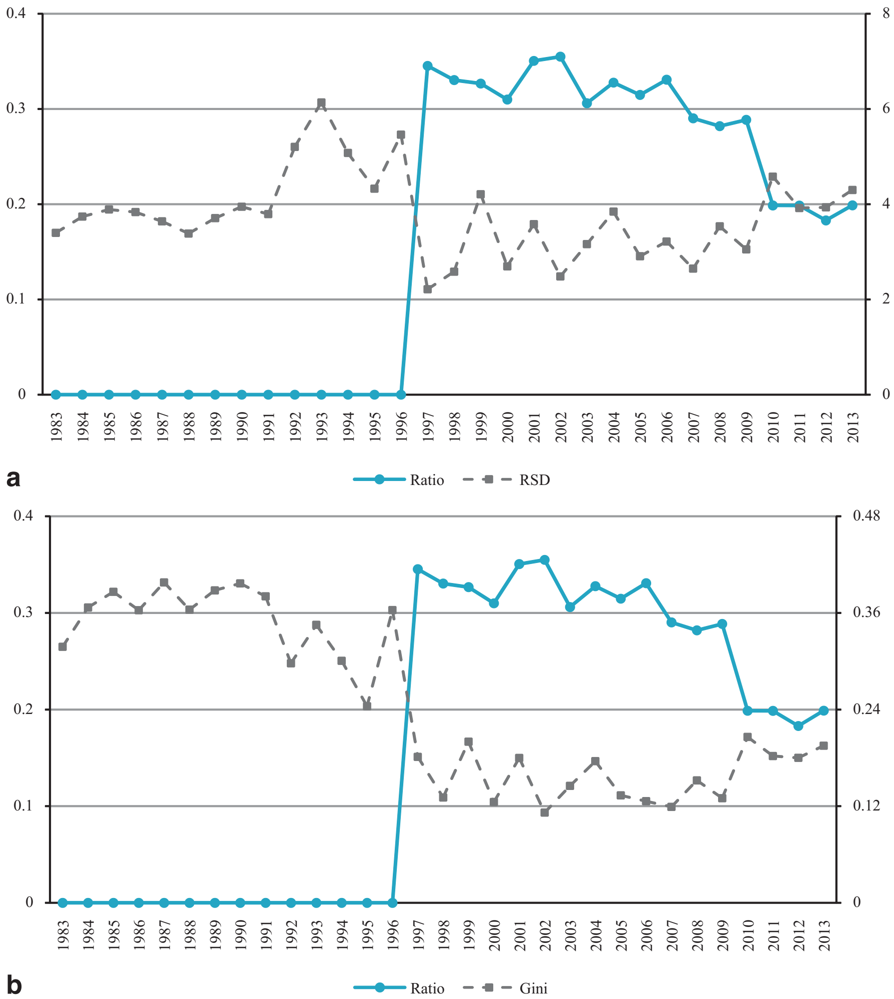

Fig. 1 Competitive balance and ratio of foreign players' playing time to total time **a** RSD **b** Gini

Vrooman (1995), Fort and Quirk (1995), and Quirk and Fort (1997) adopted the relative standard deviation (RSD) of winning percentages which is the ratio of the actual to idealized standard deviation. Schmidt and Berri (2001, 2002) used the Gini coefficient. In addition, the Herfindahl–Hirschman index (Depken 1999) and concentration ratios (Koning 2000) have been used to assess competitive balance. In this chapter, we adopt the RSD, the most commonly used competitive balance measure, for our analysis along with using the Gini coefficient for comparison.

According to the uncertainty of outcome hypothesis, competitive balance is related to seasonal uncertainty, which is known to increase the average attendance of a professional league (Szymanski 2003; Noll 1974; Jennett 1984; Cairns 1987; Whitney 1988; Kuypers 1996; Baimbridge et al. 1996; Schmidt and Berri 2001; Fort and Lee 2006, 2007; Mills and Fort 2014; Lenten 2009, 2013). Noll (1974) and Cairns (1987) found a strong relationship between close championship races and attendance rates using Scottish soccer data, while Kuypers (1996) and Baimbridge et al. (1996) demonstrated a similar finding using soccer data from the UK. Schmidt and Berri (2001) showed that improved competitive balances over specific years increased attendance for US Major League Baseball (MLB) games. Fort and Lee (2006) found stationarity in time series data for MLB attendance and competitive balance. Fort and Lee (2007) showed that not all structural changes resulted in break points in competitive balance, a finding extended by Mills and Fort (2014).

The employment of high-quality foreign players can contribute significantly to the professional sport business by boosting competitive balance (Fort and Quirk 1995; Szymanski 2003; Staudohar 1996; Daly and Moore 1981). Fort and Quirk (1995), and Staudohar (1996) showed that a reverse-order rookie draft in the US National Football League (NFL, for American football) improved competitive balance, while Daly and Moore (1981) revealed the same finding for the MLB. However, if sport fans have a preference for specific player nationalities, such as valuing domestic players over foreign players, demand among fans for a given team can presumably be correlated either negatively with the mean efficiency level of its foreign players or positively with that of its domestic players (Burdekin et al. 2005). Burdekin et al. (2005) showed that the top-performing white players in the US National Basketball Association (NBA) tend to play in cities with a higher proportion of white residents. As such, the positive impact of foreign players on fan attendance, as carried by enhanced competitive balance, may be offset by fan biases against foreign players.

This chapter examines comprehensively the effect of employing foreign players on the business of the KBL. First, we explore the relationship between the average playing time of foreign players and the league's competitive balance. Next, we evaluate the impact of competitive balance on demand among fans for each team. Last, we consider whether there is preference among consumers for specific player nationalities. The empirical results show that longer playing times for foreign players are associated with competitive balance. Korean basketball fans responded spontaneously and positively to improved competitive balance. However, fans' potential preferences for domestic players over foreign players were not statistically confirmed.

History of Korean Men's Basketball[2]

As it did for other Asian countries, the global Young Men's Christian Association (YMCA) brought basketball to Korea early in the twentieth century—in 1903, specifically. The first recorded game was played in 1907, but Korean basketball did not develop significantly until the Korean Basketball Association (KBA) was founded in 1931.[3] The KBA became an official member of the International Basketball Federation in 1948. Since then, the Korean national basketball team has participated regularly in many international events.

The largest milestones in Korean men's basketball history occurred in 1983 and 1997. In 1983, the men's amateur league merged with the university league to create the "Basketball Feast," which stimulated deeply the interest of Korean basketball fans and led them in unprecedented numbers to basketball arenas. The Basketball Feast continued until 1997, when eight teams from that amateur league were absorbed into the new KBL professional league.[4,5] The KBL's first season began with those eight teams in 1997; two more teams were added in 1998.[6]

The KBL led several institutional changes related to previous Basketball Feast practices. We place these into the categories of game rule reform and human resource management. As far as rule reform, the new game rules resemble those of the NBA. For example, games are played in four quarters of 10 mins each, instead of two 20-min halves.[7] In addition, the KBL adopted other NBA rules such as the use of a shot clock, paint zone, team foul rule, and half-line violation, along with prohibition of a zone defense.[8]

The new KBL rules regarding human resource management governed foreign players, a reverse-order draft, free agency, and a salary cap. First, the employment of foreign players was enabled in the KBL, but regulated on several dimensions. For example, the maximum number of foreign players per team was set at two, except for the year 2012, when only one foreign player was allowed per team. The maximum height of foreign players was also regulated from 1997 to 2009. Moreover, since 2003, the KBL established detailed rules about foreign players' participation level in individual games, with regulation of their playing time becoming more

[2] This information is from the official Internet homepages of the KBL (http://www.KBL.or.kr) and the KBA (http://www.koreanbasketball.or.kr).

[3] The former name of the KBA was the "Chosun Basketball Association," which was used until the Korean government was established in 1948.

[4] The Basketball Feast's former name was "Jumbo Series."

[5] After eight teams left for the KBL, the amateur league has consisted only of university teams and an army team.

[6] As far as schedule, each team played 3-round games 7 times (21 games total) in the postseason of 1997. Between 1998 and 2001, this changed to 5 rounds 9 times (45 games total). Finally, new rules were set in 2002: Each team played 6-round (3 home and 3 away) games 9 times (54 games total) in the postseason. Based on the regular-season results, six out of ten teams entered the playoff and the final winner was determined through the tournament.

[7] NBA games are four quarters in length, but each lasts 12 mins rather than 10.

[8] The zone defense is currently allowed in NBA.

severe over time. For example, only one foreign player was allowed to play in the second quarter of each game from 2003 to 2006; this rule was extended to the third quarter from 2007 to 2009.[9] Finally, from 2010 to 2013, only one foreign player was permitted to play in *each* quarter.

Second, under a reverse-order draft system, lower-ranked teams (based on the prior season's results) were given priority to recruit rookie players. For example, teams ranked from 7th to 10th in the previous season could draft a rookie in the 1st–4th selections; teams ranked from 3rd to 6th could designate rookies in the 5th to 8th selections; the runner up could draft a rookie in the 9th selection; and the season champion could designate a rookie in the 10th selection. Third, free agency (FA) was permitted. A player qualified as a FA if he played full-time for at least the five preceding seasons. There was also the stipulation of compensation for teams losing a FA. If a team lost a top-30 player (based on prior season's annual salary) to FA, it was compensated with either 100 % of the player's salary plus a substitute player, or 300 % of the salary alone. Last, a salary cap was introduced. In the preceding amateur league, players received their salaries on the basis of the team owner firm's (e.g., Samsung or Hyundai) salary system. However, the KBL adopted a new salary system which resembled that of the NBA in many respects, including a salary cap as a key feature. The KBL set a limit for the salary sum of the first-string players (except foreign or training players). The salary cap was 1 billion Korean won (KRW) in 1997, fluctuated in succeeding years, and was set as 2.1 billion KRW in 2013.

Foreign Players and Competitive Balance

This section explores how the rule amendments for foreign players have influenced competitive balance in the KBL. In particular, we estimate the impact of the average playing time of foreign players on competitive balance measures by exploiting data for teams' winning probabilities and foreign players' average playing time in the regular seasons of the professional and former amateur leagues, which covers the period from 1983 to 2013.[10,11] The information in question is from the KBA and KBL offices: we collected the amateur league (i.e., Basketball Feast) data from KBA yearbooks; data from the professional league are from the official game results the KBL recorded.

Historically, a native Korean player taller than two meters is rare. Since the height of basketball "big men" (centers or forwards) is positively related to team wins, a team that succeeds in scouting taller big men has an advantage. In fact, the

[9] However, substitutions were allowed. Hence, from 2003 to 2006, both foreign players could play in the second quarter, but could not simultaneously. From 2007 to 2009, both foreign players could play in the first and fourth quarters, but the two were not allowed simultaneously in the second and third.

[10] Using the winning probabilities, we finally derive competitive balance measures.

[11] Since there were no foreign players in the amateur league, the average running times of foreign players are zero from 1983 to 1996, that league's duration.

postseason winners in the former amateur league were limited to the few teams with taller big men and, as a result, competition among the teams was quite unbalanced.[12] After the KBL was launched and foreign players were introduced, the height of big men across the league became more uniform, which improved competitive balance dramatically.

There are several existing methods to measure competitive balance in a professional sports league (Noll 1998; Scully 1898; Vrooman 1995; Fort and Quirk 1995; Quirk and Fort 1997; Schmidt and Berri 2001, 2002; Lenten 2009, 2013). Following the literature, we adopt the RSD, the most widely used measure of competitive balance. For the sake of comparison, we also used another competitive balance measure: the Gini coefficient.

Since the actual standard deviation of winning percentage is influenced by the number of games in a season, researchers prefer to use the RSD which is the ratio of the actual to idealized standard deviation, where the latter is computed as 0.5 over the square root of the total number of games in a season (Fort and Quirk 1995). The RSD is defined to be greater than or equal to one. A lower RSD coefficient indicates more balanced competition.

The Gini coefficient is calculated as follows:

$$G_t = \left(1 + \frac{1}{N_t}\right) - \frac{2}{N_t^2 \mu_t}\left(x_{1,t} + 2 \cdot x_{2,t} + 3 \cdot x_{3,t} + \ldots + N_t \cdot x_{N,t}\right), t = season, \tag{1}$$

where G is the Gini coefficient, N is the number of teams, x_j is the winning percentage of the j-th ranked team, and μ is the mean value of x.[13] G is defined to be between 0 and 1 (inclusive). As for the RSD, a lower Gini coefficient indicates more balanced competition. The inequality of team wins can be viewed as analogous to that of income allocations in economics, based on which Schmidt and Berri (2001) propose the Gini coefficient as a competitive balance measure. However, as Utt and Fort (2002) point out, the Gini coefficient tends to understate inequality for winning percentages in the league, if there are unbalanced schedules and interdivisional play. Since Korea's former amateur basketball league has those characteristics, the Gini coefficients that we use here are presumably imprecise.

We compute both the RSDs and Gini coefficients using end-of-season winning percentages from 1983 to 2013, with the period from 1983 to 1996 representing the amateur league's duration and that from 1997 to 2013 representing the professional league's.[14] Table 1 presents the descriptive statistics for the RSDs and Gini coefficients.

The rules for foreign players in the professional league were amended annually, but the most major modifications occurred in 2003, 2007, and 2010. Two foreign

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[12] For example, the KIA and Yonsei University, which had centers taller than two meters, were dominant in the amateur league.

[13] For example, the first-ranked team has the highest winning percentage of the league.

[14] 1983 is the first year from which the data are available.

Table 1 Descriptive statistics for competitive balance measures

	Mean	SD	Min	Max	Obs.
RSD					
Amateur league (1983–1996)	4.253	0.861	3.384	6.138	14
Professional league (1997–2013)	3.345	0.709	2.214	4.579	17
Both leagues (1983–2013)	3.755	0.894	2.214	6.138	31
Gini					
Amateur league (1983–1996)	0.351	0.045	0.244	0.398	14
Professional league (1997–2013)	0.157	0.032	0.112	0.206	17
Both leagues (1983–2013)	0.246	0.106	0.112	0.398	31

Table 2 Descriptive statistics for the ratio of foreign players' playing time

	Mean	SD	Max	Min	Obs.
Ratio of foreign players' playing time	0.290	0.059	0.355	0.183	17

players were allowed per team, but there were restrictions on how many foreign players could play in each quarter of a game. From 2003 to 2006, both foreign players (assuming a team had two) could play in the first, third, and fourth quarters, but could not play simultaneously in the second. From 2007 to 2009, both foreign players could play in the first and fourth quarters, but the two were not allowed simultaneously in the second and third. Since 2010, only one foreign player is allowed on court at in *any* moment of a game. Such regulation changes have gradually reduced the average playing time (or running time) of foreign players. As such, we consider the ratio of all foreign players' running time on a team to the total running time of five players rather than using either simple dummy variables indicating the major rule change or the maximum time a typical foreign player can potentially play. To determine the ratio, we first sum the average playing times during the regular season of all foreign players for each team and each season, then divide it by 200 min (five players times 40 mins), and finally average it by season. Table 2 presents the descriptive statistics for these ratios.

In order to evaluate the contribution of foreign players to competitive balance, we conduct ordinary least squares (OLS) estimation by exploiting the time-series data of our two computed competitive balance measures and the ratios of foreign players' playing time (see Fig. 1).[15] Table 3 presents the estimation results. Columns (a) and (b) in Table 3 show the results for the amateur and professional leagues, while columns (c) and (d) are for the professional league only. For the dependent variables, columns (a) and (c) use the RSDs, whereas columns (b) and (d) use the Gini coefficients.

Across all columns in Table 3, the impact of the contributed playing time of foreign player is negative and statistically significant at any conventional level. That is, employing foreign players improves competitive balance. Also, the longer foreign players are on the court, the more competitively balanced the league

[15] Our AR(p) tests found no serial correlation.

Table 3 Estimation results for competitive balance and foreign players' playing time

	Classification			
	(a)	(b)	(c)	(d)
Period	Both leagues (1983–2013)		Professional league (1997–2013)	
Dependent variable	RSD	Gini	RSD	Gini
Ratio[a]	−3.497** (0.870)	−0.635** (0.048)	−7.903** (2.371)	−0.261* (0.122)
Constant	4.312** (0.191)	0.346** (0.010)	5.641** (0.702)	0.233** (0.036)
R-square	0.336	0.853	0.387	0.183
Obs.	31	31	17	17

The standard errors are in parentheses

* and ** indicate significance at the 5 % and 1 % levels, respectively

[a] Since there were no foreign players in the amateur leagues, the ratios from 1993 to 1996 are 0

becomes. Actually, the choice of competitive balance influences which model has a better fit. For example, when we use the RSD for competitive balance, column (c) has a higher R-square than column (a). On the other hand, when we use the Gini coefficient, column (b) has a higher R-square than column (d). However, the Gini coefficients computed for the amateur league are likely to be imprecise, making the RSD a better measure of competitive balance. Thus, column (c) represents our model of choice.

Rottenberg (1956) and Gould (1983) showed theoretically that the winning probability of a professional team depends on the underlying talents of young players; Schmidt and Berri (2003) provided empirical support for this. Based on their findings, Schmidt and Berri (2003) argued that in order to improve competitive balance, a professional league should not modify the distribution of players already within it but recruit players of high quality from outside the league. Thus, our empirical findings are consistent with key works in the existing literature.

Further, there are debates regarding costs and benefits of the employment of foreign players. The most widespread criticism is that it can influence the preferences of Korean junior athletes when they choose positions. In fact, top basketball players at the middle and high school levels have become more likely to choose guard over center, which reflects their concerns about competing with tall foreign players for spots with professional teams. This skewed preference observed among junior basketball players will potentially cause a significant shortfall of capable Korean centers in the near future and lower the performance of the Korean national team in international matches; that, in turn, may have a negative impact on attendance in the KBL. To address this criticism, the KBL eliminated one recruiting slot for foreign players for each team in 2010. However, even though this protective policy may be necessary to motivate gifted young players to choose diversified positions, excessive regulation in general can weaken the league's competitive balance, as reflected in its overall quality. As shown in Fig. 1, both the RSD and Gini coefficient rose (i.e., indicated lower competitive balance) after regulations for recruitment of foreign players tightened in 2010.

Table 4 Descriptive statistics in the panel data set

	Mean	SD	Min	Max	Obs.
Attendance (in millions)	0.095	0.040	0.016	0.189	157[a]
Winning probability	0.500	0.144	0.067	0.815	158
Regional population (in millions)	4.685	3.780	0.991	11.937	158
Real per-capita income (in thousand KRW of 2005)	18.133	7.329	9.151	43.596	156[b]
RSD	3.299	0.660	2.214	4.579	158
Gini	0.155	0.030	0.112	0.206	158

[a] The attendance data for Anyang SBS Stars is missing in 1997
[b] The regional GDP data for Ulsan Mobis Phoebus are not available in 1997 and 1998

Competitive Balance and Fan Demand

This section examines whether the competitive balance of the league influences a team's attendance positively. To address this question, we construct a panel data set from variables obtained from the KBL and Statistics Korea. The KBL office has teams' winning probabilities and attendance data for all end-of-season winning percentages. Also, we collected the annual population and real per-capita income data of a team's representative region from Statistics Korea's webpage.[16] Then we merge the team's basketball data for each season with its regional variables *one year ahead of the season*, so the final data set covers the seasons from 1997 to 2012.[17] Therefore, we cannot take into consideration the change in competitive balance from the former amateur league to the present professional league, but can examine competitive balance within the professional league.

Following Scully (1989) and Schmidt and Berri (2001), we estimate a demand function of attendance as follows:

$$ATT_{jt} = \alpha + \beta ATT_{j,t-1} + \gamma WP_{jt} + Z'_{jt}\lambda + \delta CB_t + S_j + \varepsilon_{jt}, \quad j = \text{team}, t = \text{season}, \quad (2)$$

ATT is the end-of-season attendance, *WP* is the end-of-season winning probability, *Z* is the vector of regional variables (e.g., population and real per-capita income), and *S* is the team fixed effect, all of which are related to the team.[18] *CB* is the competitive balance, as represented by either the RSD or Gini coefficient. ε is the idiosyncratic error term. Table 4 provides the descriptive statistics.

Using the seeming unrelated regression (SUR) method, we estimate fan demand in Eq. (2). Table 5 provides the estimation results. Columns (c) and (d) use the natural log of attendance, while columns (a) and (b) use the original values. In addition, columns (a) and (c) use the RSD, whereas columns (b) and (d) use the Gini coefficient.

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[16] We match a team and its representative region on the basis of the highest regional classification in Korea (i.e., seven metropolitan cities and eight provinces that are mutually exclusive and collectively exhaustive over the Korean Peninsula).

[17] The team-level attendance data are not available for the former amateur league, and the regional variables are not open to the public for the years after 2011.

[18] In contrast to Scully (1989) and Schmidt and Berri (2001), we do not include ticket prices, because there is no variation in these prices across teams.

Table 5 The SUR estimation results for competitive balance and attendance

	Classification			
	(a)	(b)	(c)	(d)
Dependent variable	Attendance		Log of attendance	
Attendance in the prior season (in millions)	0.378**(0.061)	0.363**(0.060)	0.410** (0.049)	0.393** (0.048)
Winning probability	0.109** (0.012)	0.109** (0.012)	1.207** (0.125)	1.206** (0.123)
Regional population (in millions)	0.001 (0.002)	0.001 (0.002)	0.047* (0.021)	0.047* (0.021)
Real per-capita income (in thousand KRW of 2005)	0.004** (0.001)	0.004** (0.001)	0.041** (0.007)	0.040** (0.007)
RSD	−0.008** (0.003)		−0.102** (0.028)	
Gini		−0.172** (0.052)		−2.236** (0.547)
Constant	−0.018 (0.012)	−0.015 (0.012)	5.904** (0.518)	6.113** (0.517)
R-square	0.758	0.762	0.787	0.792
Obs.	146	146	146	146

The standard errors are in parentheses

* and ** indicate significance at the 5 % and 1 % levels, respectively

Across all columns in Table 5, the effects of prior-season attendance, winning probability, and real per-capita income are positive and statistically significant at the 1 % level. However, the impact of population is positive and statistically significant only in columns (c) and (d). That is, the population effect is not robust. Interestingly, as shown in columns (a) through (d), both the RSD and Gini coefficient have a negative impact on attendance. That is, the fans react spontaneously and positively to balanced competitiveness. Since the models with the logs of attendance have a higher R-square, we propose to use the models represented by columns (c) and (d) for further estimation.

As discussed earlier, the KBL gradually reduced the participation rate of foreign players in each individual game, which lowered competitive balance in the league. In turn, the worsened competitive balance, as shown in Table 5, had a negative impact on fan demand. That is, the strengthened regulation of foreign player participation lessens not only the quality of games across the league but also the demand of fans for each team. Thus policy changes regarding foreign players has a negative impact on KBL fans and, possibly, on the league's economic stability in the short term.

Foreign Players' Efficiency and Fan Demand

This section delves a bit deeper into the foreign player issue to investigate fans' potential preferences for player nationalities. That is, we examine whether there is an asymmetry related to change in fan attendance when either foreign or domestic players perform well. For this analysis, we consider the influence of the average efficiency level of foreign or domestic players on fan demand. We use the records of all players acquired from the KBL office, along with the other variables used earlier. Thus, the final data set covers the seasons from 1997 to 2012.

In order to measure the efficiency level of a player, we first compute his unadjusted player efficiency rating (UPER) for each season:[19]

$$
\begin{aligned}
UPER = {} & (1/MIN) \\
& \times [3P + (2/3) \times AST + (2 - FACTOR \times (tmAST / tmFG)) \times FG \\
& + (0.5 \times FT \times (1 + (1 - (tmAST / tmFG)) + (2/3) \times (tmAST / tmFG))) \\
& - VOP \times TO - VOP \times DRBP \times (FGA - FG) \\
& - VOP \times 0.44 \times (0.44 + (0.56 \times DRBP)) \times (FTA - FT) \\
& + VOP \times (1 - DRBP) \times (TRB - ORB) + VOP \times DRBP \times ORB \\
& + VOP \times STL + VOP \times DRBP \times BLK \\
& - PF \times ((lgFT / lgPF) - 0.44 \times (lgFTA / lgPF) \times VOP)],
\end{aligned}
\tag{3}
$$

[19] The UPER is the intermediary product of player efficiency rating (PER) developed by an NBA columnist. Because a team's pace is necessary to compute the PER but not publicly available, we use the UPER to measure efficiency.

Table 6 Descriptive statistics for average efficiency levels

	Mean	SD	Min	Max	Obs.
Mean UPER of all players	8.101	1.478	3.793	10.698	158
Mean UPER of foreign players	15.957	5.778	6.042	30.354	158
Mean UPER of domestic players	6.539	1.389	2.443	9.491	158

tm indicates team, *lg* indicates league, *MIN* is the average number of minutes played, 3*P* is the total number of three-point field goals made, *AST* is the total number of assists, *FG* is the total number of field goals made, *TO* is the total number of turnovers, *FGA* is the total number of field goals attempted, *FTA* is the total number of free throws attempted, *FT* is the total number of free throws made, *TRD* is the total number of rebounds, *ORD* is the total number of offensive rebounds, *STL* is the total number of steals, *BLK* is the total number of blocks, and *PF* is the total number of personal fouls. *FACTOR*, *VOP*, and *DRBP* are computed, respectively, as follows:

$$
\begin{aligned}
FACTOR &= (2/3) - (0.5 \times (lgAST / lgFG)) / (2 \times (lgFG / lgFT)) \\
VOP &= lgPTS / (lgFGA - lgORB + lgTOV + 0.44 \times lgFTA) \\
DRBP &= (lgTRB - lgORB) / lgTRB
\end{aligned}
$$

Next, we average the UPER level of foreign players and that of domestic players by team for each season. Table 6 provides the descriptive statistics for the mean UPER measures. According to Burdekin et al. (2005), in order to reflect fans' racial preferences, US professional teams recruit players from other countries in a way that tends to match the racial distribution of the team with that of the region the team represents. If this finding is applicable to the KBL, fans may show an asymmetric preference for players' performance by nationality, resulting in asymmetric attendance patterns with respect to the combination of players' nationality and efficiency. Thus, in order to evaluate whether the average efficiency of foreign or domestic players asymmetrically influences a team's ticket sales, we modify Eq. (2) as follows:

$$ATT_{jt} = \alpha + \beta ATT_{j,t-1} + \gamma WP_{jt} + Z'_{jt}\lambda + S_j + \theta MPER^{p}_{j,t} + \delta CB_t + \varepsilon_{jt}, \qquad (4)$$

j = team, t = season, p = F, D, $MPER^{\mathrm{F}}$ is the mean UPER level of a team's foreign players and $MPER^{\mathrm{D}}$ is the mean UPER of the team's domestic players. The other variables in Eq. (4) are the same as those in Eq. (2). Since the UPER is the per-minute efficiency measure, the participation rate of foreign players is independent of either $MPER^{\mathrm{F}}$ or $MPER^{\mathrm{D}}$. In that sense, the additional inclusion of $MPER^{p}$, p = F, D, in Eq. (3) does not cause any multicollinearity problem.

We again use the SUR method to estimate Eq. (3). The estimation results are given in Table 7. All columns use the natural log of attendance figures. For the competitive balance measure, columns (a) and (b) use the RSDs, while columns (c)

Table 7 Relationship between attendance and foreign players' efficiency

	Classification			
	(a)	(b)	(c)	(d)
	Log of attendance			
Attendance in the prior season (in millions)	0.397** (0.050)	0.398** (0.049)	0.381** (0.049)	0.378** (0.049)
Winning probability	1.214** (0.124)	1.200** (0.124)	1.213** (0.123)	1.200** (0.123)
Regional population (in millions)	0.041 (0.022)	0.046** (0.021)	0.042 (0.021)	0.046* (0.021)
Real per-capita income (in thousand KRW of 2005)	0.042** (0.007)	0.041** (0.007)	0.041** (0.007)	0.040** (0.007)
RSD	−0.102** (0.028)	−0.103** (0.028)		
Gini			−2.213** (0.544)	−2.259** (0.542)
Mean UPER of foreign players	−0.004 (0.003)		−0.004 (0.003)	
Mean UPER of domestic players		0.024 (0.014)		0.025 (0.015)
Constant	6.126** (0.537)	5.890** (0.513)	6.313** (0.536)	6.101** (0.512)
R-square	0.790	0.791	0.794	0.796
Obs.	146	146	146	146

The standard errors are in parentheses
* and ** indicate significance at the 5 % and 1 % levels, respectively

and (d) use the Gini coefficients. For the mean UPER measure, columns (a) and (c) use that of foreign players, while columns (b) and (d) use that of domestic players.

Similar to the results of columns (c) and (d) in Table 5, the effects of prior-season attendance, winning probability, and real per-capita income are positive and statistically significant at the 1 % level across all columns in Table 7. The impact of population is not robust. Also, both the RSD and Gini coefficient have a negative impact on attendance. Inclusion of the variable related to players' efficiency does not change the results in Table 5.

The effect of the mean UPER of foreign players is negative but statistically insignificant at conventional levels. Also, the effect of the mean UPER of domestic players is positive but statistically insignificant at conventional levels. Since the impact of foreign and domestic players' average efficiency is not significant, we cannot confirm consumers' preference for the nationality of players in the KBL.

Conclusion

This chapter examined comprehensively the effect of employing foreign players on the business of the KBL. According to our empirical results, the introduction of foreign players improves the league's competitive balance. However, in order to avoid the criticism that the employment of foreign players distorts the preferences (i.e., for positions of interest) of young Korean basketball players and would potentially have a negative influence on the overall development of Korean basketball, the KBL tightened regulations for foreign players' participation in individual games. This stronger regulation led to the increase in RSD (i.e., competitive *im*balance) for the league, which in turn was observed to harm attendance. However, consumers' potential preference related to the performance of domestic or foreign players was not statistically confirmed.

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Outcome Uncertainty, Governance Structure, and Attendance: A Study of the Korean Professional Football League

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Abstract In this study, we comprehensively analyzed the attendance determinants of the Korean professional football league (K-League) using panel data from 15 individual teams during the 1987–2011 seasons. The K-League has some unique characteristics that other leagues, particularly those in North America and Europe, do not possess. The governance structure is heterogeneous, including both multiple-supporter-owned and major-corporation-owned teams. Additionally, the regulation authority shifted over the time period studied from broadly regional to city based. The results of this study suggested that the *home-and-away match* system with a host city attracted greater attendance than the system with multiple host cities, and the supporter-owned teams attracted more fans than did large-company-owned clubs when other attendance determinants were held constant. Outcome uncertainty for attendance determination was significant, not only statistically but also economically.

Introduction

The Korean professional football league (K-League), which was organized in 1983, is one of the oldest professional football leagues in East Asia.[1] It began with five member teams and has grown to 16 teams in 2013. Although the K-League is one of major professional sports leagues in Korea, only a handful of attendance studies have been carried out (Kim et al. 2007; Won and Kitamura 2006). In contrast, both European football leagues (Dobson and Goddard 1992; Simmons 1996; Szymanski and Kuypers 1999; Koning 2000; García and Rodríguez 2002; Szymanski and

[1] The first professional football league in East Asia was the Hong Kong Professional Football League, founded in 1908. The Japan Professional Football League and the China Professional Football League were founded in 1992 and 1994, respectively.

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Smith 2002; Forrest and Simmons 2006; Buraimo 2008) and the Korean Baseball Organization (KBO) (Lee 2002, 2011; Ahn and Lee 2007; Lee and Smith 2006; Kong and Nam 2012; Kim 2008) have been analyzed extensively. In this work, we set out to fill this gap by studying attendance determinants in the K-League. We analyzed several known sports economics issues, including the uncertainty of outcome hypothesis (UOH), the substitution effect, and the stadium effect. We also analyzed characteristics that have not been analyzed previously, including the influence of governance structure on attendance and the influence of regulations that define the host region.

The UOH, which was originally proposed by Rottenberg (1956), has been studied extensively for football leagues. Szymanski (2003) reviewed empirical studies of the UOH published prior to 2002 and found both strong and weak support for the UOH in Major League Baseball (MLB) but only weak support and no support in the English Football Premier League (EPL). Additionally, Baimbridge et al. (1996) found no significant effect of outcome uncertainty on attendance determination in the EPL. Czarnitzki and Stadtmann (2002) analyzed attendance in the German football league (Bundesliga) by imposing a quadratic form of home-win probability and found no support for the UOH.

On the other hand, statistical significance of the UOH has been observed often in empirical studies of North American sports leagues. For example, Lee and Fort (2008) subdivided uncertainty of outcome into three dimensions (game uncertainty, playoff uncertainty, and consecutive season uncertainty) and observed that the playoff uncertainty[2] effectively predicted attendance in MLB, and Rascher and Solmes (2007) presented empirical evidence of its effectiveness in predicting National Basketball Association (NBA) attendance. In summary, statistically, outcome uncertainty is not a significant predictor of attendance in European football leagues but is an important determinant of fan demand in North American sports leagues.

This disparity may occur because the purpose of European football leagues is multifaceted, whereas North American sports leagues have a single purpose, moving teams forward to domestic-only playoffs. EPL fans are interested not only in the race toward the league championship but also in demotion (known as relegation) and promotion and in a berth in the Union of European Football Associations (UEFA) Champions League. However, most MLB fans are only interested in the pennant race. Therefore, game outcome uncertainty, which is relevant to the pennant race but not to the uncertainties of relegation or the Champions League berth, may be relatively less important to European fans; in other words, outcome uncertainty is only one of many determinants of EPL fans' attendance.

Furthermore, because of the problem of omitted variables, outcome uncertainty may not be a statistically significant determinant of fan demand in the EPL even if it is a significant determinant of attendance. Uncertainties in relegation and in the Champions League berth were omitted in the attendance regression analyses in most previous empirical studies, yet they are likely correlated with game outcome uncertainty. The empirical findings of Jannett (1984) adopted the championship/

[2] Playoff uncertainty represents the closeness of the race in a regular season for the playoffs or for the championship.

relegation significance of each game as an uncertainty measure in a study of the Scottish League Football and found evidence of the UOH, thereby supporting our suggestion that omission of the specified variable may explain the lack of evidence for the UOH in many EPL studies. However, the disparity in determinants of attendance between leagues may also arise simply because football and baseball are very different sports. For example, football is a relatively low-scoring game; games tend to be tense throughout, although the team with superior talents typically wins the game in the end. On the other hand, baseball is a relatively high-scoring game in which a superior team may earn many runs, and the outcome may be determined early in the game.

Because the K-League is a one-division league, it has not been characterized by relegation throughout its history. The Asian Football Confederation (AFC) Champions League was founded in 2002/2003 and was renewed recently in 2009 as its total budget increased from US$ 4.3 million in 2008 to US$ 21.8 million in 2009 (in 2012 dollars). However, the AFC Champions League has not drawn much interest from Korean fans. For example, the average attendance of AFC Champions League games (in Group Stage games) held in Korea was only 7145 in 2013. Thus, generally speaking, the K-League member teams have the single major purpose of achieving the status of league champion, and analysis of the UOH in the K-League may shed light on the implications for the disparity between attendance determinants in the EPL and in the MLB.

There has also been substantial alteration in governance structure in the K-League. Until the 2003 season, all member teams of the K-League were supported by parent companies, such as Samsung. At that time, a change in the governance structure occurred, in which expansion teams, such as Daegu FC, were established that are not associated with parent companies but are owned instead by multiple individual supporters. Corporate-owned K-League teams have been generally reluctant to adopt a localization model that focuses on marketing to home-city fans because the parent companies are typically national or international. This historical reluctance to target a local fan base may have had a detrimental effect on the accumulation of fan loyalty and, eventually, attendance. On the other hand, the supporter-owned clubs are, naturally, much more focused on home fan marketing because most or all owners reside in the home cities. Yet, teams with parent companies are typically wealthier than teams owned by individual supporters, thus enabling them to attract and maintain better talent and display greater winning performance on a perennial basis.[3] Such long-term success may extend the fan-base and foster loyalty. The dual governance structure in the K-League allowed for the analysis of the influence of governance structure on attendance.

In addition to the UOH and the influence of governance structure on attendance, substitution effects were analyzed. As the regular seasons of the K-league and the KBO overlap significantly,[4] we were uniquely able to study the substitution effect

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[3] The average winning percentages of teams with parent companies and supporter-owned teams were 0.529 and 0.404 during 2002–2011, respectively.

[4] The 2012 regular season of the KBO was from 7 April to 6 October, and that of the K-league was from 3 March to 1 December.

between football and baseball (Szymanski and Sun 2013).[5] Additionally, many EPL games are broadcast on live television in Korea, which may increase fan interest in the K-League; thus, the substitution effect of the EPL was also examined.[6] The K-League adopted an extended home-city system before shifting to a more conventional home-city system in 1995. Some teams adopted a home-province system, holding games in different cities in their home provinces. This home-province system may have extended their fan base, but may also have been detrimental to fan loyalty. This shift in the regulation structure provides an opportunity to study a situation that the North American and European sports leagues have never experienced. The analysis of the influence on attendance of this regulation change will shed light on important policy implications for sports leagues to consider.

In this study, we comprehensively analyzed the attendance determinants of the K-League using the panel data of individual teams from 1987 to 2011. We provide a brief history of the K-League for better comprehensive understanding of the league's characteristics, and then we briefly review the competitive balance and attendance of the K-league. We then present our empirical model and results. Finally, we discuss the implications of our analysis results.

Historical Background

The Korea Football Association (KFA) established the professional Korean Super League in 1983. The Korean Super League was renamed the K-League in 1998. Originally, the K-league was semiprofessional and consisted of five member clubs: two professional teams (Hallelujah FC and the Yukong Elephants) and three business teams[7] (the Daewoo Royals, Kookmin Bank FC, and the POSCP Dolphins). The K-League then expanded to eight clubs by the addition of one business team (Hanil Bank FC) and two professional teams (the Lucky-Goldstar Bulls and the Hyundai Tigers). The establishment of a professional football league was successful in its first season; the average attendance per game was more than 20,000. However, fan demand collapsed in the next season, and the average attendance fell to between 3000 and 8000 during the years from 1984 to 1990. The K-League took action to restructure the league, adopting a franchise system in 1987 and allowing only professional football teams to join. The high cost associated being an all-professional league resulted in a reduction in the number of member clubs (see Table 1 or Appendix Table 8 for more detailed information). The K-League shrank

[5] The NBA, the National Football League (NFL), and the National Hockey League (NHL) also have overlapping regular seasons. However, the substitution effects among them cannot be examined because most games are sold out in those leagues. But see Winfree and Fort (2008) on measuring one type of substitution during prolonged labor-management disagreements.

[6] Lee (2006) analyzed the rapid decline in attendance of the KBO that occurred in the late 1990s and found that the substitution effect of MLB was a major cause.

[7] A business team is a team whose workers are associated with a particular parent company or business.

Table 1 Historical changes in K-League structure

Year	Number of teams	Home and away system	Governance structure
1983	5	Tour system (1983–1986)	All clubs belong to large companies (1983–2002)
1984–1985	8		
1986	6		
1987–1988	5	Home and away system (Multiple metropolises) (1987–1989)	
1989–1993	6	Home and away system (Single city), but incomplete (1990–1995)	
1994	7		
1995	8		
1996	9	Complete home and away system (Single city) (1996-current)	
1997–2002	10		
2003	12		The first supporter-owned club founded in 2003: (1)
2004–2005	13		2004: (2)
2006–2008	14		2006: (4)
2009–2010	15		2009: (5)
2011	16		2011: (6)

to five clubs: the Yukong Elephants (currently Jeju United), the Daewoo Royals (currently Busan Ipark), the POSCP Dolphins (currently Pohang Steelworks), the Lucky-Goldstar Bulls (currently FC Seoul), and the Hyundai Tigers (currently Ulsan Hyundai). Thus, 1987 is the foundation year of the K-League as a true professional league. Since then, the number of member clubs has increased to 16.

The restructuring also introduced the system of *home-and-away matches*. Prior to the 1987 season, there was no concept of *home-and-away matches*; all games in a round were played in a designated stadium during a certain period, and the next round was held in a different city (tour system). The later adoption of the *home-and-away match* system boosted fan demand for the K-League. However, the system initially adopted by the K-League was not conventional in that not every member club had a host city. Instead, the league initially adopted an extended home-city system in an effort to broaden the home fan base. As such, some clubs designated a home province or a region that included multiple adjacent cities instead of just one host city, and home games were held in different cities throughout their home regions. Later, in 1990, the K-League adopted a more conventional *home-and-away match* system, forcing clubs to establish a franchise in a single city. Despite this policy change, full adoption of the system was gradual, as some clubs continued their associations with multiple home cities.

Another major restructuring occurred in 1996, when the K-League completed the formation of a pure *home-and-away match* system for all members. To help establish the system, all teams were named after a host city, for example, the Pusan

Royals.[8] At this time, the K-League also established decentralization, which forced all three clubs in Seoul to move to other cities. This policy was intended to compensate for the decreased number of home cities regulated by the *home-and-away match* system, which requires only one club per home city. This decentralization policy, along with one new expansion club, brought the total number of cities with a professional football club to nine; otherwise, the number of host cities would have shrunk to just six in 1996. However, decentralization also led to an unusual result: the largest city, Seoul, could not host any football club. In summary, the K-League designed its structure to broaden the football market across the nation when the league was still in its infancy. All clubs lingered around various cities during each round in the seasons between 1983 and 1986 and broadened the market by adopting multiple host cities in the period from 1987 to 1995, even though the *home-and-away match* system was introduced. As the fan demand gradually increased, the K-League shifted toward a more conventional *home-and-away* system, and minimized any reduction in market size by not allowing multiple clubs in a city.

All clubs in the K-League were affiliated with major corporations until Daegu FC was added in 2003. Daegu FC was the first supporter-owned club. Unlike European football leagues or North American sports leagues, many teams in Korea are affiliated with major corporations, and a major role of a professional football team is marketing for its parent company. Corporate owners create fan identity, and advertising value is managed as an input to that process. In fact, the parent company is typically willing to cover a team's financial losses as long as the team enhances the reputation of the parent. For this reason, many professional football teams have chronic deficits in their balance sheets, and direct financial support from the parent company is viewed as a marketing expense. This is one of the most important differences between European football leagues and the K-League. Most club owners (particularly in the EPL) pursue financial gains and expect their teams to maximize profits. However, multiple individual supporters own the new expansion teams in the K-League. There are six supporter-owned clubs as of 2013: Daegu FC, Incheon United, Gyeongnam FC, Daejeon Citizen, Gangwon FC, and Gwangju FC. This structural change in the makeup of the league has led to change in the business strategy. Unlike clubs with parent companies, supporter-owned clubs are required to cover their expenses, and their principal goal is to maximize profits.

Competitive Balance and Attendance in the K-league

Rottenberg's (1956) uncertainty of outcome hypothesis (UOH) suggests that the more uncertain the match outcome is, the more that fans will enjoy the match. The UOH is widely accepted in the sports economics literature. However, the UOH was originally conceived based on North America's MLB, and its empirical power varies across other sports leagues in North America and worldwide (Szymanski 2003;

[8] Prior to the 1996 season, a club's name included that of the parent company; for example, the Hyundai Tigers.

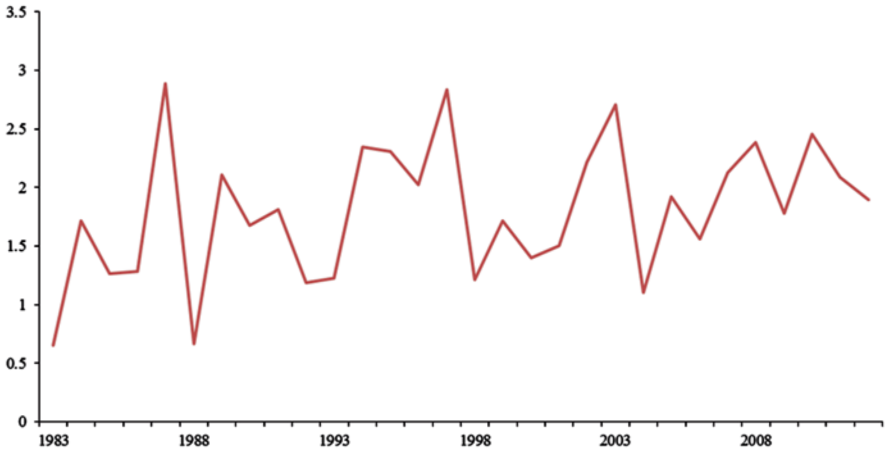

Fig. 1 Temporal variations in competitive balance (RSD)

Table 2 Mean and variance of competitive balance measures

5-Year period	Average RSD	Variance of RSD
1983–1987	1.562	0.555
1988–1992	1.491	0.259
1993–1997	2.150	0.281
1998–2002	1.611	0.118
2003–2007	1.886	0.289
2008–2012	2.122	0.070

Fort 2006). Lee and Fort (2012) adopted Koning's (2000) competitive balance analysis to identify the structural break points in the EPL. Whereas competitive balance examines the dispersion of winning percentages at the end of the regular season, Cain and Haddock (2006) formulated a point system for the Scully–Noll measure. However, Fort (2007) reported no significant difference in the regression analysis using any version based on winning percentage or win points because the correlation of the two versions is close to parity (one). Therefore, we use Scully–Noll's competitive balance measure, which is the ratio of actual wins to the idealized standard deviation (RSD) based on winning percentage. The idealized standard deviation is the standard deviation when a league is equally balanced; thus, RSD = 1 if a league is perfectly balanced, and RSD > 1 if it is not balanced. Figure 1 depicts the yearly changes in RSD in the K-League. Although no trend in RSD is evident, less variation in RSD is observed for recent years. As shown in Table 2, the competitive balance has worsened since 2002, even though its variance has decreased dramatically. The average RSD in the K-League during the years from 2003 to 2007 was 1.89, whereas the average RSD for the EPL was 1.49 (Lee and Fort 2012) during

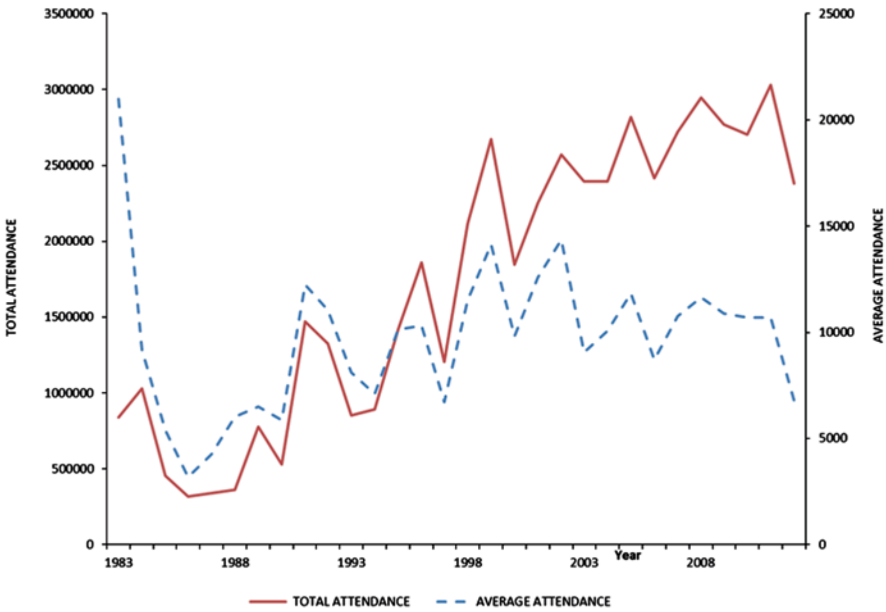

Fig. 2 Temporal variations in attendance

this same time period. However, the K-League was more competitively balanced than the KBO, which exhibited an average RSD of 2.15 (Lee et al. 2013).

As shown in Fig. 2, annual league attendance in a regular season increased rapidly from 1985 to 1998, after which the rate of growth slowed significantly. However, a gradual increase in attendance was observed during the 2000s, which is attributable to league expansion. The average attendance per game declined consistently in the 2000s.[9] A possible cause of the decline is the substitution effect of the European football leagues on the K-League. Following the 2002 Federation International of Football Association (FIFA) World Cup, in which the Korean national team advanced to a semifinal match, Korean star players[10] transferred to the European football leagues and EPL matches began to be broadcast on live television in Korea as soon as Korean star J. S. Park joined Manchester United.

[9] The decline in attendance was particularly great in the 2011 season. The decline was likely influenced by a match-fixing scandal in 2011 in which more than 40 football players were banned for life from any football-related activity in South Korea.

[10] Six players moved to the European football leagues within one year after the 2002 World Cup: Chong-Gug Song (Feyenoord Rotterdam), Nam-Il Kim (SBV Excelsior), Ji-Sung Park (PSV Eindhoven), Young-Pyo Lee (PSV Eindhoven), Chun-Soo Lee (Real Sociedad), and Eul-Yong Lee (Trabzonspor).

Specification of the Attendance Demand Model
Regression Analysis

When customers make decisions to buy a specific product, especially service goods, they consider its price, opportunity cost, quality, past experience, and other benefits. In our attendance demand model for the K-League in this study, we applied this logic to sports service goods. Fortunately, in sports analysis, we can observe and measure both the objective quality of the goods (matches) and the objective results of the goods (matches). Thus, we used the following attendance model:

$$y_{it} = x'_{it}\beta + z_t\delta + \alpha_i + \varepsilon_{it} \tag{1}$$

where y_{it} is the average attendance per game (APG) for a team i ($i=1,\ldots,$ N) at time t, or the logarithm thereof, depending upon the attendance function specification. Because little was known about the attendance equation of K-League, we analyzed the log–log, log–linear, linear–log, and linear–linear equations to evaluate the robustness of our estimates. The variable x_{it} is the vector of team-specific determinants of attendance. The variable z_t is the vector of macro-scale variables that influence attendance equally across all member teams. The value α_i is the nuisance parameter representing individual effects, and ε_{it} is random error. We did not include a term for time influence because, taking into account the sample size of our panel data, adding 32 more parameters (if we treated the time effects as fixed) would have been too costly. Therefore, we assumed that our macroscopic variable z_t accounted for common time variation in attendance for all individual teams. We also assumed that the team-specific regressors x_{it} and the macroscopic variables z_t were strictly exogenous as follows:

$$E(\varepsilon_{it} \mid x_{i1},\ldots,x_{iT},z_1,\ldots,z_T,\alpha_i) = 0 \tag{2}$$

for all t. Specifically,

$$x = \{POP,\ GRP,\ PO,\ POINT\ (or\ WIN),\ CB,\ GOAL,\ DRAW,\ STDM,\ STDMAGE,\ OWNERSHIP,\ RELOC,\ DERBY\}$$
and
$$z = \{HOST\_CITY,\ HOST\_COM,\ WC,\ OLYM,\ KBO,\ PARK\}.$$

The population (POP) of team i's host city in year t represents the market size. As mentioned above, in the history of the K-League, a host region was not always a city. Sometimes, a host region was a province and sometimes, a city. Thus, we calculated the weighted average population of the cities in which the actual matches were played.[11] GRP is an income variable that corresponds to the real per capita gross regional product (in Korean dollars, or Won) of team i's host city in year t

[11] For a team that held four home games in City A and six home games in City B, the average population would be $POP = 0.4 \cdot POP_A + 0.6 \cdot POP_B$, where POP_A is the population of City A, and POP_B is the population of City B.

(base year: 2005). In cases where the GRP of a home city was not available, we used the GRP of the province in which the home city is located.[12]

The regressor vector x also includes three team-performance variables. POINT refers to average points earned per game.[13] Alternatively, we could use the winning percentage in the current season (WIN). The playoff dummy variable (PO) was set to a value of 1 if a team advanced to postseason match and 0 if not. Given a certain winning performance, it was reasonable to ask to what degree playing characteristics affect attendance. GOAL, which is average number of goals earned per game, corresponded to fan demand for offensive play. DRAW is the ratio of draw outcomes. We used the DRAW variable in accordance with the study of Alavy et al. (2010), who analyzed the television viewership of EPL games and found that viewership decreased as the probability of a draw outcome increased. This empirical finding is subtle, because fans simultaneously preferred outcome uncertainty.

Game outcome uncertainty is another game-quality factor, and competitive balance (CB) is a proxy for this outcome uncertainty. When examining the UOH, previous studies have used either an absolute deviation of winning percentage from $0.5\left(\text{ADWIN} = \left|WIN_{it} - 0.5\right|\right)$ or a quadratic term for winning percentage (for example, Coates and Humphreys 2012). A negative coefficient of the absolute deviation or a quadratic term implies that game uncertainty is effective. We used three measures (ADWIN, win-squared, and POINT-squared) to test for the UOH.

Additionally, various team-specific variables may influence fan demand. STDM represents stadium capacity and STDMAGE controls for the fan preference for a new stadium. The variable STDMAGE equals 4 in the first year of a new stadium, 3 in the second year, 2 in the third year, 1 in the fourth year, and 0 for the fifth year and beyond. This 4-year reverse trend captures aging effects and was previously used by Poitras and Hadley (2006) and Ahn and Lee (2007). Using the STDM and STDMAGE variables, we examined both quantitative and qualitative influences of a stadium on attendance. To evaluate the influence of team governance structure on attendance, we included in our analysis the governance structure dummy variable OWNERSHIP, which is 1 for a supporter-owned club and 0 otherwise. Because of frequent club relocations following the league policy changes relevant to the host region, we also included the number of relocations, RELOC, and a dummy variable for the teams located in the same regional district, DERBY.

The team-invariant regressor vector z includes two variables controlling for substitution effects. Football and baseball are the most popular team sports in Korea, and they may compete with each other with respect to fan attendance. In our analysis, we used annual average baseball attendance per game (KBO) as a substitute for the K-League. Lee (2006) presented empirical evidence that MLB significantly

[12] Ticket prices are also an important determinant of attendance. However, we could not include ticket prices as an explanatory variable because complete price data are not available. Therefore, to ensure that omission of ticket prices did not result in biased estimates of other regressors, we assumed implicitly that ticket prices in the K-League were not correlated with regressors.

[13] Because the point system changed frequently, we standardized the point system as follows: 3 points for a win, 1 point for a draw, and no points for a loss.

influenced KBO attendance via substitution; we thus included competition from European football leagues in our study. As noted above, European football leagues have become popular in Korea as Korean football players transferred to the European leagues. European football games are now broadcast live on Korean television, and the performances of Korean football players are major topics in the Korean sports media. Ji-Sung Park, who transferred to PSV Eindhoven after the 2002 FIFA World Cup and advanced to Manchester United in 2005, has been a particularly popular player. All PSV Eindhoven and Manchester United games were televised when Park was incumbent. Thus, in our analysis, we used the total minutes Park played (PARK) as a proxy variable for viewership of European football. We also included FIFA World Cup (WC) and the Summer Olympic (OLYM) dummy variables.

As discussed above, changes in the franchise host region system have occurred (Table 1). In the period from 1987 to 1989, a host region covered a broad region, such as a province or multiple cities. During the transition period from 1990 to 1995, some clubs designated only one city as their host regions, but other clubs continued to represent broad home regions with multiple host cities. The *home-and-away match* system has been fully established since 1995. HOST_CITY represents the transition period, and the variable is 1 if t belongs to (1990–1995) and 0 otherwise. HOST_COM corresponds to the fully established *home-and-away* system and equals 1 if $t > 1995$ and zero otherwise. In this way, 1987–1989, when all clubs were associated with multiple host cities, is the reference period.

To evaluate robustness, we specified different function forms for attendance equations and compared estimates across different specifications. Four different equations (log–log, log–linear, linear–log, and linear) were specified. As an example, the log–log attendance equation was as follows:

$$\begin{aligned}\ln APG_{it} = {} & \beta_0 + \beta_1 \ln POP_{it} + \beta_2 \ln GRP_{it} + \beta_3 PO_{it} + \beta_4 \ln POINT_{it} \\ & + \beta_5 ADWIN_{it} + \beta_6 \ln GOAL_{it} + \beta_7 DRAW_{it} + \beta_8 \ln STDM_{it} \\ & + \beta_9 STDMAGE_{it} + \beta_{10} OWNERSHIP_{it} + \beta_{11} RELOC_{it} \\ & + \beta_{12} DERBY_{it} + \delta_1 HOST\_CITY_t + \delta_2 HOST\_COM_t \\ & + \delta_3 WC_t + \delta_4 OLYM_t + \delta_5 \ln KBO_t + \delta_6 \ln PARK_t + \alpha_i + \varepsilon_{it}\end{aligned} \tag{3}$$

Data and Empirical Results

The main data sources were the official website of the K-League (http://www.kleague.com) and the official website of Statistics Korea (http://kostat.go.kr/portal/english/index.action). Because the K-League includes many expansion teams, our panel data sample is unbalanced. Our final data set consists of 248 observations and 15 individual football teams[14] from 1987 to 2011. Table 3 shows descriptive

[14] In the official statistics of the K-League, the final club is associated with the club history and records of all predecessors.

Table 3 Descriptive statistics, 1987–2011

Variable	Mean	Std	Max	Min
APG	10,823.5–10,824	5426.8–5427	32,576	1057.4–1057
POP (1000)	2320	2902	10,500	134
GRDP–GRP	16,436	7856	44,788	6096
PO	0.28	0.45	1	0
POINT	1.28	0.35	2.09	0.4
ADWIN	0.13	0.09	0.45	0
RSD	1.89	0.57	2.89	0.66
GOAL	1.24	0.30	2.18	0.56
DRAW	0.25	0.13	0.53	0
STDM	30,644.4–30,644	13,164.1–13,164	66,806	13,496
STDMAGE	0.53	1.12	4	0
OWNERSHIP	0.12	0.32	1	0
RELOC	0.74	0.88	3	0
DERBY	0.21	0.41	1	0
HOST_CITY	0.16	0.36	1	0
HOST_COM	0.78	0.42	1	0
WC	0.25	0.43	1	0
OLYM	0.23	0.42	1	0
KBO	7474.8–7475	2370.3–2370	12,801	4383
PARK (Minutes)	644.3	773.6	2375	0

statistics. The mean of APG was 10,823 and varied widely; the maximum APG was 32,576, and the minimum was 1057. FC Seoul recorded APG over 32,000 during the 2010 season, whereas Jeonbuk Hyundai Motors drew only 1000 fans per game during the 1994 season. The population range across the league is also wide. Professional football teams were located not only in large cities such as Seoul, where the population is over 10 million, but also in small cities like Samcheok and Wonju, all of which have populations of 100,000–200,000. The average stadium capacity was about 30,000, and the largest stadium, with 66,806 seats, was Sangam located in Seoul.

Table 4 presents the estimation results according to the log–log attendance equation. Pooled OLS estimates are in the first column, and the second and third columns contain the fixed-effect estimates (WITHIN) and the random-effects estimates (GLS), respectively. The bottom row of the table contains test statistics and their p-values. The Hausman test for the random-effect specification was rejected at $p<0.01$. The null hypothesis of the equality of individual effects was also rejected at $p<0.01$. Therefore, we focused only on the fixed-effect estimates. Because the null hypotheses of heteroskedasticity and autocorrelation were rejected, we calculated the t-values based on the heteroskedasticity-autocorrelation-robust variance estimates.

Table 4 Attendance regression results including the team effect: Log–Log specification

Variables	(1)	(2)	(3)
	OLS	WITHIN	GLS
POP	−0.008 (−0.190)	0.086 (1.055)	−0.008 (−0.119)
GRP	0.299*** (3.182)	0.101 (0.605)	0.299 (1.599)
PO	0.170** (2.067)	0.186** (2.947)	0.170** (2.204)
POINT	0.205 (0.987)	0.124 (0.522)	0.205 (0.845)
ADWIN	− 0.492 (−1.293)	−0.718** (−2.793)	−0.492* (−1.720)
GOAL	0.338* (1.871)	0.345* (2.042)	0.338* (1.704)
DRAW	− 0.412 (−1.364)	−0.391* (−1.898)	−0.412** (−2.217)
STDM	0.387*** (4.345)	0.295 (1.197)	0.387* (1.919)
STDMAGE	0.053* (1.704)	0.080** (2.316)	0.053* (1.809)
OWNERSHIP	0.252*** (2.780)	0.227* (1.817)	0.252*** (2.707)
RELOC	−0.038 (−0.756)	0.165 (1.389)	−0.038 (−0.344)
DERBY	0.229*** (2.959)	−0.020 (−0.115)	0.229 (1.546)
HOST_CITY	0.369** (1.979)	0.457*** (4.558)	0.369* (1.854)
HOST_COM	0.471*** (2.741)	0.458*** (2.979)	0.471*** (2.788)
WC	−0.046 (−0.634)	−0.039 (−0.799)	−0.046 (−0.935)
OLYM	0.007 (0.100)	0.005 (0.084)	0.007 (0.117)
KBOL	−0.435* (−1.824)	−0.240 (−0.925)	−0.435** (−2.031)
PARK	−0.033** (−2.454)	−0.031* (−1.857)	−0.033** (−2.065)
Constant	5.808*** (4.652)	5.216** (2.552)	5.808*** (2.662)
Adj. R^2	0.389	0.543	
Hausman test for fixed vs. random effect (p-value)		57.86 (0.000)	
F-test for all individual effects is zero		5.19 (0.000)	
Breusch–Pagan/Cook–Weisberg test for heteroskedasticity		11.92 (0.000)	
Wooldridge test for autocorrelation in panel data		53.30 (0.000)	

The t-statistics in parentheses are based on Huber–White heteroskedasticity-autocorrelation-consistent variance estimates.***$p<0.01$; **$p<0.05$; *$p<0.1$

Table 5 also presents the estimation results according to the log–log attendance equation, but with various game-uncertainty measures included. All estimates were based on the fixed effects with team effects. Therefore, model (1), with POINT and ADWIN, is the same as the one in the second column of Table 4. Based on the comparison of the adjusted R2, Model (3) showed the best fitness among the four models. However, the differences of the fitness are negligibly small and the overall estimation results are very similar. In our analysis, the winning performance, represented by POINT or WIN, was estimated to have the correct sign but was not statistically significant. However, the playoff dummy estimate had a positive and significant coefficient. If a team advanced to the postseason attendance increased

Table 5 The fixed-effects estimates with various specifications: Log–Log specification

Variables	Model (1)	Model (2)	Model (3)	Model (4)
POP	0.086 (1.055)	0.085 (1.019)	0.084 (1.064)	0.083 (1.037)
GRP	0.101 (0.605)	0.083 (0.472)	0.083 (0.485)	0.072 (0.409)
PO	0.186** (2.947)	0.158** (2.336)	0.161** (2.587)	0.149** (2.364)
POINT	0.124 (0.522)	0.263 (1.047)		
WIN			0.415 (1.024)	1.925* (1.811)
ADWIN	−0.718** (−2.793)		−0.777** (−2.580)	
$POINT^2$		−0.226 (−0.874)		
WIN^2				−1.499* (−1.800)
GOAL	0.345* (2.042)	0.312 (1.732)	0.276 (1.560)	0.279 (1.547)
DRAW	−0.391* (−1.898)	−0.522** (−2.370)	−0.453** (−2.350)	−0.478** (−2.427)
STDM	0.295 (1.197)	0.304 (1.224)	0.299 (1.263)	0.305 (1.262)
STDMAGE	0.080** (2.316)	0.079** (2.221)	0.083** (2.345)	0.080** (2.251)
OWNERSHIP	0.227* (1.817)	0.238* (1.869)	0.228* (1.844)	0.238* (1.947)
RELOC	0.165 (1.389)	0.154 (1.313)	0.158 (1.312)	0.153 (1.274)
DERBY	−0.020 (−0.115)	−0.021 (−0.121)	−0.015 (−0.086)	−0.013 (−0.078)
HOST_CITY	0.457*** (4.558)	0.476*** (4.555)	0.449*** (4.348)	0.458*** (4.417)
HOST_COM	0.458*** (2.979)	0.469** (2.862)	0.479*** (3.049)	0.478*** (3.002)
WC	−0.039 (−0.799)	−0.036 (−0.666)	−0.034 (−0.660)	−0.034 (−0.621)
OLYM	0.005 (0.084)	0.018 (0.294)	0.009 (0.149)	0.016 (0.261)
KBOL	−0.240 (−0.925)	−0.291 (−1.122)	−0.178 (−0.648)	−0.220 (−0.807)
PARK	−0.031* (−1.857)	−0.028 (−1.619)	−0.032* (−1.883)	−0.030 (−1.705)
Constant	5.216** (2.552)	5.310** (2.695)	4.858** (2.490)	4.567** (2.312)
Adj. R^2	0.543	0.535	0.546	0.537

The t-statistics in parentheses are based on Huber–White heteroskedasticity-autocorrelation-consistent variance estimates. ***$p<0.01$; ** $p<0.05$; * $p<0.1$

by 15–19 %. We thus inferred that additional wins did not increase fan demand if the team failed to advance to the postseason. Fan preference for playing performance was expected, with fans preferring offensive performance and disliking draw outcomes. All four models presented positive estimates for GOAL, but the effects were statistically significant in only one of the models. The estimates for DRAW were consistent with the empirical results of Alavy, Gaskell, Leach, and Szymanski (2010), who examined minute-by-minute television viewership ratings for in English Premiership games and found a complex nature of fan preference in which viewership decreased as the probability of either side's winning rose, but, simultaneously, viewership also decreased with increases in the probability of a draw. Our empirical results also suggested that fans in the K-League favored home teams with lower probabilities for draw outcomes.

All four models supported the UOH in the K-League. ADWIN estimates in models (1) and (3) were negative and statistically significant, and the WIN-squared estimates were negative and significant in model (4). Combining the estimates for WIN and WIN-squared, the optimal winning probability of home team was 64 %. Among the four models, model (2), with POINT and POINT-squared, did not support UOH. The estimate for POINT-squared was negative but not significant. In addition to statistical significance, economic significance was examined using the estimates and the variation in outcome uncertainty. In models (1) and (3), a 1-SD decrease in ADWIN (0.09) increased APG by 6.5–7.0 %. Therefore, we inferred that the UOH was not only statistically significant but also economically significant in the K-League. Thus, the maintenance of competitive balance within a reasonable range is a critical issue for the profitability of K-League.

This result is somewhat different from the previous empirical findings for European football leagues, which did not strongly support the UOH. Literature reports indicate that outcome uncertainty is not significant in European football leagues but is an important determinant of fan demand in North American sports leagues. This disparity may arise due to the different league structures or the different sports. Our empirical results suggested that the latter is not a likely cause because both the EPL and the K-League correspond to the same sport, football, and the UOH is strongly significant in the K-League. Furthermore, our results suggested that the attendance analysis for EPL has great uncertainty as a result of multifaceted fan interest. The EPL consists of 20 member teams that compete for the league championship. However, fans also follow the league for several other reasons. The bottom three teams in the league rankings are assigned to lower leagues after the end of season, the top four teams earn positions in the UEFA Champions League, and the three teams below these in league rankings can participate in the UEFA Europa League. Consider a team with a 40 % winning percentage (0.4 win record) near end of a regular season. In MLB, there is no uncertainty that attracts fan interest; the team would likely be shut out of the pennant race. However, in the EPL, this team presents an uncertainty in which fans are interested because the team may be relegated to the lesser league depending on the outcomes of games remaining in the season. Relegation uncertainty remains for this team despite the fact that it might be out of league championship contention and/or unable to earn a Champions League

Table 6 Comparison of the playing performance between teams with different governance structures

Club governance	No. of observations	Probability of advancing to the postseason	Average goals per game
Large-company owned	101	0.386	1.276
Supporter owned	39	0.128	1.135

berth. Like the EPL, the K-League is relevant to the sport of football, but it is also similar to MLB with respect to fan interest. Because it has been a one-division league, relegation/promotion has not been a factor, and league championship has been the main interest of fans. Our empirical evidence suggesting that the absence of a significant effect of the UOH in the EPL may be the result of model misspecification. If a regression model does not include explanatory variables representing all aspects of uncertainty and only includes the game-outcome uncertainty, these omitted variables bias the uncertainty estimates, especially when the omitted uncertainties are correlated with game-outcome uncertainty.

Governance structure is also influential on attendance. Estimates of the OWNERSHIP coefficient were positive and significant in all four models. When other factors were held constant, supporter-owned teams attracted 23–24 % greater attendance than did teams affiliated with major corporations. This influence may arise from a direct influence of the governance structure, an indirect effect, or both. By their nature, supporter-owned teams may attract greater fan loyalty because home-city fans may have a stronger sense of unity with teams that have multiple individual owners who themselves are also home-city fans and citizens. In contrast, major corporations operate businesses in national and international markets, thereby potentially restricting somewhat the business strategies of their football teams. For example, rival relationships, such as that between the Los Angeles Dodgers and the San Francisco Giants, enhance solidarity of home fans on each side. However, a team with a parent company is not interested in forming a rival relationship because doing so may also arouse antifans. This reluctance to foster local solidarity may negatively influence the accumulation of fan loyalty and, eventually, attendance. On the other hand, supporter-owned clubs can implement selective local marketing strategies in order to generate sufficient revenue to survive; attendance rates for supporter-owned teams may increase as a result of this active, local marketing. In any case, the attendance rates of the supporter-owned teams were not necessarily larger, on average, than those of the corporate-owned teams. As shown in Table 6, teams with parents companies exhibited better average winning performances; specifically, the probability of advancing to the postseason was three times higher for teams affiliated with a major corporation than for teams owned by multiple individuals. The average number of goals scored was also slightly greater in corporate-owned teams than in supporter-owned teams; this performance advantage is likely to attract more fans to the home stadium.

The establishment of the *home-and-away* system was effective for enhancing fan interest. Both HOST_CITY and HOST_COM coefficient estimates were positive and statistically significant, implying that multiple-host-city system, which is intended to broaden market size, is inferior to the single-host-city system, which may narrow market size but enhance fan loyalty. Stadium age also influenced our predictions. The coefficient estimate for stadium age (0.08) suggests that attendance per game, on average, increased 32 % during the opening season and only 24 % over the next season. However, stadium size did not strongly influence attendance. Additionally, our results suggested no significant substitution effect by the Summer Olympics, the FIFA World Cup, or baseball games. Only the EPL was able to competitively substitute for the K-League. As Korean fans watched more EPL games on television, the attendance in the K-League declined. The remaining factors, RELOC and DERBY, exhibited no influence on K-League attendance.

Table 7 shows the overall attendance estimation results based on the four different attendance functional forms in order to check robustness of our estimate in Table 5. The choice of explanatory variables was the same as that of Model (3) in Table 5 which showed the largest adjusted R^2 value. Table 7 is not sensitive to the functional form of the attendance equation. The overall results in Table 7 are consistent with those in Table 5, implying that our empirical results are robust with respect to the attendance function specification. A few discrepancies were observed; OWNERSHIP was not significant in the linear–log and linear–linear specifications, and the substitution effect of the EPL was not significant in the linear–log specification.

Conclusion

In this study, we analyzed the attendance determinants of the K-League with a panel data set. The K-League possesses some unique characteristics that other team sports leagues in North America and Europe do not. Therefore, the K-League can serve as a laboratory for examination of intriguing issues that have not been previously studied. For example, changes in league policy with respect to host city (or host region) regulations are not found in other leagues. The K-League attempted to widen its football market to the entire nation in its early years by establishing multiple host cities, and it later adopted a more conventional *home-and-away match* system by establishing a rule requiring a single host city per team. The single-host-city system is much more effective for enhancing fan demand than is the multiple-host-city system. However, care must be taken with respect to this conclusion. In this study, only attendance was analyzed. The influence on television viewership may be different. In fact, it is possible that the multiple-home-city system may be a better choice for improving television viewership than is the conventional single host city system.

The empirical evidence of the influence of governance structure on attendance highlights an important policy implication. The supporter-owned teams exhibited greater fan loyalty on average than did the teams affiliated with major corporations because the former attracted more attendance than the latter when other factors were held constant. This empirical evidence implies that professional teams (not restricted to football) may survive without financial support from parent companies

Table 7 Attendance regression results with different equation specifications

	(1)	(2)	(3)	(4)
Variables	Log–Log	Linear–Log	Log–Linear	Linear–Linear
POP	0.084 (1.064)	1.076 (1.485)	0.000* (1.795)	0.000* (1.775)
GRP	0.083 (0.485)	−0.131 (−0.083)	−0.001 (−0.050)	−0.053 (−0.669)
PO	0.161** (2.587)	1.889** (2.696)	0.167** (2.597)	1.957** (2.766)
WIN	0.415 (1.024)	2.789 (0.866)	0.429 (1.125)	2.806 (0.954)
ADWIN	−0.777** (−2.580)	−6.442** (−2.588)	−0.822** (−2.780)	−6.840** (−2.739)
GOAL	0.276 (1.560)	3.096 (1.592)	0.240 (1.634)	2.883 (1.709)
DRAW	−0.453** (−2.350)	−5.337** (−2.929)	−0.369* (−1.835)	−4.656** (−2.299)
STDM	0.299 (1.263)	3.958 (1.628)	0.000 (0.659)	0.000 (0.871)
STDMAGE	0.083** (2.345)	0.948*** (3.007)	0.093** (2.534)	0.999** (2.815)
OWNERSHIP	0.228* (1.844)	0.916 (0.663)	0.262* (1.893)	1.289 (0.852)
RELOC	0.158 (1.312)	1.936* (2.106)	0.144 (1.047)	1.666 (1.568)
DERBY	−0.015 (−0.086)	−1.575 (−1.131)	−0.061 (−0.348)	−1.995 (−1.242)
HOST_CITY	0.449*** (4.348)	3.377*** (4.277)	0.526*** (4.335)	4.084*** (3.835)
HOST_COM	0.479*** (3.049)	3.330** (2.308)	0.616*** (3.848)	4.430*** (4.653)
WC	−0.034 (−0.660)	0.274 (0.491)	−0.074 (−1.307)	−0.107 (−0.166)
OLYM	0.009 (0.149)	−0.032 (−0.064)	0.041 (0.663)	0.192 (0.360)
KBO	−0.178 (−0.648)	−0.543 (−0.222)	−0.005 (−0.841)	−0.036 (−0.591)
PARK	−0.032* (−1.883)	−0.293 (−1.663)	−0.000** (−2.625)	−0.001** (−2.242)
Constant	4.858** (2.490)	−45.638** (−2.234)	8.238*** (22.041)	2.036 (0.553)
Adj. R^2	0.546	0.604	0.561	0.615

The *t*-statistics in parentheses are based on Huber–White heteroskedasticity-autocorrelation-consistent variance estimate. ***$p<0.01$; **$p<0.05$; *$p<0.1$

in the Korean professional sports market. An example of a case that is consistent with this implication is Nexen Heros, which is a KBO baseball team. Heros, which was established in 2007, is the only independent professional baseball team in the KBO. In its early years, it has had to sell valuable players to sustain its business, but it has since managed to improve its revenue and has come close to reaching the break-even point. Vertical integration may not be optimal for sports businesses because the existence of a parent company imposes restrictions on team business.

The observed fan preference for offensive performance suggests practical implications. With respect to team management, fan preference indicated that an aggressive striker increases fan demand not only by contributing to team wins but also by improving the general offensive performance. Thus, an aggressive striker has a higher marginal value than another offensive or a defensive player, even if his contribution to team wins is the same. With respect to league management, regulations enhancing goal production should be devised. The detrimental influence of draw outcomes justifies a change in the league point system from 2 points for a win to 3 points for a win to match the rule that most football leagues have already adopted.

The empirical findings also support the significance of game-outcome uncertainty both statistically and economically, which is somewhat rare in the study of professional football leagues. Sometimes, policies such as the reverse-order draft system, which favors lower-tier teams, are criticized for disturbing free competition and reducing players' compensation. However, if the UOH influences sports demand, then it may be worthwhile to set policies that redistribute player talent. The effectiveness of the UOH strongly supports the legitimacy of various restrictions on the player labor market, most of which are intended to enhance competitive balance. Consequently, the maintenance of competitive balance over a reasonable range is a critical issue for maintaining the profitability of the K-League.

This study is the first empirical study of attendance in the K-League using the panel data model. Several issues are outstanding and require further examination, such as a comparison of fan loyalty across member teams. According to Ahn and Lee (2013), variation in fan loyalty is a major contributor to the variation in attendance among different MLB teams. Television viewership is another topic of interest. Media revenue has increased steadily over recent years and is expected to continue this trend going forward. Thus, the importance to sports economics of a viewership analysis has increased. For example, a useful topic for further study would be the comparison of the UOH associated with K-League fans in the stadium with that of fans in their own homes, which is similar to the Buraimo and Simmons (2009) study of the EPL.

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Appendix

Table 8 Historical changes in K-League club names and host cities

Years		Team name (Host City)							
1983–1986	Hallelujah FC (Gangwon, Chungcheong) → defunct in 1986	Kookmin Bank FC (Jeonbuk, Jeonnam) → relegated in 1985	Hanil Bank FC founded in 1984 → relegated in 1987	Yukong elephants (Seoul, Incheon, Gyeonggi) Moved to Seoul in 1984	POSCO Dolphins (Daegu, Gyeongbuk) Changed name to POSCO Atoms in 1985	Daewoo Royals (Busan, Gyeongnam)	Hyundai tigers (Incheon, Gyeonggi) founded in 1984 Moved to Incheon, Gyeonggi, Gangwon in 1986	Lucky-Goldstar bulls (Chungcheong) founded in 1984	
1987–1989				Moved to Incheon, Gyeonggi in 1987		Moved to Busan in 1989	Moved to Gangwon in 1987		Ilhwa Chunma (Seoul) founded in 1989
1990–1995				Moved to Seoul in 1991	Moved to Pohang in 1990 Changed name to Pohang Atoms in 1995		Moved to Ulsan in 1990	Moved to Seoul in 1990 Changed name to LG Cheetahs in 1991	

Table 8 (continued)

Years		Team name (Host City)							
1996–Current				Changed name to Buchon Yukong in 1996 Changed name to Bucheon SK in 1997 Changed city to Bucheon in 2001 Changed name and city to Jeju United (Jeju) in 2006	Changed name to Pohang Steelers in 1997	Changed name to Busan Daewoo Royals in 1996 Changed name to Busan I'Cons in 2000 Changed name to Busan I'Park in 2005	Changed name to Ulsan Hyundai Tigers in 1996 Changed name to Ulsan Hyundai in 2008	Changed name and city to Anyang LG Cheetahs (Anyang) in 1996 Changed name and City to FC Seoul (Seoul) in 2004	Changed name and City to Cheonan Ilhwa Chunma (Cheonan) in 1996 Changed name to Seongnam Ilhwa Chunma in 1999 Moved to Seongnam in 2000

Host city is in parentheses

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The Sports Broadcasting Market in Korea

Kihan Kim and Kimoon Lee

Abstract This chapter reviews the evolution of the sports broadcast market in Korea. It explores the sports broadcast market from the perspectives of the supply- and the demand-sides, estimates the size of sports broadcast market, and examines the mechanisms adopted in the transactions of sports broadcast rights. It shows that the Korean sports broadcasting market has followed a similar trajectory of the international sports broadcasting market in that a relatively small number of sports contents have obtained dominant position, and the competition among the broadcast channels has rapidly increased. This chapter also presents several features of the sports broadcast market that are very unique in the Korean context; these include how the listed-event rule was enacted and how the conception of televising international sports events has changed.

Introduction

One noticeable change in the sports industry over the last 20 years has been the massive escalation in the prices of broadcast rights for both professional sports and international sports events. Korea is no exception. The broadcast rights fees for the Olympic Games and FIFA World Cup Football have grown so rapidly that pundits are even proclaiming that they may reach a level that is not affordable for any broadcaster in Korea. The domestic professional sports rights fees have also grown in recent years, albeit at a slower rate than those at which the rights fees for the major international sports have grown.

This chapter explores how the sports broadcast market has evolved in Korea. Specifically, we examine the supply and demand sides of the market for the sports broadcast rights, estimate the market size of sports broadcasting, and analyze the types and trends in the transactions for sports broadcast rights in Korea. In addition,

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four major forces that have been influencing the price of broadcast rights are discussed. Also, in order to address the changing patterns of the prices for the broadcast rights, we explore how competition among broadcasters has emerged in the Korean market. Finally, the dynamics of the Korean sports broadcast market are addressed by presenting types of transactions for sports broadcast rights, and their application to the Korean cases.

Supply and Demand Sides of the Market for Sports Broadcast Rights

There are two important elements that have contributed to the evolution of the market for the sports broadcast rights in Korea. These elements include sports as media content (i.e., games and events), and the buyers of the sports broadcast rights (i.e., media channels), representing the supply side and the demand side of the market for sports broadcast rights, respectively.

Supply of Sports Contents

The evolution of sports as media content has taken three phases. The first phase begins in 1961, when television broadcast service was practically first introduced in Korea. The second phase was the 1980s through the 1990s, when the amount and diversity of mediated sports significantly increased, due to such factors as the establishment of professional sports leagues, as well as the hosting of the 1986 Asian Games and the 1988 Olympic Games in Korea. The third phase is from the 2000s to the present, during which new communication platforms and channels have been established and have penetrated into a majority of households, delivering a variety of globalized sports contents to audiences in Korea. This section addresses these three phases, based on Kim (2013a).

Phase 1 (1960–1970s) The first phase of sports as media content is characterized as “only a few sports and none of them dominant.” That is, there were limited numbers of sports events, mostly a single event or short-term tournaments, of which none had taken a dominant position in the sports broadcast market. It was the single events of combative sports such as professional boxing and wrestling matches that attracted many of the audiences during the early era of sports broadcasting in Korea (Choi and Jung 2003).

Of the short-term tournaments were the three major high-school baseball tournaments, which continued to maintain a substantial amount of popularity until the professional baseball league was established in the early 1980s. The three baseball tournaments were sponsored and hosted by the three major newspaper companies (i.e., Chosun Ilbo, Joong-Ang Ilbo, and Dong-A Ilbo), which helped generate significant amounts of voice in the press, contributing to the popularity of the events.

It was also during this first phase of sports media content that an international sports event was first televised in Korea. Specifically, the 1964 Tokyo Olympic

Games were the first Olympics in history to be televised to Korean TV households by satellite (Han and Ahn 2010). Likewise, sports as media content in the 1960s and 1970s were characterized by single events, and short-term domestic and international events lasting for 2 weeks at best; none of the sports contents during the first phase acquired a dominating position in the sports broadcast market.

Phase 2 (1980–1990s) The second phase of sports as media content is characterized by an "increased number of sports, some of them getting the dominant position." Not surprisingly, these increasingly dominant sports were the few newly established professional sports leagues launched in the early 1980s. The professional baseball league operated by the Korea Baseball Organization (KBO) and the professional football league, called the K-League were established in 1982 and 1983, respectively. The establishment of the professional leagues with a pennant-race system in baseball and a season-long schedule in football meant that broadcasters began to capitalize on yearlong feeds of sports contents, as compared to the previous era, when only short-term tournaments were available.

Due in part to the establishments of two professional sports leagues, and two to-be-hosted global events (i.e., 1986 Asian Games and 1988 Olympic Games), the three free-to-air broadcast channels had allocated on average of 28 % of the total programming to sports in the 1980s. Such systematic support for sports broadcasting reached its peak around the two international sports events. For example, during the 1986 Asian Games, the three free-to-air channels (KBS 1, KBS 2, and MBC) aired an average of 9 h and 24 min of sports programs daily (as cited in Choi and Jung 2003). However, the amount of sports content on television dropped significantly after the finale of the 1988 Olympic Games.

Meanwhile, an important transitional event had occurred in the mid-1990s—the first Korean Major League baseball (MLB) player, Chan Ho Park, debuted in 1994 and became a full-time major league player for 17 years, starting in 1997. KBS first had the exclusive broadcast rights for the MLB in 1997. The decision to televise the MLB in Korea turns out to be more than simply the introduction of overseas sports contents in the Korean market. No one could imagine the influences Chan Ho Park's MLB programs would have on the Korean sports broadcast market, as will be further discussed in this chapter.

Phase 3 (The 2000s and Later) The third phase of sports as media content is characterized by "many sports, and the influx of overseas sports." Thus, during the third phase of sports content, there has been a good mixture of domestic and international sports contents. The most notable feature of sports media in the 2000s was the increased visibility of international sports, following several beloved athletes' successful entries into the overseas professional leagues. For example, many European football leagues were introduced in the Korean market during Ji-Sung Park's presence in the English Premier League (EPL). Japanese professional baseball (NPB) also gained popularity in Korea following Korean slugger Seung-Yup Lee's transfer, in 2006, to the Yomiuri Giants, the most reputable baseball club in Japan.

Along with the influxes of overseas sports, a wide range of domestic sports content is being televised in Korea. For example, Korean professional sports such as professional baseball, basketball, football, and volleyball are all being televised. Of the many domestic sports contents, only the KBO's professional baseball league is currently maintaining a wide appeal to the public. As of 2013, the broadcast rights fee for the KBO is the most expensive (annually 170 million KRW), topping any domestic or overseas sports contents in Korea. Furthermore, the proportion of professional baseball games being televised reaches almost 100 %.

However, such popularity of professional baseball should not be considered a stable and automatically sustainable position, as the popularity of the KBO league has experienced much fluctuation in the past. For example, the number of annual spectators of the KBO league had steadily increased since the establishment of the league in 1982 to its peak in 1995, and then constantly dropped to reach the lowest point in 2004. After 2004, however, the KBO league has been constantly gaining more spectators annually until 2013, partly due to the stimulation of Korean national baseball teams' good on-field performances in such international events as the 2008 Beijing Olympic Games and the 2009 World Baseball Classic. Other than the KBO league, still, none of the domestic and international sport contents have taken a dominant position in the Korean sports broadcast market. Table 1 shows the sports contents televised by the three major sport channels in 2013, which illustrates how domestic and international sports contents are mixed in the Korean sports broadcast market today.

Demand for Sports Contents

On the demand side of the market for sports broadcast rights are the media platforms and channels. There are four media platforms through which media contents are televised. The terrestrial broadcasting system was established as early as 1961; it was the only media platform for more than 30 years, dominating the Korean broadcast market for any genre. This monopolistic dominance of the terrestrial platform continued until the mid-1990s, when the cable television system was established in 1995. After 2000, the Digital Multimedia Broadcasting (DMB) services, both satellite and terrestrial, were launched in 2005, allowing portable communication devices such as car navigation devices and smart phones to receive television signals. Finally, in 2008, all three major telecommunication companies in Korea (i.e., KT, SKT, and LG U+) launched their own Internet Protocol TV (IPTV) services, delivering media contents via the high-speed Internet network with two-way communication services.

The increases in the number of media platforms translate to the increases in the number of channels. The channels can be classified into two categories: free-to-air and pay-channels. As of 2013, there are three major free-to-air channels: two public service broadcasters, KBS and MBC, and one commercial broadcaster, SBS. There used to be another commercial free-to-air channel called TBC, established in 1964, which, however, was merged with KBS in the early 1980s. Before the establishment of the cable television system in the mid-1990s, and before the launch of the commercial broadcaster SBS in 1990, the two PSBs (i.e., KBS and MBC) televised literally the entire sports contents. In addition, as public service broadcasters, KBS

Table 1 Sport contents televised by three major sports channels in 2013

Channels	Sports contents	Origin
KBS N Sports	KBO Professional Baseball KBL Professional Basketball WKBL Professional Women Basketball KOVO Professional Men/Women Volleyball K-League Professional Soccer Professional Spanish Football League (Primera Liga) AFC Champions League Soccer	Korea Korea Korea Korea Korea Spain Asia
MBC Sport Plus	KBO Professional Baseball KBL Professional Basketball K-League Professional Soccer Major League Baseball (MLB) AFC Champions League Soccer	Korea Korea Korea USA Asia
SBS ESPN	KBO Professional Baseball KBL Professional Basketball KOVO Professional Men/Women Volleyball K-League Professional Soccer English Premier League (EPL) French Open Tennis NBA Basketball Japan Professional Baseball (NPB) AFC Champions League Soccer ISU Figure Skating Championships ISU Speed Skating Series	Korea Korea Korea Korea UK France USA Japan Asia Worldwide Worldwide

and MBC collaborated well for buying and televising sports contents; thus, there was not any harsh competition between these two free-to-air channels until the mid-90s.

This situation, however, changed dramatically after the mid-90s, and especially after the 2000s, when the cable television system was welcomed into a majority of Korean television households. Now, in addition to the three free-to-air channels, there are 15 sports channels and 4 general service pay-channels capable of televising sports contents in Korea (See Table 2 for the list of sports channels). The general service pay-channels are those cable television channels permitted by the government to televise programs in all genres such as news, documentary, entertainment, and sports, while the remaining cable channels can focus only on their designated genre.

Sports Broadcast Market Size

Market Size by Revenues of Sports Channels

The market size of sports broadcasting has steadily grown in the past decade. Table 2 shows the size of the sports broadcasting in Korea, as indicated by the

Table 2 Annual revenues of sports channels

Channel	Established	Sub-genre	Year 2001	Year 2006	Year 2011
Sports channels					
KBS N Sports	2002	General	801	4,577	16,469
MBC Sports Plus	2001	General	3,867	29,698	42,766
SBS ESPN	1995	General	6,745	24,802	45,943
SBS Golf	1999	Golf	12,313	38,906	46,396
J Golf	2005	Golf	n.a.	7,192	37,207
SpoTV	2010	General	n.a.	n.a.	10,084
Sports 1	2009	General	n.a.	n.a.	2,685
STN Sports	2006	General	n.a.	n.a.	1,845
Car & Sports	2001	Auto racing	n.a.	n.a.	428
KBN TV	2009	Billiards	n.a.	n.a.	5
KHR TV	2010	Horseback riding	n.a.	n.a.	1,181
FTV	2002	Fishing	n.a.	5,153	6,242
FS-TV	2000	Leisure and fishing	1,091	1,096	1,815
Mountain TV	2012	Outdoor sport	n.a.	n.a.	254
Baduk TV	1994	Asian chess	8,448	13,937	17,667
(Sub-total)			33,265	125,361	230,987
Terrestrial channels					
KBS	1961	Terrestrial	1,093,644	1,335,541	1,443,686
MBC	1961	Terrestrial	592,217	721,980	891,010
SBS	1990	Terrestrial	487,237	659,513	720,570
(Sub-total)			2,173,098	2,717,034	3,055,266
Drama channels					
KBS Drama		Drama	4,600	31,545	55,683
MBC Drama Net		Drama	7,293	65,621	96,463
SBS Plus		Drama	950	52,647	97,028
(Sub-total)			12,843	149,813	249,174

Units are in million KRW (US$ 1 is approximately 1,100 KRW)
Data source: Korea Communications Commission's annual report of broadcasting industry

annual revenues of each channel. Also reported in Table 2 are the annual revenues of the three free-to-air channels, and the three major drama channels, as references.

Specifically, Table 2 shows that there are a total of 15 sport-specific pay-channels, which collectively generated 230 billion KRW in 2011. This amount is 7.6 % of the annual revenues of the three major free-to-air channels (KBS, MBC, and SBS) combined, and, on average, 25 % of each free-to-air channel's annual revenue in 2011. In order to compare the size of the sports broadcast market to that of other popular genres, we compared the revenues of the sports channels to those of the

Table 3 Advertising media prices for the 2006 FIFA World Cup in Korea

Game levels	Unit price per 15 sec	Maximum ad revenue per game
Least expensive game in the first round	2.6	157
Most expensive game in the first round	27	1,644
Korea advances to top 16	33	2,011
Korea advances to quarterfinal	45	2,740
Korea advances to semifinal	50	3,015
Korea advances to final	58	3,518

Units are in million KRW (US$ 1 is approximately 1,100 KRW)
Data from Kim (2010)

drama channels of the same parent company. As shown in Table 2, in 2011, KBS N Sports' revenue was 29.6 % of the KBS Drama's revenue; MBC Sports Plus' revenue was 44.3 % of the MBC Drama Net, and SBS ESPN's revenue is 47.4 % of SBS Plus' revenue. With respect to the growth trend, the top five sports channels by annual revenue (KBS N Sports, MBC Sports Plus, SBS ESPN, SBS Golf, and J Golf) earned 105 billion KRW in 2006, which increased by 79 % to reach 188 billion KRW in 2011.

Market Size by Advertising Revenues of Sports Events

The size of the sports broadcasting market can also be estimated by the amount of advertising revenues generated by televising sports events. Theoretically, any broadcaster with a rational decision-making system would not invest any more than the expected revenues generated by televising the sports events. Thus, for any event, the size of advertising revenues is a good indicator of the broadcasting market size of that particular sports event. Table 3 illustrates the potential advertising revenues from televising a popular international sports event—the unit price of television advertising during the 2006 FIFA World Cup in Korea.

Specifically, Table 3 shows that the least expensive unit ad price for the 2006 FIFA World Cup was 2.6 million KRW, while the most expensive unit ad price of the first round matches in the event was 27 million KRW. Factors influencing the variations in the unit prices included whether the game involved the Korean national team, whether the game was played during prime time, mid-night or dawn-time, and whether the game was played on a weekday or weekend. Table 3 also shows that, if the Korean national team advanced to the final match, the unit prices of 15-sec-advertising could go up to 58 million KRW. Also shown in Table 3 are the maximum amounts of ad revenues that each game could possibly generate. This was based on the assumption that each game could insert up to 60 15-sec-ads per game, which ranged from 157 million KRW to 3.5 billion KRW.

Table 4 Broadcast ad revenue sources for the 2006 FIFA World Cup in Korea

Sources	KBS2[a]	MBC	SBS	Total
Total revenue sources[b]	22.4	30.4	30.9	83.7
Percentage of total revenue sources	26.8	36.4	36.8	100
Total revenue sources for live broadcasts	15.8	21.8	22.3	59.9
Total revenue sources for replays	5.5	5.1	5.3	15.9
Total revenue sources for related programs	1.1	3.5	3.3	7.9

Units are in billion KRW or %
Data from Kim (2010)
[a] KBS has two channels—only KBS2 generated advertising revenues
[b] revenue source indicates the sum of ad prices for all advertising media slots allocated by KOBACO (the broadcast ad representative agency selling all the broadcast advertising slots in 2006)

Table 4 shows the total amount of advertising revenue sources allocated to the three free-to-air channels for the broadcasting of the 2006 FIFA World Cup in Korea. In 2006, there was only one broadcast ad representative agency operated by the public sector in Korea, the KOBACO, which was in charge of the sales of all the broadcast advertising for the free-to-air broadcasters. The amounts of revenues sources reported in Table 4 therefore are the sums of ad prices for all unit ad slots by these channels. Thus, Table 4 indicates that, theoretically, the three free-to-air channels could generate up to 83.7 billion KRW from televising the live matches, replays or related programs of the 2006 FIFA World Cup. However, as noted by Kim (2010), KOBACO estimated the rates of advertising sales for the 2006 FIFA World Cup to be approximately 50 %; therefore, it is estimated that a total of 41.8 billion KRW ad revenues were generated from televising the 2006 FIFA World Cup in Korea.

Market Size by the Sports Broadcast Rights Fees

The prices of broadcast rights fees are also good indicators of the size of the sports broadcast market. Table 5 shows the Olympic broadcast rights fees from 1988 to the 2012 London Olympic Games. Table 5 also indicates that the winter and summer Olympic Games have been sold collectively since 2002.

As shown in Table 5, since 1988, the price of the Olympic broadcast rights has constantly been escalated at an increasingly steeper rate. Such increases in the broadcast rights fees indicate that the market size of the Olympic broadcasting has also grown constantly during the same period of time. In particular, Table 5 shows a significant amount of increase from the previous year (179 % of the previous year) when the buyers' cartel KP had collapsed, and the 2010 and 2012 Olympic package was exclusively contracted by the commercial broadcaster SBS.

Table 5 also compares the prices of Olympic broadcast rights in Korea to those of Japan. It appears that, for the 2010 and 2012 winter and summer Olympics, Korea's

Table 5 Broadcast rights of the Olympic games

Year	Host city	Season	Contr.[a]	Rights fee[b]	Percentage inc.[c]	Right % of JPN[d]	GDP % of JPN[e]
1988	Seoul	Sum[f]	KBS	2.50	100	5.0	6.4
1992	Barcelona	Win[g]	KP[h]	7.50	300	13.0	8.8
1996	Atlanta	Sum	KP	9.75	130	13.0	12.2
2000	Sydney	Win	KP	13.8	141	10.2	11.3
2002–2004	Salt Lake and Athens	W&S[i]	KP	16.3	118	8.5	15.0
2006–2008	Torino and Beijing	W&S	KP	18.4	113	8.4	20.5
2010–2012	Vancouver and London	W&S	SBS	33.0	179	9.4	18.7

[a] contractor
[b] in million USD
[c] % of previous year
[d] % of Japan's broadcast rights fees
[e] % of Korea's GDP vs. Japan's GDP
[f] Summer Olympics
[g] Winter Olympics
[h] Korean Pool (a buyers' cartel comprised of KBS, MBC, and SBS)
[i] Winter and Summer Olympics

broadcast rights fee was 9.4 % of that of Japan; this indicates that the market size of the Olympic broadcasts may be less than one-tenth of that of Japan. However, given that Korea's GDP was 18.7 % of Japan in 2012 (Korean GDP per capita is 48 % of Japan), the Olympic broadcast rights fees in Korea may be interpreted as being underestimated, compared to those of Japan. Alternatively, it may be a good indicator that the demand side of Korean broadcast right market has more bargaining power than that of the Japanese market.

Major Forces Influencing the Prices of Sports Broadcast Rights

There have been several important points of inflection that have driven dramatic increases in the levels of broadcast rights fees for both international and domestic sports events in Korea.

Influx of Overseas Sports in Korea

The influx of overseas sports programs has driven competition among broadcast channels. Such competition among broadcast channels in Korea did not begin until the mid-1990s, when Korea's first MLB pitcher Chan Ho Park, succeeded as a starting pitcher in 1996. Before 1996, virtually all of the popular sports contents had been shared among the three free-to-air broadcasters, for both international and domestic events; there had been hardly any competition among those channels. It was KBS that first purchased exclusive broadcast rights for the MLB at US$ 300,000 for the 1997 season (Chung 2008). Despite the successful record of Park as a full-time starting pitcher in 1997 (14 wins and 8 losses), KBS as a public service broadcaster had to abandon renewing the MLB rights for the following season, due to the severe economic downturn that occurred in late 1997.

It was at this time when a relatively small (in terms of coverage) local free-to-air channel, iTV, obtained the exclusive broadcast rights for the three MLB seasons from 1998 through 2000, at a total of US$ 5.5 million—annually US$ 1.8 million on average, a 611 % increase from the 1997 rights fee (Chung 2008). It was this period from 1998 through 2000 when Park was most successful during his 17-year career as a MLB pitcher, winning 15 games per season on average, and iTV was able to capitalize on the popularity of the MLB in Korea.

In response to the surprising and successful debut of the local free-to-air channel iTV in the sports broadcast market from 1998 through 2000, the three major free-to-air channels—KBS, MBC and SBS—agreed to work as a buyers' cartel to purchase any future MLB rights. However, by this time, major broadcasters in Korea had begun to recognize the merits of being an exclusive broadcaster—which drove MBC to step out of the agreement among the three free-to-air channels, and purchase exclusive multi-year broadcast rights in 2001 with the MLB; the price of the exclusive rights was US$ 8 million from 2001–2004, or US$ 2 million annually.

This signals the end of the long-lasting peaceful relationships among the three free-to-air channels, and the beginning of fierce competition for popular sports contents, resulting in the escalation of broadcasting rights fees. Meanwhile, in response to the MBC's exclusive contract with the MLB, KBS had purchased exclusive broadcast rights for all popular domestic professional sports (football, baseball, volleyball, and basketball), at prices significantly higher than those of the previous terms. In short, the influx of overseas sports programs, the MLB of Chan Ho Park in particular, acted as a strong impetus to bring competition among channels into the sports broadcast market in Korea.

Emergence of Sports Agency

The emergence of sports agency in Korea broadcast market had significant impact on the level of competition among channels and the prices of broadcast rights fees. Also, as will be noted below, the emergence of sport agency had an unforeseen effect of initiating discussion on the necessity of adopting the listed-event regulation in Korea.

The emergence of agency indicates increased competition and the escalation of prices for broadcast rights of scarce sports contents (Chung 2008). Before the mid-2000s, there was not any sports agency operating in the sports broadcasting market in Korea; thus, broadcasters had to directly negotiate with sports property owners. This situation had changed in 2005, when IB Sports, the first sports agency in Korea, purchased exclusive broadcast rights for the MLB from 2005 through 2008; this is the term following the contract between the MLB and MBC from 2001 through 2004. Not surprisingly, having acquired the exclusive broadcast rights for the MLB, IB Sports attempted to induce competition among the three free-to-air channels (KBS, MBC, and SBS) to recruit the highest possible bid.

In response to the strategy of IB Sports to increase competition, the three free-to-air channels formed an alliance not to purchase the MLB rights from IB Sports. Knowing that IB Sports, as a mere sport agency, does not have any means to deliver sports programs to audiences, the three channels expected IB Sports would lose bargaining power and eventually propose a significantly lower price that the three channels could share. However, instead of lowering the selling price, IB Sports decided to take the risk of acquiring a cable television channel, called Xports, to push ahead with exclusively televising the MLB contents (Chung 2008; Kim and Kim 2010). It was the first occurrence in the Korean broadcast market of any popular sports content migrating from the free-to-air channels to a pay-channel.

Contrary to the expectation and hopes of the three free-to-air channels, IB Sports' investment in operating its own cable television channel turned out to be quite a successful venture. Xports, the two-month-old pay-TV channel with practically no channel awareness among the general public, survived reasonably well, because of the two Korean MLB players Chan Ho Park's and Hee Sup Choi's good on-field performances in the 2005 season. For example, the first Korean MLB pitcher Chan Ho Park's 100th winning game was televised on June 5th of 2005, reaching the second highest rating figure among the 98 cable television channels during the period (Chung 2008). As a result, Xports enjoyed high penetration rates as well. Xports was included in as much as 82 % of the cable television household package subscriptions (10.5 million out of 12.8 million households) (Chung 2008). Despite the initial success of the channel, however, IB Sports had to sell Xports later in 2006 because the MLB contents failed to consistently draw the public's attention, and the financial burden to pay the broadcast rights fees exceeded the amount that IB Sports could bear.

In addition to the purchase of the MLB broadcast rights, IB Sports also purchased exclusive international football broadcast rights in 2005, which previously had been collectively purchased by the three free-to-air channels (Kim and Kim 2010). Specifically, IB Sports purchased the exclusive broadcast rights for all the games held by the Asian Football Confederation (AFC) from 2006 through 2012, which included the qualifying-round games of the 2006 Asian Cup football tournament. In February 22 of 2006, Xsports televised the qualifying-round match between the Korean national team and the Syrian national team; it was the first time in the history of Korean broadcasting that a football A-match had been exclusively televised on a cable television channel with no free-to-air channels involved. The television ratings rose up to 15.1 %, a record high rating figure among the cable television channels at that time. In short, the emergence of sports agency in the Korean sports broadcast market increased competition among channels, and increased prices. In addition, as a byproduct of a sport agency acquiring popular sports contents, the public discussion about the necessity of adopting listed-event regulation in Korea was initiated.

Change of Conception in Televising Sports in Korea

In Korea, there had been a unique tradition in broadcasting mega-sports events. The three free-to-air broadcasters (KBS, MBC and SBS) had not only collectively purchased and shared such mega-sports events as the Olympic Games, Asian Games, and FIFA World Cup, but also simultaneously televised the same games; thus, each channel had to compete against the other two for television ratings. For example, any popular Olympic games would be simultaneously televised on all three channels, and the only difference would be the sportscasters and the commentators.

Such a tradition had remained until the commercial free-to-air broadcaster SBS, established in 1990, came up with the idea to purchase exclusive broadcast rights for the Olympics and FIFA World Cup. SBS thought it had no alternative to overcome its underdog status when competing with the other two channels for television ratings when simultaneously televising the same games, but that it needed to acquire exclusive rights so as to take the monopolistic position in providing sports programs to audiences. The acquisition of exclusive rights for the Olympic Games was a significant change of conception in how to televise mega-sports events like the Olympic Games in Korea, since forming a demand-side buyers' cartel had been a long-standing tradition in Korea.

SBS, indeed, purchased exclusive broadcast rights for the Olympic Games and FIFA World Cup; no one could have expected that to happen before. In particular, in May 2006, SBS stepped out of the buyers' cartel formed among the three free-to-air channels, and negotiated individually with the IOC and FIFA, or their affiliated agencies, to obtain exclusive broadcast rights for two winter and two summer Olympic Games from 2010 through 2016 at US$ 72.5 million, and two FIFA World Cup finals from 2010 through 2014 at US$ 140 million. These prices were much higher than the prices normally expected when the three broadcasters negotiated as a buyers' cartel.

Not surprisingly, KBS and MBC wanted to share SBS's Olympic and FIFA World Cup broadcast rights. However, SBS rejected KBS and MBC's requests to renegotiate the rights, and pushed ahead to exclusively televise the 2010 Vancouver Winter Olympics and 2010 South Africa FIFA World Cup. It was the first time in the history of Korean sports broadcasting that the Olympic Games and the FIFA World Cup were televised on a *single* commercial free-to-air channel; the two public service broadcasters KBS and MBC had no role in televising the two mega-events but to report news of the game results.

Technically, SBS is one of the regional free-to-air broadcasters operating in the Seoul region. Thus, unlike the national network broadcasters KBS and MBC, SBS did not have legally bound local affiliates or branches, although most of the regional stations in other regions of Korea did carry SBS programs. For this reason, KBS and MBC criticized SBS, when SBS's deal with the Olympics and the FIFA World Cup was publicized in 2006, because of the potential risk that SBS would lack adequate coverage to fulfill the national audiences' needs. Such criticism fostered heated discussion on the adoption of listed-event regulation (or the universal access rule) in Korea, at a much harsher level than the discussion initially triggered by IB Sports' exclusive broadcast of the MLB and AFC contents in 2005 and 2006.

After all, the universal access rule for nationally beloved sports events was enacted in 2009. The newly enacted rule requires at least 90% coverage of the national television households in order to obtain the eligibility to televise the Olympic Games and the FIFA World Cup. After much argument among SBS and KBS/MBC allies, the government (the Korean FCC) declared irrespective of real coverage figures that the SBS's exclusive broadcasting of the 2010 Vancouver Olympics and FIFA World Cup did meet this coverage requirement. Nonetheless, pressure on SBS to share the remaining broadcast rights of international mega-events continued, and SBS eventually agreed to sub-license its 2012 London Olympic Games rights to KBS and MBC, albeit with a new agreement that the three channels would not simultaneously televise the same games, with some exceptions (Kim 2013b).

More Platforms and Channels

The number of media platforms and channels has been constantly increasing. As of 2013, the Korean broadcast market is operating on at least five different media platforms: free-to-air terrestrial networks, a cable system, a satellite system, IPTV and DMB. As noted above, with the increases in the number of platforms, the number of channels has increased as well. In addition, there was also an institutional shift in telecommunication policy that expedited the increases in the number of pay-channels. When the cable television system was first established in 1995, anyone wanting to launch a new cable channel had to obtain permission from the government after a strict examination; since 2001, however, that permission system was switched to a register system, in which people only needed to register with the government to operate a cable channel; thus, the entry barrier was much lower. Such a shift in the institutional policy has been a significant driving force in the increases in the number of pay-channels since 2001.

With the increase in channels, the increases in the number of sports channels followed. Of the channels available to televise sports contents are the 15 sports-pay-channels, three free-to-air channels, and four general service pay-channels; such a variety of channels are televising a range of sports contents. These channels are positioned on the demand side of the market for the sports broadcasting right. Therefore, increased numbers of channels spell increased competition on the demand side, resulting in the escalation of the broadcast rights fees for popular sports contents.

Of various new entrances into the sports broadcast market, the advent of the general service channels is exerting noticeable influences on the level of competition for popular sports contents. Before 2009, there had been legal restrictions allowing general service broadcasting—providing programs in all genres—only to the three free-to-air channels; any pay-channel could televise only programs of a specific genre permitted by the government or by government-associated agents. For example, MTV is registered as a music channel and has to schedule music programs as the central focus of the channel.

However, in 2009, the broadcast law was revised to allow four newly established pay-TV cable channels to provide general services. These channels are owned and operated by media conglomerates in Korea, who are willing to, and are capable of investing heavily on popular sports, insofar as there are reasons to believe that such investments would help them increase channel awareness and reputation, just as FOX did in the 1980s by acquiring exclusive broadcast rights for the NFL (Fort 2011).

JTBC, one of the four general service pay-TV channels newly established in 2011, has been the most active in acquiring sports contents. JTBC attempted to capitalize on sports to build up its initial awareness among television audiences. While the negotiations between the Asian Football Confederation's (AFC) affiliated sport agency, the World Sport Group (WSG), and the Korean Pool (KP, the buyers' cartel formed by KBS, MBC and SBS) were going on, JTBC stepped in to negotiate with the WSG to acquire exclusive broadcast rights for the first two games of the final qualifying-round of the 2014 Brazil FIFA World Cup. JTBC ended up obtaining exclusive broadcast rights for the two games at a price KP had to reject. According to Ki (2012), WSG offered US$ 15.1 million to the KP while the accurate information on the broadcast rights fees that JTBC paid WSG was not known. JTBC exclusively televised the Korean national team's game against Qatar on June 9th of 2012 and the game against Lebanon on June 12th of 2012, which broke the television rating record for the four general service channels that had just been launched. The game against Lebanon, especially, reached an average rating of 10.27 %, the second-highest rating figure among all channels broadcasting at the time, including the three free-to-air channels (Lee 2012). This was the second time that a football A-match was televised on a pay-channel (after Xports televised the qualifying-round game of the AFC Cup between Korea and Syria in 2006), and the first time that one such game was exclusively televised on a general service pay-channel.

Another case of a general service pay-channel's investment in sports is JTBC's exclusive rights for the 2013 World Baseball Classic. JTBC acquired the exclusive broadcast rights for televising all the games—39 games combining the first and second rounds—at the estimated price of US$ 6.5 million or higher (Won 2013). Initially, the MP & SILVA, the sports agency holding the WBC rights, offered US$ 10 million to the KP, and KP counter-offered US$ 1.4 million, and the discrepancy could not be resolved (Won 2013). JTBC stepped in to replace the position of the KP eventually (Huh 2013). However, the Korean national team failed to proceed to the second round of the WBC series, and the JTBC's investment in the 2013 WBC turned out to represent a typical case of "winner's curse," as people were only interested in the three first-round games in which the Korean national team participated—out of the 39 WBC games, which had cost such a high broadcast rights fee.

Dynamics of the Sports Broadcast Market

Key Players and Types of Transactions

The global sports media market for the broadcast rights fees is highly influenced by the factors that determine the levels of supply and demand. Suppliers are those that generate sports events; these include sports organizations, leagues, and teams. Purchasers are those on the demand side, typically the broadcasting companies that are willing to televise the sports events. In between, there are sports agencies that are consigned to sell products from the supplier or purchase the broadcasting rights on their own and become the intermediate suppliers themselves. Sometimes the agencies act as a purchaser when they are consigned to make purchases on behalf of the broadcasters instead.

The broadcast rights market for popular sports events has changed from a buyers' market to a sellers' market (Yoon 2005). In the 1930's in the US and in the 1950's in Europe, there was hardly any payment made to the sports organizations for broadcasting rights. This was a typical phenomenon of the buyers' market, in which the level of supply far exceeded that of the demand, such as when no broadcaster was genuinely interested in televising any of a range of sports events. In the buyers' market, the bargaining power of the buyers, the demand-side power, is far greater than that of the suppliers, resulting in only a minimal amount for broadcast rights fees, if any, to be paid to the original sports rights holders. The broadcasting rights fees began to increase from the 1960's in the US and from the 1980's in Europe (Bolotny and Bourg 2006). This was the beginning of the transition from the buyers' market to the sellers' market, during which suppliers' bargaining power started to bypass that of the demand-side's bargaining power. Such a transition has occurred in part because of the increased competition among television channels. In addition, the emergence of sports agencies working on the suppliers' side had also contributed significantly to transferring bargaining power from the buyers to the suppliers.

The mechanisms involved in the transactions of sports broadcast rights are getting increasingly complex, as different organizations and companies are entwined. Table 6 shows four different types of mechanisms, presented by Bolotny and Bourg (2006), for the transactions for sports broadcasting rights, based on the relative strengths of bargaining power between the demand and the supply sides.

Table 6 Transactions for sports broadcast rights

Types of transactions	Key features	Examples
Monopoly	One seller and many buyers	IOC negotiating with many channels for Olympic games
Supply-side monopoly	One seller and several buyers	UEFA negotiating with several channels for the Champions League
Bilateral monopoly	One seller and one buyer	IOC negotiating with a single buyers' cartel
Monopsony (buyers' monopoly)	Many sellers and one buyer	Many teams negotiating separately with a single dominant channel

Source: Bolotny and Bourg (2006)

Transaction Mechanisms in Korea

The types of transactions, based on Bolotny and Bourg's (2006) classifications, applied in the Korean sports broadcast rights market have been constantly evolving in accordance with changing sports and media environments. Also, different types of transactions are applied to different sports contents. This section specifies mechanisms of transactions for major sports contents in Korea.

IOC and FIFA Contents Similar to the broadcast market in Europe and Asia, the transactions for the Olympic Games and the FIFA World Cup in Korea had traditionally belonged to the bilateral monopoly category until the mid-2000s. Specifically, broadcasters in Europe, Asia, Japan, and Korea each formed their own buyers' cartel among mostly free-to-air broadcasters—the European Broadcasting Union (EBU), Asian-Pacific Broadcasting Union (ABU), Japan Consortium (JC), and Korean Pool (KP), respectively—and IOC and FIFA negotiated with such buyers' cartels until the mid-2000s. This is a typical bilateral monopoly relationship, as there is a single buyer and a single seller of the broadcast rights. In order to spread the Olympic values, the IOC stipulates its broadcast policy "to ensure the fullest coverage by different media and the widest possible audience in the world" (see www.ioc.org), and such a policy traditionally resulted in being partners with public service broadcasters, mostly members of such buyers' cartels as the EBU, ABU, JC, and KP. Meanwhile, the bilateral relationship between the buyer and seller in the Korean market as well as the markets in other continents is in sharp contrast to the type of mechanism prevalent in the U.S. market, which belongs to the monopoly category, as the IOC has consistently sold broadcast rights to the highest bidding media company out of free competition among multiple broadcasters since the 1988 Olympics that NBC had exclusively covered.

In Korea, the bilateral relationship in the transactions for IOC and FIFA contents has changed toward the supply-side monopoly type since the mid-2000s, where there is a single dominant sports rights holder, and several buyers for the sports rights in a competitive environment, resulting in price escalation. For example, on

May of 2006, the KP had offered US$ 63 million to the IOC to purchase the broadcast rights for the 2010-through-2016 Olympic Games. On June of 2006, SBS, one of the KP members with the knowledge of KP offers and strategies, stepped out of the KP, and negotiated individually with the IOC; this reflects the transition from a bilateral relationship to a supply-side monopoly. Such a trend reflected the IOC's strategy to induce competition on the demand side for the (implicit) purpose of revenue maximization (Kim 2012), and to weaken the bargaining power of the buyers' cartels. Eventually, SBS acquired the broadcasting rights for the 2010-through-2016 Olympic Games at US$ 72.5 million, which was US$ 9.5 million more than the KP had proposed. It was the first time the KP lost the broadcast rights for the Olympic Games to a private commercial broadcaster.

A similar situation occurred with respect to the FIFA World Cup. SBS left the KP in 2006 to negotiate individually with FIFA for the 2010 and 2014 FIFA World Cup. When SBS left the KP, FIFA made a deal instantly with SBS without actively acquiring additional bids from the remaining broadcasters, which after all turned out to be a well-planned strategy, according to Kim and Kim (2010), for tempting any broadcaster to break out of the buyers' cartel, and to prevent potential bidders from collaborating with each other. SBS was able to acquire exclusive rights for the 2010 and 2014 FIFA World Cup at US$ 140 million, 2.5 times the cost of the previous FIFA World Cup. Meanwhile, this change from the bilateral relationship to the supply-side monopoly also applied to other countries as well. For the 2012 summer and 2014 winter package, the IOC declined the proposal from the EBU, and started to sell the broadcast rights to agencies or individual channels, a change in trend from the bilateral relationship to a supply-side monopoly.

Korean Professional Baseball League The KBO was established in 1982, and its professional baseball league has grown steadily. In 1995, the golden era began with a total of five million spectators; however the league then lost popularity to 2 million spectators toward the end of the 1990s, partly due to the introduction of the MLB in the Korean market, and due as well as to the severe economic downturn in late 1997. This interpretation is consistent with the empirical evidences; Lee (2006) found the major cause of attendance decline in KBO during 1998–2002 was the substitution effect of MLB with Chan Ho Park. However, after the Korean national team's outstanding performance by winning the gold medal in the 2008 Beijing Olympics and 2nd place at the 2009 World Baseball Classic, the Korean professional baseball league has regained the dominant position in the Korean market, with a total of seven million spectators visiting stadiums in 2012.

The KBO originally maintained a bilateral relationship with broadcasters, as it sold its broadcast rights to a single representative buyer, one of the three free-to-air broadcasters (KBS, MBC, and SBS). That broadcaster actually negotiated the broadcast rights on behalf of the remaining channels, who then share the broadcast rights with the other channels. However, KBO has begun to sell its broadcast rights through an agency named E-clat since mid-2000s.

In 2008, E-clat created separate media right packages by media platforms of three-year terms from 2008 through 2011, and induced competition among channels for the acquisition of each package. That is, E-clat sold separate media right packages for the terrestrial broadcasting, and the remaining new media rights (i.e., the Cable/Satellite, the Internet, the IPTV, and the DMB). Such a practice means a transition from the bilateral relationship to the supply-side monopoly for each media rights package. This strategy has been strengthened for the current 2012–2014 contract by E-clat. With the continued popularity of the KBO, and the increased number of platforms and channels, as well as the variety of alliance possibilities among them, it is expected that the prices for the broadcasting rights will skyrocket in the next KBO broadcast rights negotiation. Meanwhile, E-clat is expanding its business portfolio to be the intermediate supplier and purchaser for not only the professional baseball league, but also for the professional football and basketball properties in Korea.

MLB of the U.S. The transaction mechanism for MLB broadcasting rights has belonged to the supply-side monopoly category from the beginning to the present—the MLB being the single provider of the MLB games, and several channels competing with each other to acquire the rights. Initially, KBS acquired the exclusive broadcast rights for the 1997 MLB season at US$ 300,000. Since the chance of Park's success was quite low, there was not fierce competition among channels; thus, it may look as if only one buyer was available for the MLB in 1997. However, technically speaking, there was more than one buyer, as the MLB had attempted to negotiate individually with each of the three free-to-air channels. Thus, the transaction type of the MLB in the Korean broadcast market has been a supply-side monopoly from the beginning.

The price of the MLB escalated substantially in 1998, when a newly established regional broadcaster, iTV, successfully acquired a three-year contract with the MLB from 1998 through 2000 at US$ 5.5 million total. It was the Major League Baseball International (MLBI), a marketing arm of the MLB, which decided to sign a contract with the regional broadcaster iTV, instead of with any of the major free-to-air broadcasters (Yoon 2005).

The three free-to-air broadcasters were not as active as in 1997 due to the unexpected economic downturn hitting Korea in the fall of 1997. This situation perfectly matched the strategic goal of iTV to acquire exclusive MLB rights in order to capitalize on the popularity of the MLB to enhance its channel image and boost its advertising revenues, using the so-called "battering ram policy." This strategy of acquiring exclusive MLB rights, in order to build the awareness, reputation and advertising revenues of a new channel was adopted again by MBC, when it signed an exclusive broadcasting contract at US$ 32 million with the MLB for 2001 through 2004, at an annual cost of US$ 8 million, to promote its newly-established cable-TV channel MBC ESPN, a joint venture between MBC and ESPN in Korea.

Toward the end of the year 2010, however, the popularity of the MLB in Korea had decreased due to the weak on-field performances of Korean MLB players. So, in 2012, the price for the broadcast rights dropped to US$ 3 million for MBC Sport Plus, a cable television channel succeeding MBC ESPN. However, as Hyun-jin Ryu has successfully debuted with the LA Dodgers in 2013, the price for the MLB right has escalated to US$ 7 million annually for the 2013–2017 seasons between

MBC Sports Plus and MLBI. The MLB in the Korean broadcast market is a good example of the fluctuations in the prices of broadcast rights based on the on-field performance of nationally beloved star players, besides the level of competition among various media.

Concluding Remarks

This chapter reviews how the sports broadcast market has evolved in Korea. It explores the sports broadcast market from the perspectives of the sports content, the suppliers and buyers of broadcast rights, the market size, and the transaction mechanisms. It contributes to the body of literature on sports economics from the perspective of sports broadcasting, and also provides a good review of the Korean sports broadcast market.

The scope of this chapter is limited in the following two perspectives. First, this chapter focuses only on the upstream market of sports broadcasting. According to Fikentscher (2006), there are two categories of sports broadcasting markets. The upstream market is where transactions of sports broadcast rights are executed, whereas the downstream market is the end-user market, where broadcasters provide sports programs that audiences consume. This chapter does not review the downstream market, or the audience market of sports broadcasting. Secondly, this chapter focuses on television. However, there are various media beyond television by which people consume sports contents (Hutchins and Rowe 2012). An extension of this chapter should therefore include discussion on the usage and values of additional media that people use for watching sports.

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Customer Discrimination and Outcome Uncertainty in the World Baseball Classic: The Case of the Taiwanese Television Audience

Wen-jhan Jane

Abstract This chapter investigates the effects of customer discrimination and outcome uncertainty on Taiwanese television viewers by using World Baseball Classic (WBC) match data. The micro data of TV ratings per minute provide comprehensive insights into the behavior of viewers. After controlling for players' performance on the field and the contemporaneous errors associated with the dependent variables, the results show that TV ratings were higher when Taiwanese and Asian players played. Taiwanese TV viewers exhibited customer discrimination favoring Taiwanese and Asian players but against players of other nationality; the largest effect of Taiwanese customer discrimination of this variety was against South Africa. Moreover, total points scored are significantly positively related to TV ratings in the analysis. Coefficients of pitch-by-pitch uncertainty close to the end of a game are positively related to TV ratings. The evidence supports the hypothesis of outcome uncertainty.

Introduction

This chapter investigates the effects of customer discrimination and outcome uncertainty on Taiwanese television viewers using World Baseball Classic (WBC) match data. Becker (1971) notes that customers can engage in taste-based discrimination, that is, they can derive utility from dealing with employees for reasons beyond the employees' underlying labor productivity. According to Becker's definition, there are three principal sources of discrimination—employers, employees, and customers. Unlike the former two, market forces cannot eliminate customer

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discrimination (one of the objects of analysis in this chapter) even in the long run (Kahn 1991).[1]

Sports teams are viewed as being engaged in intensive competition in which participants are evaluated solely on their merit. Furthermore, these professional workers' performances are recorded and highly visible to the public in the sports labor market. Therefore, a considerable amount of empirical research on customer discrimination has focused on professional and collegiate sports environments.

Customer racial discrimination has been examined in professional sports by looking at the market for baseball cards (e.g., Nardinelli and Simon 1990; Andersen and La Croix 1991; Gabriel et al. 1995; McGarrity et al. 1999; Fort and Gill 2000; Scahill 2005), Hall of Fame and all-star voting (e.g., Desser et al. 1999; Hanssen and Andersen 1999; Depken and Ford 2006), and game attendance (e.g., Hersch 2010; Tainsky and Winfree 2010); in professional basketball by looking at the market for basketball cards (e.g., Stone and Warren 1999) and Nielsen ratings of televised games (e.g., Kanazawa and Funk 2001; Nüesch and Franck 2009); in professional football by looking at the market for football cards (e.g., Longley et al. 2008; Primm et al. 2010); and, in college basketball by looking at gate revenues (e.g., Brown and Jewell 1994), all with mixed results.

Turning to outcome uncertainty, past research indicates that the greater it is, the more demand there is for the sporting event (Fort 2010, p. 166; Szymanski 2003). Two rival teams that compete rigorously offer games with greater uncertainty; meanwhile, individual sports become more attractive. This kind of uncertainty, commonly discussed in the literature on sports economics, is a key factor in the demand function (Borland and Macdonald 2003). As Fort (2010, p. 14) notes in his textbook on sports economics: "once the absolute level of quality is determined, relative competition becomes the object of fan attention." This demand for quality is expressed by Rottenberg's (1956) "uncertainty of outcome hypothesis." If sports leagues become sufficiently unbalanced, with talent concentrated in just a few teams, perennially losing teams will be unable to attract fans and, eventually, even the fans of dominant teams will lose interest in the league in the long run.

The evidence is mixed on the uncertainty of outcome hypothesis, with these sports including baseball (Knowles et al. 1992; Meehan et al. 2007; Jane et al. 2010), European football (Jennett 1984; Peel and Thomas 1988; Buraimo and Simmons 2008, 2009; Alavy et al. 2010), the National Basketball Association (Rascher and Solmes 2007), the National Hockey League (Jones and Ferguson 1988), and New Zealand's Rugby Union (Owen and Weatherston 2004). As more and better data for measuring sporting demand has become available over recent decades—TV viewership ratings, for example—the outcome uncertainty hypothesis can be

[1] With perfect competition and constant-returns-to-scale (CRS) technology, the former two sources of wage disparity are only short-run phenomena. Later Kahn (1991) showed that customer-based discrimination could persist in general equilibrium even with CRS technology and nondiscriminating firms. Unlike employer or employee discrimination, customer discrimination can cause long-run wage differentials when the previous two conditions hold.

tested on a game-by-game basis. Conclusions, however, are ambiguous (see Borland and MacDonald 2003; Szymanski 2003, for detailed references), and further empirical analysis is needed. This chapter generates additional understanding of outcome uncertainty in the context of TV viewing.

There exists a substantial economics literature aimed at testing the hypothesis by relating game attendance to some ex ante measure of uncertainty. Such studies are presented with certain difficulties. First, many games in the major leagues are sold out and therefore the observed demand is usually censored by capacity constraints.[2] Second, it is often hard to disentangle the quality of the two teams from the balance of the competition, and therefore hard to identify the true impact of outcome uncertainty. Third, season-ticket owners are likely to be committed to attending regardless of the current balance between the opposing teams. Fourth, since the majority of attendees are home-team fans, they presumably demand a strong probability that their team will win, and so home team demand may decrease with the degree of uncertainty of outcome, at least over a significant range of the data.

Estimating demand using TV viewership figures can avoid these problems. First, TV ratings are obviously not censored by capacity. Second, differing from an invariant figure of attendance, TV ratings change continuously with the balance of competition (scores at time *t*) between two teams all the time in a game. Third, the analysis of sporting demand through TV ratings does not suffer from the factor of season-ticket attendance. Last but not least, unlike attendance influenced by ex ante perception of a game, TV viewership also allows the analysis of the actual progress of a game.

In this chapter, minute-by-minute TV viewership figures, which avoid the problems encountered when estimating demand through game attendance, are used. The relationship between outcome uncertainty and TV ratings for international baseball tournaments is investigated. Moreover, fans tend to form obvious attachments to particular teams. The attachment that provides identification with a fan's team is important, and this kind of fan (i.e., customer) preference has been proven to play an important role in international competitions (Nüesch and Franck 2009). This chapter seeks to empirically judge the effect of customer discrimination and game uncertainty on television viewership using WBC match data.

The major findings are as follows. First, the evidence indicates that customer discrimination, a kind of team identification, significantly affects sporting demand as measured through the TV ratings. The appearance of Taiwanese and Asian players increases the ratings, but the appearance of black players decreases it. Second, the evidence indicates that for games where the outcome is in doubt and determination of the winner of the game comes down to (or beyond) the final minutes of regulation time are likely to be much more popular than games that are particularly lopsided.

The remainder of this chapter is organized as follows. A literature review of customer discrimination and outcome uncertainty is presented in the next section.

[2] Censoring occurs when the independent variables for the entire sample are observed, while for some observations there is only limited information regarding the dependent variable.

The data and empirical methodology are described in the section "Methodology and data description". The results are discussed in the section "Empirical results and discussion", and the chapter ends with a summary of the main conclusions.

Literature Review of Customer Discrimination and Outcome Uncertainty

Economists have also found evidence of customer discrimination in sports by examining factors other than trading cards. Kanazawa and Funk (2001) have found that television ratings are higher for NBA games involving teams with more white players.

The crack of the bat raises feelings of patriotism and national pride with large and enthusiastic crowds (Nüesch and Franck 2009). Apparently, the time when the Chinese-Taipei team, representing Taiwan, successfully reaches the next stage of a tournament is when the greatest number of office workers and college students gather in front of televisions at the office and in campus cafeterias. During the WBC 2009, Taiwanese people experienced extraordinary frustration when the team failed to reach the next stage of the tournament. However, the Chinese-Taipei team's early exit did not critically reduce the following television ratings. Baseball is often referred to as a national symbol in Taiwan. The sport has evolved its own unique local culture on the island. Passionate feelings are similarly expressed in Japanese and American baseball leagues. Asia-Pacific countries have active and dense regional ties. Thus, Taiwanese audiences continue to pay attention to other Asian teams. This study investigates how Taiwanese customer discrimination and Asian regionalism separately influence baseball television viewing.[3]

Outcome uncertainty has been shown to be important in the determination of game attendance and television ratings.[4] Ex ante measures of the outcome uncertainty, in the form of betting market odds, have been used in attendance studies of baseball (Knowles et al. 1992) and were used to analyze public perception of the lack of competitiveness in Major League Baseball in the 1990s (Paul et al. 2009). Odds in soccer were directly suggested as a measure of uncertainty of outcome for soccer in Peel and Thomas (1988) and Forrest and Simmons (2002). Betting odds were found to be the superior measure of uncertainty of outcome, although they

[3] Another relevant studies included Lee (2006) and Fort and Fizel (2004). Lee (2006) found that Koreans focus explicit national attention on MLB whenever Korean stars perform. In Fort and Fizel (2004), they included a chapter to discussed the sports and broadcasting in Western Europe.

[4] Szymanski and Késenne (2004) have indicated that it is widely believed that a sporting competition will be more attractive and more entertaining the greater the degree of game uncertainty between teams. According to Szymanski's (2003) classification of professional sports, there are three types of uncertainties, namely, match uncertainty, seasonal/championship uncertainty, and between-season uncertainty. This chapter focuses on match uncertainty, defined as the degree of uncertainty resulting from the relative capabilities of two competing teams.

had little predictive power in forecasting attendance, in Premier League Football matches in Spain (Buraimo et al. 2006). For the Monday night football television broadcasts of National Football League (NFL) games, outcome uncertainty as measured by the score differential at halftime was shown to have a significantly positive impact on the Nielsen television ratings for the second half of the game (Paul and Weinbach 2007).

Compared to match attendance, TV ratings offer some distinct advantages when examining the effect of uncertainty on sports demand. TV game ratings have an advantage in that viewers are influenced by the most recent information about the teams, while fan attendance is biased by prepaid full and partial season ticket packages. In addition, given the availability of data, within-game changes in viewership can be captured and the determinants of these changes analyzed. However, as the data is not easily available, the evidence for the relationship between outcome uncertainty and TV ratings is limited. Most of the studies discussing the role of outcome uncertainty and TV ratings have been published in the last decade (e.g., Garcia and Rodriguez 2002; Forrest et al. 2005; Paul and Weinbach 2007; Buraimo and Simmons 2008, 2009; Tainsky 2010).

In the case of Spanish football from 2000–2003, Garcia and Rodriguez (2002) found evidence of a strong positive association between the closeness of the contest and the broadcast audience on a terrestrial free-to-air channel, but not for a rival subscription platform. Forrest et al. (2005) found a strong positive relationship between outcome uncertainty and television audience size in English Premier League football between 1993 and 2003. Paul and Weinbach (2007) found that viewers prefer games with a quality match-up between winning teams, a high level of outcome uncertainty, and high scoring.

Buraimo and Simmons (2008) estimated a joint attendance-television audience model for the second tier of English football (the Championship) and found that match outcome uncertainty did not affect either gate attendance or television audiences. Recently, Tainsky (2010) investigated the sources of demand for television broadcasts of NFL games in 2006–2007 and found that many of the same factors, such as team quality, game uncertainty, and market variables, influence attendance in other sports and also affect the demand for NFL telecasts.

Methodology and Data Description

The WBC is held every 3 years. The 16 teams that participated in 2006 were invited back to the WBC 2009.[5] These clubs were Australia, Canada, China, Cuba, the Dominican Republic, Italy, Japan, Mexico, the Netherlands, Panama, Puerto Rico, South Africa, South Korea, Taiwan, the USA, and Venezuela. First, the clubs were

[5] After a 3-year gap between the first two installments of the tournament, plans called for the WBC to be repeated every 4 years following the 2009 event, with the third installment of the Classic to occur in 2013.

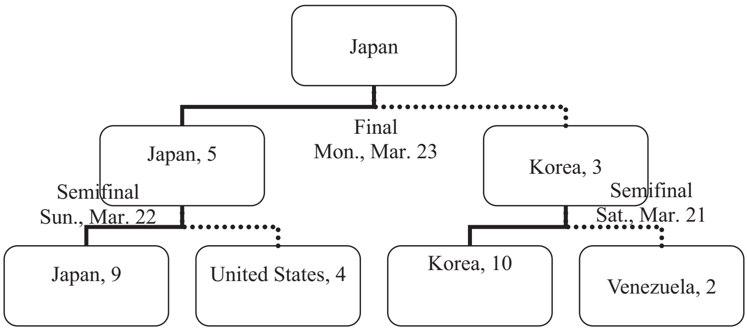

Fig. 1 Finals and semifinals in the World Baseball Classic (WBC) 2009

divided into four pools (A, B, C, and D). Teams competed with other teams for the first two positions in their pool, with eight teams moving on to the second-round (Pools 1 and 2). Then, the same structure of competition was applied in the second-round games, and four teams advanced to the semifinals. The semifinals and finals are described in Fig. 1.

The Entertainment and Sports Programming Network (ESPN), ESPN2, and the MLB Network directly televised all games.[6] Fans all over the world could watch the games on these channels. In Taiwan, Videoland Inc. bought the broadcasting rights from ESPN, and so the games were televised on the Videoland Max (VLMax) and Videoland Sport (VLSp) channels throughout March 2009.[7] The Tokyo Dome hosted the opening games beginning March 5. These games as well as those of the second round, the semifinals and finals all led up to the Dodger Stadium in Los Angeles where the final championship game was played on 23 March 2009.[8] All 39 games were televised in Taiwan by Videoland Inc. VLMax televised 30 games and VLSp televised 30 games, including the semifinal and final games. Both channels televised 21 games at the same time.

In this section we employ an index to measure the game uncertainty between the two rival teams, and three dummies are used to proxy Taiwanese customer discrimination and Asian regionalism. Then, the hypothesis of uncertainties, i.e., those games with a high degree of uncertainty lead to a high TV rating for a game, and the effects of customer discrimination can be investigated.

[6] Entertainment and Sports Programming Network 2 (ESPN2) is a sister station of ESPN.

[7] For example, games were televised on TV Asahi in Japan. Except for Taiwan, no other countries had access to Videoland Max and Videoland Sport at that time, and thus fans in other countries did not influence the variation in TV ratings. This makes it possible to analyze the effects of customer preference and regionalism on TV ratings in Taiwan.

[8] In the first round, Pool A played at the Tokyo Dome, Pool B played in Mexico City, Pool C played at the Rogers Centre in Toronto, and Pool D played in San Juan, Puerto Rico. In the second round, Pool 1 games were at Petco Park in San Diego, and Pool 2 games were at the Dolphin Stadium in suburban Miami. The semifinals and finals were scheduled for Dodger Stadium in Los Angeles.

Empirical Methodology

A general model of attendance demand (D) for a match between a host team and a guest team is as follows:

$$D = f\left(CP, ADS, Sum, X\right), \tag{1}$$

where the demand is proxied by the TV ratings. The independent variables include the dummies of customer discrimination (CD), the uncertainty of outcome in the sporting competition between the two teams (ADS), the sum of the two teams' scores in a game time t (Sum), and other control variables (X).

Compared with event attendance, TV demand is practically unrestricted due to the convenience of broadcasting. For example, game tickets are presold and attendance is predetermined. TV ratings change even throughout the game's broadcast. Therefore, the TV scheduling of game broadcasts impacts TV ratings. The specific form of equation for TV ratings according to Eq. (1) is provided in Eq. (2):

$$Rating_t = \alpha + \beta_1 CP_t + \beta_2 DR_t + \beta_3 ADS_t + \beta_4 Sum_t + \Sigma X_t + \varepsilon_t, \tag{2}$$

where *Ratings* include the VLMax and VLSp channels.[9] The TV rating measures the Taiwanese demand for sporting competition. *CP* includes the dummy for Taiwanese, the dummy for black hitter, and the dummy for black pitcher played at time t.[10] *DR* represents the dummy for Asian regionalism. The dummy measures Asian regionalism for Asian player playing at time t (yes = 1, otherwise = 0). Asian players include Japanese, Korean, and Chinese. *ADS* is measured by the absolute value of the score difference at time t, and *Sum* is measured by the sum of the score at time t.

The matrix of control variables includes the dummy for a weekend (*Dweekend*), the dummy for prime time (*DP*), the dummy for the middle of the night (*DMid*), the dummy for work times (*DWT*), the dummy for a clean-up batter (CUB345), and a variety of player's performance variables at time t. Performance variables such as the number of strikes, the number of balls, the number of strikeouts, the number of walks, the number of on-bases, the dummy for full count, and the dummy for the RBI situation, are all included in the model. A traditional standard approach that estimates the unknown parameters of Eq. (2) uses the ordinary least squares (OLS) method.[11] Moreover, the regressions are related as the contemporaneous errors

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[9] Rating refers to the percentage of households tuned in at any given moment. The ratings are collected by ACNielsen Taiwan. They set meters to tabulate these figures and allow the company to monitor viewing on a minute-to-minute basis. Editors Note: US researchers may be wondering, but it is much easier to get Nielsen data in Taiwan and use it as has the author.

[10] For a Taiwanese audience, a black player and a Hispanic player seem to be indifference, so both of them are counted as blacks.

[11] Regression with robust standard errors using the Huber–White sandwich estimators (Huber 1967; White 1980) can deal with a collection of minor concerns about failure to meet assumptions,

Table 1 Description of the average ratings and events for players' pitch-by-pitch performance on the Videoland Max (VLMax) and Videoland Sport (VLSp) channels (Obs. = 2971)

Events (TV ratings)		VLSp	
		Televised	Not televised
VLMax	Televised	1494(0.803)	2273(0.219)
	Not televised	2192(0.431)	–

associated with the dependent variables of VLSp and VLMax and may be correlated. Therefore, seemingly unrelated regression (SUR) models that jointly estimate the regressions are employed.

Data Processing and Description

The data utilized contain information for players in 16 teams and over 39 individual matches within the period from March 5 to March 23 in the WBC 2009. There were 36 games for the first two rounds. Then, 4 out of 16 teams went into the semifinal. VLMax televised 30 of these games, as did VLSp. Twenty-one games were televised on both channels at the same time. Each player's pitch-by-pitch performance is collected and quantified through 23 variables, forming a rare set of micro-data that we use as the basis for this study.[12]

Every performance event on the field for any player is matched to a TV rating. Taking the semifinal game for the USA versus Japan ($DR = 1$) as an example, the TV rating for the hitter Ichiro Suzuki versus the pitcher Scot Shields at the bottom of the eighth inning (Inning = 8) with Japan taking a 8–4 lead ($ADS = 4$ and $Sum = 12$) on Monday morning (11:21 a.m., $DWT = 1$) is 0.74 %. At this moment, Ichiro's teammate Munenori Kawasaki was on the second base ($SRP = 1$) and he got two strikes (Strike = 2) and one ball (Ball = 1). In the pitch-by-pitch TV ratings, the number of observations for all 39 games is 2971. The number of observations televised by both channels at the same time is 1494, and the average TV rating is 0.803 %. The number of observations televised by VLSp is 2192, and the average TV rating is 0.440 %. Table 1 presents the description of players' pitch-by-pitch performance on the VLMax and VLSp channels.

Thus, the demand for baseball can be studied via TV ratings. Besides the data for the TV ratings and each player's performance on the field, the national teams' data, points scored, dates, and televised time periods were collected. All variables came from the official MLB website and the Videoland Television Network.[13]

such as problems about normality, heteroskedasticity, or certain observations that exhibit large residuals, leverage, or influence. For such problems, robustness with robust standard errors may effectively deal with these concerns.

[12] The work of matching players' performance with TV Ratings is time-consuming. The author would like to thank Kai-wen Yu for valuable research assistance.

[13] The website of the MLB is http://www.mlb.com/wbc/2009/schedule/.

The average TV ratings for VLSp and VLMax were 0.431 and 0.219 %, respectively. The rating for VLSp was about twice that of VLMax. The Taiwanese team was eliminated from the competition in the first round, and so only part took in 4.75 % of the events. However, both Japan and Korea entered the finals. Including the events for Chinese players, the percentage of events for Asian players reached 34.94 %. The percentage of events with a black hitter reached 27.97 % and the percentage of events with a black pitcher reached 16.43 %.

With regard to the competition variables, the average absolute value of the difference in the scores at time *t* was 2.74. The average sum of the scores in a game was 4.71, and the international games were purposely not scheduled on weekends, so that only 23.46 % of games were played on weekends. Table 2 presents the descriptive statistics for such data.

Customer discrimination and team identification play an important role in international competition. The evidence for the effect of customer discrimination on TV audiences in Franck and Nüesch (2009) indicates that patriotism plays a crucial role in shaping viewing habits in European football games. The effect on TV ratings is significantly positive. Therefore, DTW is expected to be positive. Other than Taiwan's customer discrimination, Asian regionalism (DR) is also included as another kind of identification in the empirical regressions. DR is also expected to be positive. As to the discrimination against black players, this depends on the signs of the coefficients for DBH and DBP.

For the Monday night football television broadcasts of NFL games, outcome uncertainty as measured by the score differential at halftime was shown to have a significantly positive impact on the Nielsen TV ratings for the second half of the game (Paul and Weinbach 2007). Therefore, the coefficient of ADS is expected to be negative. In order to further investigate the effects of outcome uncertainty at the end of a game, the interaction term (Inning*ADS) is included. Outcome uncertainty as measured by the score differential closing at the end of a game is expected, in particular, to have a significantly positive impact on the TV ratings. Therefore, the coefficient of Inning*ADS is expected to be negative.

Furthermore, the coefficient of the sum of the game score at time *t* (*Sum*) is expected to positively affect the TV audience share if fans prefer offensive action leading to high-scoring games over a defensive struggle. Conversely, if fans prefer a defensive struggle to an offensive game, it is expected to negatively affect attendance and the TV audience share.

Empirical Results and Discussion

There are numerous indices used to measure a player's performance, and some of these indices are highly correlated. Therefore, multicollinearity needs to be considered before performing the multiple linear regressions. Except for the correlation between strikes and strikeouts (i.e., Strike and SO), and balls and walks (i.e., Ball and Walks), correlations between the performance variables used in the regressions are quite below 0.60.

Table 2 Descriptive statistics of the pitch-by-pitch data (Obs. = 2971)

Variable	Description	Mean	Std. dev.	Min	Max
VLMax	TV ratings of VLMax at time *t*	0.2193	0.1696	0	0.9
VLSp	TV ratings of VLSp at time *t*	0.4308	0.4764	0	2.75
Customer discrimination					
DTW	Dummy of Taiwanese player (yes = 1, otherwise = 0)	0.0475	0.2127	0	1
DR	Dummy of Asian player played (yes = 1, otherwise = 0)	0.3494	0.4769	0	1
DBH	Dummy of black hitter	0.2797	0.4489	0	1
DBP	Dummy of black pitcher	0.1643	0.3706	0	1
Game uncertainty					
ADS	Absolute value of the difference of scores at time *t*	2.7371	2.8395	0	15
Inning	Innings at time *t*	4.7105	2.5101	1	11
Control variables					
HScore	Host team's score	2.4790	2.7845	0	16
GScore	Guest team's score	2.2252	3.1821	0	17
Sum	Sum of scores at time t	4.7041	4.5018	0	24
Dweekend	Dummy of games scheduled from 1800 Friday to 2359 Sunday (yes = 1)	0.2346	0.4238	0	1
DT	Dummy of prime time (1900–2259 = 1, if included)	0.0626	0.2423	0	1
DMid	Dummy of middle of the night (2300–0600 = 1, if included)	0.1252	0.3310	0	1
DWT	Dummy of work time (0800–1800 = 1, if included)	0.5325	0.4990	0	1
CUB345	Clean up Batter (lineup 3,4, and 5)	0.3420	0.4745	0	1
Strike	The number of strikes at time *t*	1.0528	1.0523	0	3
Ball	The number of balls at time *t*	1.1628	1.2843	0	4
HBP	Hits by pitch	0.0114	0.1064	0	1
SO	The number of strikeouts	0.1087	0.3113	0	1
Walks	Walks	0.0804	0.2720	0	1
FC	Full count	0.0821	0.2746	0	1
FCho	Fielder's choice	0.0259	0.1589	0	1
Po	Pickoff	0.0024	0.0485	0	1
PoA	Pickoff attempt	0.0687	0.3831	0	7
Steals	Dummy of steals	0.0168	0.1287	0	1
Foul	Number of foul balls	0.4497	0.8534	0	6
Error	Error	0.0188	0.0449	0	2
PB	Passed balls	0.0020	0.0457	0	1
WP	Wild pitches	0.0077	0.0877	0	1
PR	Pinch runners	0.0037	0.0607	0	1
PH	Pinch hitters	0.0074	0.0857	0	1
OB	On bases	0.3618	0.4806	0	1
SRP	Dummy of RBI situation[1]	0.2117	0.4086	0	1
BL	Bases loaded	0.0212	0.1441	0	1
HR	Home runs	0.0222	0.1474	0	1

Table 2 (continued)

Variable	Description	Mean	Std. dev.	Min	Max
SH	Safety hits	0.1713	0.3769	0	1
DP	Double plays	0.0188	0.1360	0	1
BK	Balks	0.0030	0.0550	0	1
Round	Rounds	1.4981	0.7318	1	4

RBI situation indicates runners in the scoring position (the 2nd base). RBI is an abbreviation for "runs batted in"

The regression results for Eq. (2) are presented in Table 3. The Breusch-Pagan (1979) test is used to investigate heteroskedasticity. At the bottom of Table 3, all Breusch-Pagan (BP) tests are shown to be significant, indicating that the null hypothesis of homoskedasticity is rejected. The regressions with robust standard errors are used and these results are listed in the columns. Potential multicollinearity issues within the model were also examined by utilizing variance inflation factors (VIF). VIFs were found to not exceed four, being well within the acceptable guideline of ten. The results suggest that there are no multicollinearity issues in either of the final regression equations used in the analysis.

As can be seen from Table 3, models 1–6 are the results of OLS regressions with robust standard errors and models 7–9 are the results of Zellner's seemingly unrelated regressions (SURs). All coefficients of DTW from models 1 to 6 are positive and significant at the 1 % significance level. Customer preference for Taiwanese players positively affects TV ratings and the evidence corresponds with our expectations. In Model 5, the marginal effect is 1.41, and it represents that TV rating increases 1.41 % when a Taiwanese player is on the TV. On average, a Taiwanese player's appearance brings between 1.41 and 1.44 % of the audience to the VLSp channel, and brings between 0.15 and 0.16 % of the audience to the VLMax channel.

As to the Taiwanese perception of Asian regionalism, all the coefficients for the Asian-player dummy (models 1–6) are highly significant. They are also positively related to TV viewership. On average, an Asian player's appearance brings between 0.22 and 0.27 % of the audience to the VLSp channel, and brings between 0.065 and 0.082 % of the audience to the VLMax channel. As to the discrimination against black players, the coefficients of DBP and DBH are negatively related to TV ratings. This shows that customer discrimination is evident in the regressions for Taiwanese viewership.

As for the sporting competition variables, it can be seen that game uncertainties at time *t* (ADS), its squared terms (ADS^2), and the innings at time *t*, are all significantly and positively related to viewership on both channels. The interaction term of Inning*ADS is negatively related to viewership on both channels. Total points scored at time *t* (Sum) is significantly positively related to VLSp's viewers.

Other significant and consistent factors in Table 3 are the weekend dummy (Dweekend), the dummy of prime time (DT), the round (Round), and the middle of the night dummy (DMid). The former three variables are positively, and the last one negatively, related to TV ratings. The results show that games during prime time,

Table 3 Estimation results for pitch-by-pitch data in the WLS and Zellner's seemingly unrelated regressions

	OLS (with robust standard errors)					
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Dept. vbles	VLSp	VLMax	VLSp	VLMax	VLSp	VLMax
DTW	1.44***	0.16***	1.42***	0.15***	1.41***	0.15***
	(0.017)	(0.012)	(0.018)	(0.012)	(0.018)	(0.012)
DR	0.27***	0.082***	0.22***	0.065***	0.25***	0.066***
	(0.0095)	(0.0069)	(0.011)	(0.0072)	(0.011)	(0.0076)
DBP	−0.028***	−0.039***	−0.0044	−0.014*	−0.0066	−0.014*
	(0.011)	(0.0079)	(0.011)	(0.0079)	(0.011)	(0.0080)
DBH	−0.045***	−0.021***	−0.029***	−0.011*	−0.028***	−0.011
	(0.0093)	(0.0068)	(0.0094)	(0.0067)	(0.0094)	(0.0067)
ADS	0.024***	0.033***	0.024***	0.028***	0.029***	0.027***
	(0.0048)	(0.0034)	(0.0049)	(0.0034)	(0.0049)	(0.0035)
ADS^2	0.00053	0.0018***	0.00046	0.00081**	0.00018	0.00097***
	(0.00038)	(0.00033)	(0.00038)	(0.00034)	(0.00038)	(0.00034)
Inning	0.028***	0.028***	0.026***	0.023***	0.026***	0.023***
	(0.0026)	(0.0017)	(0.0026)	(0.0017)	(0.0026)	(0.0017)
Inning*ADS	−0.0082***	−0.0076***	−0.0081***	−0.0063***	−0.0088***	−0.0064***
	(0.00070)	(0.00052)	(0.00069)	(0.00052)	(0.00069)	(0.00052)
Sum	0.015***	−0.0014	0.013***	0.00019	0.015***	0.00018
	(0.0015)	(0.00098)	(0.0017)	(0.0010)	(0.0017)	(0.0011)
Dweekend			0.052***	0.033***	0.050***	0.033***
			(0.011)	(0.0076)	(0.011)	(0.0079)
DT			0.21***	0.073***	0.19***	0.071***
			(0.017)	(0.012)	(0.017)	(0.013)
DMid			−0.096***	−0.11***	−0.095***	−0.11***
			(0.014)	(0.011)	(0.014)	(0.011)
DWT			0.0015	−0.0034	−0.00094	−0.0024
			(0.010)	(0.0071)	(0.010)	(0.0072)
CUB345	0.0012	0.0023	0.0028	0.0020	0.0070	0.0012
	(0.0077)	(0.0056)	(0.0075)	(0.0054)	(0.0075)	(0.0054)
Round	0.060***	0.012***	0.072***	0.023***	0.057***	0.023***
	(0.0054)	(0.0039)	(0.0062)	(0.0044)	(0.0062)	(0.0045)
Cons	−0.039***	0.027***	−0.037**	0.030***	0.0073	0.027**
	(0.013)	(0.0095)	(0.015)	(0.011)	(0.016)	(0.011)
Player performance					yes	yes
BP test [3]	1011.59***	188.86***	1166.79***	184.26***	1124.13***	191.58***
Mean VIF	4.86	4.48	4.35	4.03	2.64	2.55
B-P test of independence[3]						
Obs.	2192	2273	2192	2273	2192	2273
R^2	0.860	0.365	0.873	0.402	0.875	0.406

Values in parentheses are standard errors

χ^2 -values are listed in the Breusch-Pagan test

*** denotes significance at the 1% level; ** denotes significance at the 5% level; * denotes significance at the 10% level

SUR Model					
Model 7		Model 8		Model 9	
VLSp	VLMax	VLSp	VLMax	VLSp	VLMax
1.14***	0.16***	1.03***	0.16***	1.03***	0.16***
(0.028)	(0.014)	(0.029)	(0.015)	(0.029)	(0.015)
0.35***	0.13***	0.27***	0.11***	0.30***	0.11***
(0.019)	(0.0097)	(0.019)	(0.0096)	(0.020)	(0.011)
−0.069***	−0.040***	−0.024	−0.025**	−0.022	−0.025**
(0.024)	(0.012)	(0.023)	(0.012)	(0.023)	(0.012)
−0.060***	0.0031	−0.019	0.015	−0.018	0.016
(0.022)	(0.011)	(0.021)	(0.011)	(0.020)	(0.011)
0.096***	0.031***	0.084***	0.027***	0.085***	0.027***
(0.0096)	(0.0049)	(0.0092)	(0.0048)	(0.0092)	(0.0048)
0.0056***	0.0025***	0.0022**	0.0011**	0.0014	0.00090*
(0.00089)	(0.00045)	(0.00088)	(0.00046)	(0.00089)	(0.00046)
0.079***	0.038***	0.067***	0.028***	0.063***	0.028***
(0.0053)	(0.0027)	(0.0051)	(0.0027)	(0.0052)	(0.0027)
−0.030***	−0.010***	−0.025***	−0.0087***	−0.025***	−0.0085***
(0.0015)	(0.00075)	(0.0014)	(0.00073)	(0.0014)	(0.00074)
0.020***	−0.0010	0.021***	0.0013	0.026***	0.0017
(0.0033)	(0.0017)	(0.0032)	(0.0017)	(0.0034)	(0.0018)
		0.20***	0.013	0.22***	0.017
		(0.022)	(0.011)	(0.022)	(0.012)
		0.15***	0.13***	0.15***	0.13***
		(0.030)	(0.015)	(0.030)	(0.015)
		−0.30***	−0.11***	−0.29***	−0.11***
		(0.030)	(0.015)	(0.030)	(0.015)
		−0.14***	0.0089	−0.13***	0.010
		(0.020)	(0.010)	(0.020)	(0.010)
0.010	0.0031	0.013	0.0043	0.016	0.0037
(0.015)	(0.0078)	(0.014)	(0.0074)	(0.014)	(0.0074)
0.015	0.0083	0.10***	0.026***	0.11***	0.027***
(0.010)	(0.0051)	(0.012)	(0.0063)	(0.012)	(0.0063)
−0.15***	−0.013	−0.16***	−0.0086	−0.16***	−0.012
(0.029)	(0.015)	(0.034)	(0.018)	(0.034)	(0.018)
				yes	yes
548.495***		550.598***		549.922***	
1494	1494	1494	1494	1494	1494
0.711	0.373	0.748	0.436	0.754	0.445

on weekends, and in the later rounds, attracted a larger TV audience, but that having games late at night decreased viewership.

In the 39 games, both channels televised 21 games at the same time. The contemporaneous errors associated with the dependent variables (TV ratings of VLSp and VLMax) may be correlated. Therefore, Zellner's SURs are employed and the estimation results for pitch-by-pitch TV ratings for VLMax and VLSp in Zellner's SURs are listed in the left side of Table 3. The $\chi 2$-values of the Breusch-Pagan test for independence at the bottom of Table 3, which represents the null hypothesis of the correlation of the residuals in the VLSp and VLMax ratings at zero, are rejected. Therefore, Zellner's SURs is employed in the following estimations.

For customer preference for Taiwanese players and perception of Asian regionalism, after controlling for contemporaneous errors associated with the dependent variables of VLSp and VLMax in the SURs, all coefficients are significant and consistently positively related to TV ratings. As to customer discrimination against black players, the results also support the expectations.

As for the sporting competition variables, in the left side of Table 3, game uncertainties at time *t* (ADS), its squared terms (ADS^2), and innings at time t are also significantly and positively related to viewership on both channels. The interaction term of Inning*ADS is negatively related to viewership on both channels. Total points scored at time *t* (Sum) is significantly positively related to VLSp's viewer numbers. Other significant and consistent factors in the SUR model, except for the work time dummy (DWT), provide the same results as those of OLS regressions. Games at work time decrease viewership. The evidence of the SUR model reinforces previous findings.

Customer Discrimination towards Taiwanese Players, Black Players, and Asian Regionalism

The main findings regarding customer discrimination and regionalism in pitch-by-pitch analyses support the view that both factors are positively related to the demand for international sporting competitions. Customer discrimination, that is, the identification with the Taiwanese team at an international contest, has a positive effect on sporting demand. From the pitch-by-pitch analysis provided in the left side of Table 3, the Taiwanese player dummy is seen to affect demand. On average, the increase in TV ratings at a game ranged from 1.03 to 1.14 % on the VLSp channel, and was 0.16 % on the VLMax channel when Taiwanese players played, ceteris paribus.

Asian regionalism, another kind of identification, also plays an important role in demand in an international contest, as witnessed in the empirical results of TV ratings. TV ratings increase from 0.27 to 0.35 % for the VLSp channel and from 0.11 to 0.13 % for the VLMax channel when an Asian player played.

As to customer discrimination against black players, the coefficients of DBP and DBH are negatively related to TV ratings. In the estimation results in the left side of Table 3, on average, the appearance of a black pitcher decreases the ratings by 0.069 % on the VLSp channel, and decreases the ratings by between 0.025 and 0.040 % on the VLMax channel. Meanwhile, the TV ratings decrease by 0.060 % on the VLSp channel when a black hitter plays.

The difference between two channels may be due to the types of audience for the different channels. VLSp is a professional sports channel and VLMax is a general entertainment channel. When watching an international baseball competition, VLSp is always the first choice for most baseball fans. Therefore, when a Taiwanese player appears on the television, Taiwanese baseball fans care about these players much more than the players from other countries and usually tune in to the VLSp channel. The effect of customer preference for Taiwanese players, customer discrimination against black players, and Asian regionalism on TV ratings in VLSp is much bigger than those in VLMax.

Outcome Uncertainty on TV Ratings

Balanced competition has proved to be an important factor in the demand for sporting competition in previous chapters. However, in the literature, the empirical study of pitch-by-pitch TV ratings is less discussed and has no consistent conclusion. The results of this chapter show that the coefficients of ADS in all models presented in Table 3 are significantly positive. However, the coefficients of the interaction term Inning*ADS are negatively related to viewers on both channels. Lee et al. (2012) found that the ex ante uncertainty affects viewership in the first 3–4 innings, while the ex post uncertainty affects viewership only in the later innings, but does not at the beginning. The evidence here is consistent with previous findings.[14]

The difference in terms of the coefficients for ADS and Inning*ADS indicates that the viewers' attitude toward outcome uncertainty at the beginning of a game is different from that at the end of a game in an international baseball competition. That is, an one point increase in the absolute value of the differential between two teams' scores induces the TV ratings of the VLSp channel to increase by 0.082 % at least, and increases the TV ratings of the VLMax channel by 0.027–0.031 %. A one point decrease in the absolute value of the differential between two teams' scores close to the end of a game increases the TV ratings of the VLSp channel by 0.025–0.030 %, and increases the TV ratings of the VLMax channel by 0.0085–0.010 %.

The coefficients of Sum are positively significant in all models in Table 3. This indicates that higher points scored induce higher TV ratings for both channels. Fans prefer offensive action leading to high-scoring games over a defensive struggle. Moreover, games during prime time, on weekends, and in later rounds guarantee

[14] The author thanks Rodney Fort and Young Hoon Lee for providing this viewpoint.

Table 4 Top five TV ratings and the customer discrimination towards nationality

Rank	Country	Mean rating	Customerdiscrimination (VLSp)	Customer discrimination(VLMax)
1	Taiwan	1.0.520	–	–
2	Korea	0.5326	−0.85***	−0.077***
			(0.041)	(0.019)
3	Japan	0.4477	−0.76***	−0.095***
			(0.030)	(0.014)
4	China	0.3644	−0.95***	−0.23***
			(0.035)	(0.016)
5	United States	0.2296	−0.61***	−0.18***
			(0.038)	(0.017)

***denotes significance at the 1 % level

high TV ratings, while broadcasting in the middle of the night and during work time decreases ratings.

The empirical results of the present analyses show that not only is the hypothesis of game uncertainty significant in analyzing sport demand, but that customer preference and regionalism are crucial to international baseball competition. In an international competition, enthusiastic baseball fans want to see their players represented in the games. There is no exception for Taiwanese fans. They desire to watch their teams win. Therefore, by analyzing the ratings from ACNielsen Taiwan, customer preference for Taiwanese players and the effect of Asian regionalism on sporting demand have both been found to exist.

Customer Discrimination Towards Nationality

The evidence has shown that Taiwanese viewers prefer Taiwanese players. To further investigate the degree of customer discrimination based on nationality, all of the offensive and defensive players' nationalities in the events (n = 2971) were matched with the TV ratings per minute. All 16 countries were analyzed and the marginal effect of the country's dummy was reestimated by the full model (Model 9). The results are reported in Table 4.

The top five average ratings for the VLSp and VLMax channels were Taiwan, Korea, Japan, China, and the USA. When Taiwanese players played at time *t* in a game, the average rating reached the highest figure of 1.052 %. The second largest average TV rating was 0.533 % when Korea played.

For customer discrimination, the coefficients of all dummies were significant and negative. This evidence supports the assertion that the customer discrimination towards nationality exists among the Taiwanese viewership. On average, when compared to having a Taiwanese player on the TV, a Korean player decreased the rating of the VLSp channel by 0.85 % and decreased the rating of the VLMax channel by 0.077 %, *ceteris paribus*.

Conclusion

Unlike most empirical models of sports demand, this chapter includes customer preference and Asian regionalism as factors in the model. Identification with a team in the form of customer preference and regionalism, using TV ratings per minute for the VLSp and VLMax channels for the WBC 2009, was tested. The results show that TV audiences for international sporting competitions are positively affected by customer preference, and the results thus correspond to the findings of Nüesch and Franck (2009). VLSp's TV ratings increased by at least about 1.02 % and VLMax's TV ratings increased by about 0.16 %, when a Taiwanese player played at time *t* in a game. Furthermore, TV audiences were also positively affected by Asian regionalism. If a Taiwanese, Chinese, Japanese, or Korean player played at time *t* in a game, the TV ratings increased by at least 0.11 %.

A smaller gap between two teams' scores leads to higher game uncertainty, and an increased demand for the sporting event. However, the results do not fully support the hypothesis of game uncertainty in the pitch-by-pitch analysis. That is, the negative significant effects of outcome certainty close to the end of a game (Inning*ADS) on ratings show that TV viewers prefer a large gap in scores between two teams at the beginning of a game, but, as the innings pass by, a smaller gap between the two teams' scores leads to higher ratings. Our evidence provides further clues to puzzling out the customer perception of outcome uncertainty.

Moreover, higher total points scored increases TV ratings. The evidence shows that viewers prefer offensive action leading to high-scoring games over a defensive struggle. In sum, fans choose to consume international sporting events not only according to their nations' participation and teams' recognition, but also based on the likely game score. Furthermore, the results of both the multiple regressions and regressions in Zellner's SUR model support the conclusions.

Finally, the analysis of Taiwanese customer discrimination towards nationality shows that Taiwanese preferred not only their own players, but discriminated less against Asian players, including players from Korea, Japan, and China, when watching the WBC game on TV.

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Uncertainty of Outcome and Promotion and Relegation in the Chinese Basketball Association

Fang Zheng and Rodney Fort

Abstract We provide a brief economic characterization of the professional domestic league currently known as the Chinese Basketball Association (CBA). Our focus is on tracking competitive balance, interesting in other leagues worldwide, for insight into interesting institutional change. Game uncertainty, playoff uncertainty, and consecutive season uncertainty all pose the same type of challenge as in other leagues worldwide. In addition, an experiment with promotion and relegation offers insight into current research and policy questions worldwide.

Introduction

Only labor issues occupy as much space in the sports economics literature as papers on competitive balance (Fort 2005). We add to that literature by extending the well-accepted investigation of competitive balance to professional basketball in China. Generically, one of the important distinctions of sports management in China is that it is completely "top-down" with most inventions and reforms led by the Chinese government. This means many policies and innovations that cannot be realized in market-oriented economies can and may well have been tried by government fiat.

This paper focuses on the league currently known as the Chinese Basketball Association (CBA) along "tracking" lines now traditional in the competitive balance literature (Fort and Maxcy 2003). Simply tracking the behavior of competitive balance measures can reveal the impact of some policy choices in Chinese professional sports. For example, like Chinese professional football (soccer), the professional forerunners of the CBA were governed by an open management system with promotion and relegation (P&R). However, by government fiat, reorganization for 2005/2006 that created the CBA has employed a closed management model without P&R in an explicit effort to reduce the rising costs observed in that league.

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There is keen interest in such a choice regarding professional sports worldwide. P&R is used in most professional sports leagues outside North America, especially in the soccer leagues in Europe. Szymanski (2001) shows that European leagues, with P&R, have stronger intraseason competitive balance compared to closed American leagues but very poor interseason competitive balance. Noll (2002) and Ross and Szymanski (2002) argued that P&R can make leagues more competitively balanced by sending weaker teams out of the top tier and bringing up stronger teams. Essentially, with the purpose of avoiding relegation or realizing promotion, clubs have to pursue better players and coaches to improve their competitiveness. Ross and Szymanski (2008) took their earlier observations on to a full endorsement and called for P&R as a staple in North American sports leagues. Mildner (2010) discussed how promotion and relegation increases meaningful competition and obviates the need for elaborate revenue-sharing mechanisms designed to ensure competitive balance.

The treatment by Noll (2002) and Ross and Szymanski (2002) (with other interesting insights from the North American perspective in Fort 2000) also is extensive on other pluses and minuses as well, including the cost issue that plagued the CBA, leading to the Polaris Plan. Szymanski and Valletti (2005) also recognized this trade-off and suggested that P&R can be implemented in leagues where clubs and fans care more about winning percentage while more bottom-line oriented leagues can choose the closed model without P&R. The choice to eliminate P&R in the CBA offers interesting insights into these issues.

The paper proceeds as follows. In the next section, we provide a brief background on professional basketball in China and the eventual creation of the CBA. After that, we track the behavior of competitive balance in Chinese professional basketball using measures of game uncertainty, playoff uncertainty, and consecutive season uncertainty. After a discussion section related to balance and P&R, conclusions round out the paper.

Background on the Evolution of Professional Basketball in China

The Management Center of Basketball in the General Administration of Sport of China organizes all basketball in China, professional and amateur. The organization overseeing just the pro variety is called the China Basketball Association (not to be confused with the CBA, one of the professional leagues currently managed by this association) while the Chinese Olympic Committee handles amateur basketball. Through the 1970s (and prior to the establishment of the CBA), there were two basketball divisions composed of amateur, provincial teams, for example, Team Zhejiang or Team Beijing. Local sports bureaus trained the players in these provincial teams and the primary task of the organization was to win a national championship. This was not a profit-oriented venture in any way.

Table 1 Provincial Basketball League results, 1973–1995. (Source: Jiahong 2005)

Year	Champion	Runner-up	Third
1973	Guangdong	Beijing	Jinan
1974	Army	Liaoning	Nanjing
1975	–	–	–
1976	–	–	–
1977	Wuhan	Jinan	Shenyang
1978	Wuhan	Shenyang	Shanghai
1979	Beijing	Guangdong	Shenyang
1980	Hubei	Nanjing	Shanghai
1981	Army	Beijing	Shanghai
1982	Shanghai	Guangdong	Jinan
1983	–	–	–
1984	Army	Liaoning	Jinan
1985	Army	Jinan	Jiangsu
1986	Army	Nanjing	Shanxi
1987	–	–	–
1988	Liaoning	Hebei	Jiangsu
1989	Liaoning	Army	Jiangsu
1990	Hebei	Army	Liaoning
1991	Liaoning	Army	Jiangsu
1992	Liaoning	Army	Qianwei
1993	–	–	–
1994	Army	Liaoning	Jinan
1995	Army	Liaoning	Qianwei

There were usually more than 50 teams in the two divisions with more than 20 teams in the first division (provinces could have multiple teams). While we could not find any data set on this, P&R of two or three teams occurred in some years. When there were nationwide invitational games, sometimes referred to as "national sports conferences," the league did not play (1975, 1979, 1983, 1987, and 1993). There was no play in 1976 either due to the political movement in China. While details of all the matches could not be found, we were able to find the records of the top three teams, annually (see Table 1).

The progression of pro basketball in China is in Table 2. Again, under the direction of the China Basketball Association, there were various incarnations of pro basketball beginning in 1995/1996. Early on, the league was named after its sponsor. The China Basketball Association's inaugural "Triple Five Chinese Men's Basketball First Division League" (Triple Five was the corporate sponsor's name) began its first season, 1995/1996, with 12 teams. Zerling (2013) reports that IMG was the marketing arm for pro basketball in China from its inception. For the second season, 1996/1997, Hilton became the naming rights corporate sponsor and would be involved as such for nine seasons. As in the inaugural season, there was still only the "First Division League" for that second season.

However, for 1997/1998, the China Basketball Association organized pro basketball into two divisions. The selection criteria are not entirely clear, but the existing First Division League teams, along with some of the teams from the lower "Second

Table 2 History and development of pro basketball in China, 1995/1996–2011/2012

Season	Sponsor	League name(s)	No. of teams	P&R?
1995/1996	Triple Five	1st Division	12	2
1996/1997	Hilton	1st Division	12	2
1997/1998	Hilton	1st Division A 1st Division B	12 6	2 2
1998/99	Hilton	1st Division A 1st Division B	12 8	2 2
1999/2000	Hilton	1st Division A 1st Division B	13 8	2 2
2000/2001	Hilton	1st Division A 1st Division B	12 10?	2 2
2001/2002	Hilton/Motorola/China United Telecom	1st Division A 1st Division B	13 10	2 2
2002/2003	Hilton/Motorola/China United Telecom	1st Division A 1st Division B	14 7	2 2
2003/2004	Hilton/Motorola/China United Telecom	1st Division A 1st Division B	12 7	2 2
2004/2005	Hilton/Motorola/China United Telecom	1st Division A 1st Division B	14 13	2 No
2005/2006	None	CBA NBL	15 13	No No
2006/2007	None	CBA NBL	16 13	No No
2007/2008	None	CBA NBL	16 13	No No
2008/2009	None	CBA NBL	18 16	No No
2009/2010	None	CBA NBL	17 16	No No
2010/2011	16 sponsors	CBA NBL	17 16	No No
2011/2012	22 sponsors	CBA NBL	17 16	No No
2012/2013	23 sponsors	CBA	17	No
		NBL	16	No
2013/14	20 sponsors	CBA	18	No
		NBL	10	No

Sponsors were eliminated from 2005/2006 through 2009/2010 under the Polaris Plan; all teams that enter CBA after 2005 are through entrance certification system but not promotion

Division" were reorganized into the Chinese Men's Basketball First Division *Group A* League and First Division *Group B* League. The remaining lower "Second Division" teams, plus some newly added teams, were reorganized and continued play as well. However, from then on, the new "Second Division" did not have a steady structure as the number of teams changed every year.

The Group A and Group B Leagues were related to each other through P&R but closed relative to the Second Division. The two lowest finishers in Group A would be relegated to Group B and the two highest finishers in Group B would be promoted into Group A. This structure, still with Hilton as the naming rights sponsor, was in place through the end of 2000/2001 when Motorola and China United Telecom joined Hilton as sponsors. But dramatic changes were about to occur.

In September 2003, just prior to the 2003/2004 season, Li Yuanwei, Director of the Management Center of Basketball in General Administration of Sport of China (the China Basketball Association's overseer), put forth major pro basketball reforms in the "Polaris Plan." The reforms included the elimination of naming rights, renaming the leagues, and the cancellation of P&R. All reforms went into effect for 2005/2006.

The previous First Division Group A League was renamed the *Chinese* Basketball Association for 2005/2006 (henceforth, the CBA, and we repeat, not to be confused with the *China* Basketball Association which governs the CBA). The First Division Group B League, supplemented by some teams from the Second Division, was renamed the National Basketball League (NBL). P&R was cancelled between the new CBA and NBL but NBL clubs could enter the CBA through a specific entry certification mechanism. We emphasize that this was not a P&R system but rather an application process. In addition, there was no P&R between the NBL and the Second Division from the institution of the Polaris Plan in 2005/2006 through 2009/2010 but P&R between the two was reinstituted for 2010/2011.

For 2010/2011, the China Basketball Association announced that the CBA and NBL were to be considered leagues at the same level, akin to the American and National Leagues in US Major League Baseball. By this decision, the two leagues were now rival, competing leagues, and NBL clubs could no longer enter the CBA through the previous application process. NBL divisions were also created and that league proceeded with divisional play while the CBA adopted divisions (North and South) much later. However, nothing about the CBA divisions really matters into the playoffs—the top eight teams are simply selected.

Media, fans, and NBL investors expressed discontent and doubt about the coexistence of the CBA and NBL from the outset. Media described the NBL as a product without purpose, with no youth team and attracting little attention. NBL investors were also concerned because they paid for NBL teams with the expectation of the chance of promotion into the CBA. Their chance were removed by fiat. Quirk and Fort (1999) discuss at length what it takes to both create and destroy "major league status." This action by the China Basketball Association regarding the status of the CBA and NBL may provide a fruitful area for later investigation into that issue.

And, as previously mentioned, P&R was reinstated at this time only in the NBL. The China Basketball Association's express aim was to promote competitive balance in the CBA when it cancelled P&R after 2004/2005. In an interesting about-face, the China Basketball Association reinstated P&R in the NBL starting again in 2010/2011 explicitly to enhance market demand and competitive balance! Perhaps the China Basketball Association thought the different treatment of the two leagues vis-à-vis P&R would bring added competitive distinction and help elevate the NBL to the same proclaimed level as the CBA. Or perhaps the China Basketball Association simply sought any differentiation available in the face of the criticisms just mentioned. We have no insights for the NBL, unfortunately, since we could not find any data on competitive balance in that league.

Also in the face of these criticisms, the China Basketball Association Development Investigation Team was established in June 2010. The focus of the investigation was improvement in competitive balance in the CBA, the coordination of the development of the CBA and the NBL, a possible system of P&R between the two, and the possible return of the entry certification mechanism for NBL team-membership in the CBA. We could find no formal action statement, but the CBA did expand for 2013/2014, the first addition to the league since 2008.

At present there are 18 clubs in the CBA (Table 3), divided into the Northern and Southern Divisions. The distribution of teams is primarily in the eastern portion of China, from Jilin in the north to Foshan, Guangdong, and Dongguan in the south; the exceptions are Sichuan in central China and Xinjiang in the far northwest. Note that there actually are three CBA teams in Zhejiang (Bayi Army's home is Ningbo). CBA team names are typically in the following triad: province or city, sponsor, and nickname (for example, Qingdao Double Star Eagles). The season begins in November or December, ends in March or April, and consists of 34 regular season games. The top eight teams enter the playoffs, separated into two brackets, and play a single elimination progressive tournament to the championship. For 2013/2014, nearly 20 companies sponsored the CBA, such as Nike, UPS, TCL, Tsingtao Beer, and Konica Minolta. Li Ning also signed on in 2012/2013 as the league's official apparel and footwear provider for 5 years at $ 350 million, according to former Nike executive in China, Terry Rhoads (Zerling 2013). There are also individual sponsorships with each team. In the Qingdao Double Star example above, Peng (2013) puts the amount around 20 million yuan (at 16 cents/yuan, that is about US$ 1.25 million). The rest of the revenues are primarily at the gate.

On a final note, there is a college league in China that is called the Chinese University Basketball Association (CUBA). However, few professional players come from CUBA. Instead, most of the players in the CBA are trained by the member clubs' own youth academy, consisting of each club's own youth teams, which are specifically maintained to train athletes. Academy participants are recruited locally. Inputs into the academies are from local province sports development government organizations. It is more like the system in European soccer, where clubs cultivate their own talent and sell contracts among each other at acceptable prices. The mechanisms are vague and we do not know if there is any management of competition over talent by the CBA or any other government agency. Labor issues are not public in China and we found no source on the relationship between players and teams. However, we do know that the China Basketball Association stopped its national talent search and allocation geographically after 2007/2008. After that, individual teams searched out their own talent.

It is also known that the second season of pro basketball, 1996/1997, saw the first allowance of foreign players in the league, including John Spencer, James Hodges, Marlon Kimbrough, Kennard Robinson, Wayman Strickland, and Nantambu Willingham from the USA. Spencer claims that he made $ 12,000 per month in that first year but jumped to $ 30,000 per month in the next year (Zerling 2013). Some

Table 3 Highest-level league cities, 1996/1997–2011/2012. (Source: Wikipedia n.d.)

Team	1995/ 1996	1996/ 1997	1997/ 1998	1998/ 1999	1999/ 2000	2000/ 2001	2001/ 2002	2002/ 2003	2003/ 2004	2004/ 2005	2005/ 2006	2006/ 2007	2007/ 2008	2008/ 2009	2009/ 2010	2010/ 2011	2011/ 2012	2012/ 2013	2013/ 2014
Air Force	1	1	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Bayi (Army)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Beijing	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Beijing Olympians	–	–	–	1	1	1	1	1	1	–	–	–	–	–	–	–	–	–	–
Dongguan	–	–	–	–	–	–	–	–	–	–	1	1	1	1	1	1	1	1	1
Foshan	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	1	1	1
Fujian	–	–	–	–	–	–	–	–	–	1	1	1	1	1	1	1	1	1	1
Guangdong	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Guangsha (Zhejiang)	–	–	–	–	–	–	–	–	–	–	–	1	1	1	1	1	1	1	1
Henan	–	–	–	–	–	–	–	–	–	1	1	–	–	–	–	–	–	–	–
Hong Kong Dragon	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–
Hubei	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Jiangsu	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Jilin	–	–	–	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Jinan (Army)	1	1	1	1	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–
Liaoning	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Nanjing Army	1	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Police	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Qianwei	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Qingdao	–	–	–	–	–	–	–	–	–	–	–	–	–	1	1	1	1	1	1
Shaanxi	–	–	–	–	–	–	1	1	1	1	1	1	1	1	1	–	–	–	–
Shandong	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Shanghai	–	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Shanxi	–	–	–	–	–	–	–	–	–	–	–	1	1	1	1	1	1	1	1

Table 3 (contniued)

Team	1995/ 1996	1996/ 1997	1997/ 1998	1998/ 1999	1999/ 2000	2000/ 2001	2001/ 2002	2002/ 2003	2003/ 2004	2004/ 2005	2005/ 2006	2006/ 2007	2007/ 2008	2008/ 2009	2009/ 2010	2010/ 2011	2011/ 2012	2012/ 2013	2013/ 2014
Shenyang (Army)	1	1	1	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–
Shenzhen	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–
Sichuan	–	1	1	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
Sina Lion	–	–	–	–	–	–	1	1	–	–	–	–	–	–	–	–	–	–	–
Tianjin	–	–	–	–	–	–	–	–	–	–	–	–	–	1	1	1	1	1	1
Xinjiang	–	–	–	–	–	–	–	1	1	1	1	1	1	1	1	1	1	1	1
Yunnan	–	–	–		–	–	–		–	1	1	1	1	1	–	–	–	–	–
Zhejiang (Golden Bulls)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

of his Chinese teammates were making $ 200 per month. But this has changed dramatically over time. Pastuszek (2013) reported that Shanghai and Beijing were both vying for the services of 7-ft 3-in "Max" Zhang Zhaoxu, quite possibly pushing his pay into the US$ 1 million range.

Tracking Competitive Balance in the CBA

Whether it actually ends up to be so or not is a matter of empirical verification, but Rottenberg's (1956) uncertainty of outcome hypothesis (UOH) is typically invoked when administrators of professional sports leagues make any policy change concerning league governance, for example, player drafts or revenue sharing. Fort (2005) summarized existing methods from the three dimensions of outcome uncertainty, which were first raised by Sloane (1976) and then demonstrated by Cairns (1987). The three dimensions include game uncertainty (GU), playoff uncertainty (PU) and consecutive-season uncertainty (CSU). In this section, we choose GU, PU, and CSU measures and track them over the history of Chinese professional basketball, as data allow.

One use of these definitions is to simply track the behavior of competitive balance over time in order to casually assess the impacts of changes in the governance of sports leagues or its other environments, for example, changes in the macro economy. We focus only on the former and try to match up interesting occurrences in competitive balance measures with real-world occurrences in Chinese basketball. As in the foregoing, three "regimes" are suggested for the tracking exercise—Regime 1: The rearrangement to two major levels of play in 1997/1998 to the last season before the Polaris Plan in 2004/2005; Regime 2: The imposition of the Polaris Plan in 2005/2006 with team reorganization and the elimination of P&R to the season just before teams were allowed individual talent search, 2007/2008; Regime 3: The individual team talent search period from 2008/2009 on.

For GU, we adopt the well-known Noll–Scully ratio of standard deviations (RSD) measure. Assessment of championship outcomes is our PU focus. This actually ends up to be a very simple but powerful inspection of championship outcomes. Finally, for CSU, we sidestep the entire question of just what constitutes a dynasty and adopt the measure of correlation of winning percentages over time by Butler (1995). In what follows, we examine GU and PU by regime while the nature of the calculation of our CSU measure requires we wait on it until an overview of all three regimes is finished.

In the first regime suggested by our three events, 1996/1997 to 2004/2005, the top pro league nearly always had 12 teams (Hong Kong and Taiwan were in for special 1-year dispensation by the China Basketball Association; Table 3). In almost all years, the composition of teams in the league can be attributed to P&R (typically, two P&R plus one other added to the league via petition). Exceptional years occurred in the last 2 years of this regime when it appears that the net change (after taking into account Hong Kong and Taiwan temporaries) was one team only. Espe-

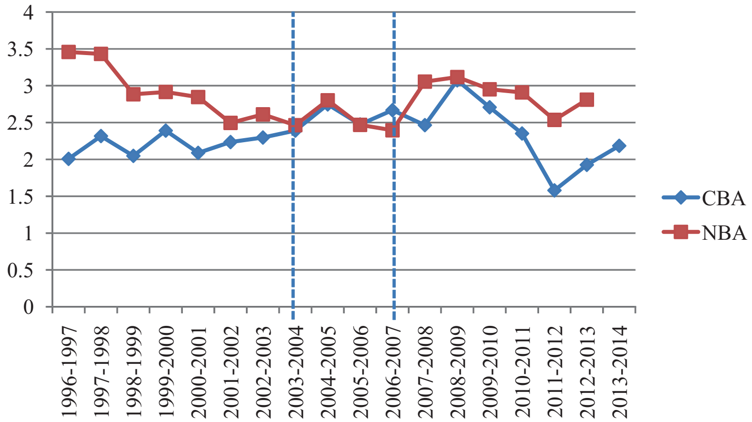


Fig. 1 GU in the highest level Chinese pro leagues and the NBA, 1996–2013

cially important alterations would appear to be the second Beijing team only during this period (ends play after 2003/2004), and Fujian, a team that has stayed at this level of play since its arrival. There were also a bunch of once-up-then-back-down-again teams—Air Force, Henan, Hong Kong, Hubei, Nanjing, Qianwei, Shenyang (actually twice separated by two seasons), Shenzhen (Taiwan), and Sichuan.

Turning to our tracking measures, adding big-city team Beijing Aoshen (and probably Fujian as well at the very end of the regime) and flitting about a bunch of really weak teams corresponds with a rise in RSD, that is, a *decline* in GU (Fig. 1). While the average was 2.29, the trend was clearly upward at the end of the regime. Indeed, by the end of this first regime, RSD in CBA rivaled that of the National Basketball Association (NBA), the most competitively unbalanced league in North America (Fort 2011).

For PU in the first regime, Table 4 shows the championship outcomes in the highest level of pro basketball in China. The only conclusion anybody can reach is that the Bayi Rockets simply owned the championship during this regime; Bayi won the first six consecutively (if we throw in 1995/1996), and the first seven of eight, and another one in 2002/2003. The final 2 years of the regime actually saw the beginning of similar dominance by a different team, Guangdong Southern Tigers, but that is for presentation of the next regime to follow directly. But to emphasize further, there were (again, adding in 1995/1996) 20 possible championship berths during this regime and Bayi occupied nine of them; Guangdong occupied four and Liaoning Hunters and Shanghai Sharks each had three more. That is, all but one (95%) of the total championship berths went to four teams (Jiangsu Dragons had the other, its only appearance ever).

The league was clearly larger during Regime 2, with the number of teams steady at 16 (Table 3). From the previous regime of 14, Henan was another up once then down team, while Dongguan, Shanxi and a second team in Zhejiang were added via petition route (the Polaris Plan removed P&R). Remember too that Beijing Aoshen had departed just prior to the beginning of this period.

Table 4 Highest level championship outcomes

Year	Champion	Result	Runners-up	Best of
1995/1996	Bayi Rockets	3–0	Guangdong Southern Tigers	5
1996/1997	Bayi Rockets	3–0	Liaoning Hunters	5
1997/1998	Bayi Rockets	3–0	Liaoning Hunters	5
1998/1999	Bayi Rockets	3–0	Liaoning Hunters	5
1999/2000	Bayi Rockets	3–0	Shanghai Sharks	5
2000/2001	Bayi Rockets	3–1	Shanghai Sharks	5
2001/2002	Shanghai Sharks	3–1	Bayi Rockets	5
2002/2003	Bayi Rockets	3–1	Guangdong Southern Tigers	5
2003/2004	Guangdong Southern Tigers	3–1	Bayi Rockets	5
2004/2005	Guangdong Southern Tigers	3–2	Jiangsu Dragons	5
2005/2006	Guangdong Southern Tigers	4–1	Bayi Rockets	7
2006/2007	Bayi Rockets	4–1	Guangdong Southern Tigers	5
2007/2008	Guangdong Southern Tigers	4–1	Liaoning Hunters	5
2008/2009	Guangdong Southern Tigers	4–1	Xinjiang Flying Tigers	5
2009/2010	Guangdong Southern Tigers	4–1	Xinjiang Flying Tigers	5
2010/2011	Guangdong Southern Tigers	4–2	Xinjiang Flying Tigers	5
2011/2012	Beijing Ducks	4–1	Guangdong Southern Tigers	5
2012/2013	Guangdong Southern Tigers	4–0	Shandong Lions	5

For GU during Regime 2, RSD hovered at its new higher average in this regime of 2.54 (Fig. 1). Apparently, the rearrangement into the CBA/NBL, and the elimination of R&D in the CBA, had no impact on the distribution of winning in the CBA but did serve to maintain the decline of GU from the previous regime. In comparison, it is pretty clear that GU was higher in Regime 1 than in Regime 2. In the previous First Division A, with P&R, average RSD was 2.29. With the creation of the CBA under the Polaris Plan, without P&R, average RSD is 2.54; an 11 % increase and less game uncertainty. (Note: If the averages were normally distributed, t-tests with equal and unequal variances reject the null of equal averages with $p<0.007$ and $p<0.015$, respectively.)

The assessment of PU suggests that championship concentration eased a bit in Regime 2 (Table 4), but not at the top. Guangdong Southern Tigers now assumed the dominant role, winning the first championship in Regime 2, 2005/2006 (finishing a three-peat begun in 2003/2004). They would also win another in 2007/2008 (beginning four in a row that would continue on into the next regime, discussed directly). During this period, Guangdong occupied three of the possible six play-off berths and Bayi occupied two more, all but one for just these two teams.

Our third regime, 2008/2009 to present, saw an obvious improvement of competitive balance according to RSD. In addition, the number of teams increased to 18 by petition of Qingdao and Tianjin in the first year of the regime (Table 3). Remember, there still is no P&R in this regime. After six seasons (five in the CBA), Yunnan ceased play after the first year of this regime and it has stood that way with 17 teams since then.

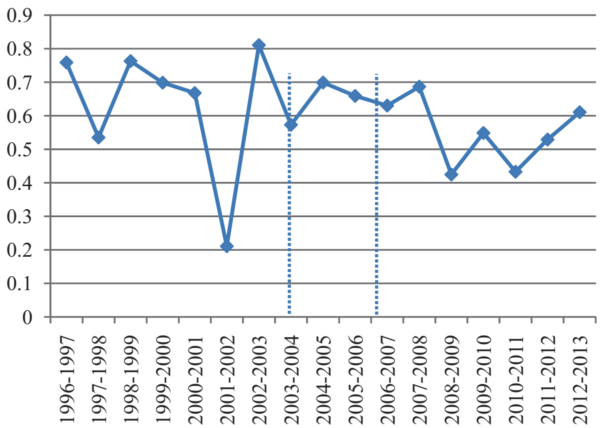
Interestingly, with that two-team increase, RSD reached its historically highest mark of 3.07 in the first year of this regime. Apparently, these were very good teams that entered the CBA. But then the individual team's pursuit of talent appears to have turned it completely around! With teams pursuing their own talent, rather than having it done centrally through the China Basketball Association, we see the return of game uncertainty with RSD plummeting to 2.35 for the first time since 2003/2004. And in season 2011/2012, RSD reached 1.58, which is the all-time lowest in the history of CBA.

As for PU, Guangdong continued to dominate the playoffs, completing three in a row in the first 4 years of the regime. Again, the top team (Guangdong) occupied half (five) of the total play-off berths (ten). Xinjiang Flying Tigers occupied three more so that the top two occupied 80 %. It would be difficult to defend the position that somehow PU improved in this third regime and was really any different than in the other two. Not to put too fine a point on it, Table 4 also makes it clear that none of the series in any regime has really even been close except for 2004/2005. We do note in passing the three out of four championship appearances by Shanghai Sharks, 1999/2000 through 2001/2002. This was when Yao Ming was with the team and after his departure the Sharks are absent from the championship game. Indeed, when Ming left for the NBA after the Sharks' sole championship, they dropped to eighth in 2002/2003.

That brings us to our overview of CSU, required by nature of its calculation across any boundaries like those we have drawn for our three regimes. Consumers not only care about GU and PU, but their behavior may also be influenced by CSU. We do not make arguments about dynasties since it is difficult, sport-by-sport, to even ascertain what that means. Certainly if leagues are more balanced rather than less so, repeat champions will be rare. But is three in a row a dynasty? Or does it take more? Six in a row by Bayi Rockets has all the earmarks of a dynasty but are the three-peats and streak of four enough to label a Guangdong dynasty?

We sidestep that whole debate and use the method from Butler (1995) to simply examine the correlation between this year's winning percent and last year's winning percent to gain insight into CSU. There have been 18 seasons with a crowned champion in our data. A total of 32 clubs are playing, or have played, at the highest level. But six of them were promoted from a lower division and relegated after only one season. Thus, we focus on the existing 17 clubs existing through 2012/2013 to measure CSU since 1996/1997. The results are portrayed in Fig. 2. Only two seasons saw our CSU measure below 0.50; the highest correlation was 0.81 and the average is 0.60. While no formal statistical tests exist for this measure, the usual rule of thumb about correlations suggest that this version of outcome uncertainty takes a beating in the CBA and its forerunners. Further, note the lowest correlation in 2001/2002 as the complete domination changes from Bayi to Guangdong. If this type of correlation indicates "dynasty", then clearly it is so about both Bayi and Guangdong. This conclusion also suggests that the Polaris Plan did little to alleviate this cross-season correlation; the level is steady and greater than 0.60 with brief relief just after teams were allowed to pursue their talent individually, but the correlation has crept back up again in the last season in Fig. 2.

Fig. 2 CSU in the highest level Chinese pro leagues, 1996–2010



Discussion

Given our results in the previous section, it appears that competitive balance at the highest level of pro basketball in China was, indeed, determined by team entry and location under P&R prior to the Polaris Plan. Interestingly, the elimination of P&R under the Polaris Plan appears to have led to worse balance in terms of game uncertainty and certainly did nothing to stem the clear championship dominance by Guangdong Southern Tigers in the absence of P&R. The only observed improvement in CBA balance occurred for just GU following allowing individual teams to pursue their own talent after 2008/2009.

This is an interesting finding that is mostly consistent with the previous literature review of P&R in the international context; on average, GU was higher with P&R than without it. But our qualifier does deserve notice. Even though it was lower, it was getting worse over time during the regime with P&R and, turning to championships, the presence or absence of P&R does not appear to coincide with any change at all in a distinctly unbalanced outcome. So, along well-known lines in the rest of the world, the Polaris Plan could have been predicted to worsen balance and it did. The only remaining question is whether or not cost savings were achieved under the Plan, all else constant. Of course, the demand side for CBA basketball by fans and sponsors has been growing over time and any full treatment of cost savings would be clouded by that fact. In any event, we have no data to do such an analysis of costs, accounting for rising demand anyway.

We can only suggest to future researchers that perhaps there is some empirically derivable balance/cost trade-off related to the presence of P&R that can be developed to guide policy makers in this regard. Such surely is suggested by previous work on other world leagues and by the tracking results in this chapter. As payrolls began to increase in the top-level Division A in the presence of P&R, the Polaris Plan moved toward an NBA model for the CBA without P&R. In 2010, with development difficulties listed earlier in the chapter, and worries over competitive imbalance among NBL clubs, P&R was adopted in NBL after a five-season absence. Perhaps it is time, again, to simply acknowledge that the NBL is the "lower" league and allow P&R between NBL and CBA clubs.

Summary and Conclusions

Compared with the high degrees of professionalization and commercialization in North American and Western European professional sports, the CBA is in its initial period of professionalization and commercialization. This has occurred after a ten-season developmental period that saw the formal birth of the CBA in 2005/2006. On average, there was more competitive balance measured by game uncertainty in the league when it did have promotion and relegation than when it did not. With the increase in popularity and financial stability in the CBA, returning to promotion and relegation, with the already existing NBL, would help to further stabilize that lower league and, both by theory and observed evidence for the CBA, improve its game uncertainty. In the longer term, if Chinese fans of Chinese professional basketball enjoy balanced play in the sense of game uncertainty, this could increase demand for both the CBA and the NBL. The design of appropriate policies regarding competitive balance in the current institutional environment, instead of directly copying the NBA model, should engage future researchers on the development of sports in China.

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Ticket Price Behavior and Attendance Demand in Chinese Professional Soccer

Nicholas M. Watanabe and Brian P. Soebbing

Abstract There exists diverse research examining the attendance at professional sporting events from a North American and European perspective (Watanabe, Int J Sport Finance 7:309–323, 2012). However, there are a limited number of studies that have considered attendance for sporting leagues and events in Asia, with most of these studies focused on the Nippon Professional Baseball League (Leeds and Sakata, J Sports Econ 13:34–52, 2012; Yamamura and Shin, J Socio-Econ 37:1412–1426, 2008; Appl Econ 41:3257–3265, 2009). This research examines attendance for professional soccer in the Chinese Super League (CSL) over an entire season. Analysis of this league is of great interest because of the unique pricing structures employed by various franchises that belong to the CSL. Specifically, several CSL franchises employ only a single price point for a ticket to their match, while major professional sport leagues in North America and Europe offer multiple prices at which to enter matches. The practice of price dispersion, the selling of tickets to a single event at different price levels, in the CSL provides researchers with the chance to examine how teams employing different pricing practices in a league may affect attendance. Price dispersion theory indicates that the use of multiple prices for a product should allow a firm to capture more consumer surplus, and previous empirical examinations have found evidence of increased demand or revenues for organizations using price dispersion (Humphreys and Soebbing, Econ Lett 114:304–307, 2012; Huntington, J Cult Econ 17:71–87, 1993). This chapter will thus test whether price dispersion has a positive relationship with attendance in the CSL.

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Introduction

The Chinese Football Association Super League, often referred to simply as the *Chinese Super League* (CSL), is the top level of professional football in the People's Republic of China. The league was originally founded in 2004 to replace the previous top-flight football league known as the Chinese Jia-A League. The Chinese Jia-A League, more commonly called "Jia-A," was the first professional football league in China. The Jia-A was established in 1994, and was formed from the remnants of former semi-professional leagues that could not legally be designated as professional sport organizations. It was only in the 1990s that the Chinese government began to allow corporations and industries to either purchase or convert their club teams into fully professional sport franchises.

Though the Jia-A was successful in regards to running leagues and scheduling competition among clubs, heavy criticism existed regarding the business and management practices of the league and many of its member clubs. As a result, the Chinese Football Association (CFA) that oversaw all football in China decided that the league and its teams need to reform. This reformation leads to the creation of the CSL, which moved most of the Jia-A teams into the CSL and demanded that they meet higher standards of professionalism. While the CSL has continued to grow as a brand and organization, the league had to deal with a number of issues including a major match-fixing scandal that caused fans in China to doubt the credibility of the games being played by teams in the league. Despite this scandal, the CSL worked to overcome many of these issues, and is quickly becoming one of the more dominant professional football leagues in Asia with some of the highest attendance figures on the continent.

The CSL also presents an interesting case through which to examine the phenomenon of price dispersion in professional sport leagues. In other leagues in which price dispersion is employed, all of the teams in the league have come to employ price dispersion. For example, all 30 franchises in Major League Baseball (MLB) in North America employ multiple levels at which tickets for games can be purchased. In this, many teams in recent years have offered more than ten price points at which consumers can buy tickets. In the case of the CSL, it is the case where some of the teams in the league have yet to begin using price dispersion. In professional sport leagues in North America the practice has been not only to get away from a single ticket price, but to also have an increasing number of price levels at which tickets are sold. In the case of the CSL, one can see that some of the teams in the league have fully embraced the concept of price dispersion, while others have moved away from using it. In this, the league presents a natural experiment to examine whether the use of price dispersion is important in regards to increasing attendance at matches.

Clearly, there is a need to better understand the economics of the CSL, especially in regards to attendance demand and pricing practices. However, there is practically no literature that has considered the growth and emergence of Chinese domestic professional football from an economic or financial perspective. With this in mind, this chapter attempts to focus on the growth of the CSL, and the importance of pricing strategies within the overall demand for league matches.

CSL History and Development

The first year of existence for the CSL was a difficult one for the league, as in the previous years, it had been discovered and widely reported that there had been rampant gambling and match fixing in Jia-A matches in 1998. Though these matches happened 6 years earlier in a different organizational structure, the 12 teams that moved from Jia-A to the CSL were all placed under heavy scrutiny. Because of this scrutiny, the early years of the CSL were plagued with low attendance at matches. As time elapsed, more evidence of match fixing was uncovered in the Jia-A, including referees being paid to affect the outcome of matches in what is known as the "Black Whistle" scandal. The main referee who was said to have taken bribes was Jianping Gong, who ended up being sentenced to 10 years in prison for accepting corporate bribes in China. This episode was a very ominous situation for the CSL, as they found themselves dealing with negative press and dwindling fan support at a time when Chinese football should have been at a high point coming off of their first World Cup appearance in 2002.

Match fixing is an issue that has plagued Chinese soccer for many years, and is still thought by some experts to still be existent in the game. Outside of the aforementioned Jianping Gong, there have been several players, officials, and other referees who were found guilty of match fixing in the CSL, and thus sent to prison. While a good deal of the match fixing happened in the late 1990s and early 2000s, some of the facts of what really happened have just begun to surface. In 2013, the CFA announced a series of punishments for a number of groups who were part of match fixing in the CSL (Cao and Bing 2013). One club, Shanghai Shenhua, was stripped of the 2003 CSL title for being found guilty of fixing a match with Shaanxi Guoli who was at the bottom of the CSL table at the time. The fact a championship club had to pay to win a match against the worst team in the league was an indictment of how bad the corruption was in the CSL during this time period. In addition to being stripped of the title, Shanghai Shenhua and Tianjin Teda were both docked six points from their 2013 campaigns for evidence showing prior match-fixing attempts.

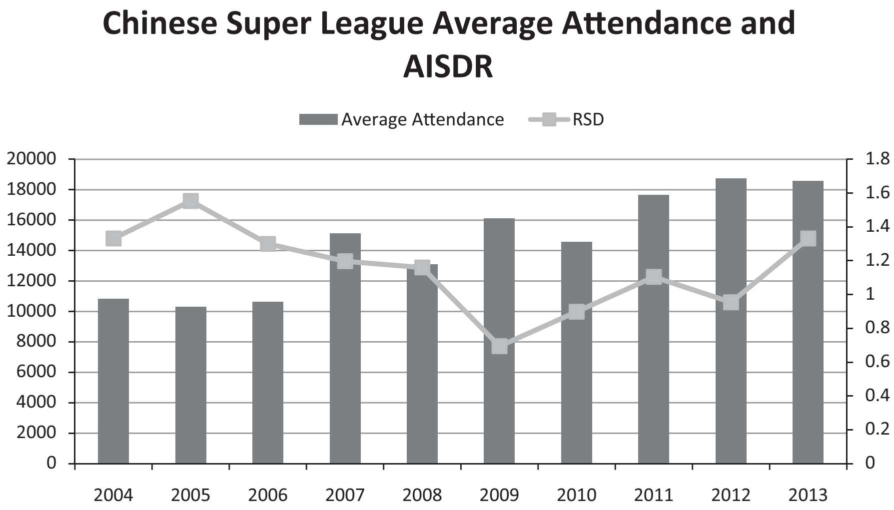
Besides these penalties, several dozen players and officials were banned from the CSL and CFA for life. These bans were also extended worldwide by FIFA, making it impossible for any of the individuals involved in this case to be able to work in, or play professional soccer again anywhere in the world (ESPNFC 2013). Despite the penalties, the lack of severity of the penalties is something that is sure to draw criticism to the CSL and CFA. In prior cases of match fixing in China, teams have been automatically relegated to lower divisions in China. Further precedent of match fixing leading to relegation was also set in Italy when Juventus, one of the most powerful and popular clubs in the world, were relegated to Serie B for fixing matches. Thus, for Shanghai Shenhua and Tianjin Teda to merely be docked six points, was seen as a light penalty, that was also inconsistent from what the CSL, CFA, and other soccer leagues around the world had done in previous cases. Because of such inconsistencies, it is only natural for some skepticism to exist surrounding the professional club soccer product in China.

A great deal of criticism about these penalties and match-fixing issues can also be traced to the way soccer is managed and administered within China. In the book *Bamboo Goalposts*, Rowan Simons noted the issues faced by individuals when trying to create a football league in China, even at the local grassroots level. In this, a good deal of the problems can be traced to the lack of agreement from the higher levels of administration in the CFA. Part of these issues is rather natural, as the CFA is part of the bureaucracy of the Chinese government. Individuals who work for the CFA may not necessarily be administrators who are knowledge about the specific sport they are overseeing, or any sport in particular. Rather the administrators are put in place partly because of their ties into the communist party and their political connections. However, this does not mean that these individuals themselves are free from criticism and scandal in Chinese soccer. In 2010, the General Administration of Sport (GASC) fired Nan Yong, the head of the CFA. The CFA is but a single branch of the large nationalized sport institution. Nan Yong and several of his deputies were questioned by police as part of a large match-fixing investigation, which lead to the ultimate decision to fire them (CNN 2010). All of these moves came as a greater move to try and reform the CSL and CFA by the GASC and other stakeholders.

Reform

In May 2009, the Chinese government began to investigate and crackdown on match-fixing issues in football throughout the country. As noted, investigations found individuals at levels of the CSL and CFA were part of match fixing in Chinese professional football. The investigations eventually lead to the arrests of many high ranking officials in the CFA and CSL, and forced the league to have to put itself and many of its member clubs under new administration. It is believed that the initial crackdowns on match-fixing hurt attendance, as in 2009 the CSL had its best yearly attendance with an average of just over 16,000 spectators per match. This number decreased by around 1500 per match in 2010 as further news of the allegations surrounding professional soccer in China began to become public knowledge. However, the crackdowns and reforms seem to have eventually helped in the long run, as the CSL had record attendance in each season since the reforms of the league occurred as can be viewed in Fig. 1, with 17,651 average attendance in 2011, and 18,740 in 2012. Thus, while the "Black Whistle" scandal and further match-fixing issues plagued Chinese soccer for quite some time, the forceful crackdowns finally seem to be turning the league into a mainstream sport with growing popularity in China.

Figure 1, featured below, displays the trends of average league attendance for the CSL over time, alongside the Actual to Idealized Standard Deviation Ratio (AISDR) competitive balance metric (Soebbing 2008). In examining Fig. 1, it is evident that attendance that average attendance at CSL matches has been on the rise. The AISOR has been fluctuated up and down, indicating that competitive balance has not become consistently better or worse in the CSL. In this, it would seem to be the



Economic Growth

Fig. 1 Chinese Super League (CSL) average attendance and AISDR

case that competitive balance has not been an important influence on attendance at CSL matches. Rather, match-fixing issues and other factors may have more importance in regards to attendance.

Economic Growth

Maybe the biggest boost to professional club soccer in China has been the economic boom that the country has experienced over the last decade. With the influx of wealth into the country after governmental changes to allow more free enterprise and business within the country, there was also growth in the consumer culture in China. In this, China not only had the largest population of any country, but they also had a growing middle class which had more disposable income than in previous generations. Due to the growth of disposable income in China, more luxury goods began to be purchased, including tickets to sport and entertainment events.

In addition to the influx of consumers with higher disposable income to games, there were the benefits China's economic growth had on many of the ownership groups of CSL teams. As corporations owned a number of the teams in the CSL, the big gains for the Chinese economy also translated into gains for groups and owners of many of the teams in the league. However, the biggest influx of money into a single franchise came in the form of a single man named Jiayin Xu. Mr. Xu is the chairman of the Evergrande Real Estate Group based in the city of Guangzhou in southern China, and has been valued by *Forbes* magazine in 2012 of having a value of around $ 5.8 billion.

The Guangzhou Evergrande story is one that could be said to epitomize the current state of Chinese football. In the 1990s, the team was connected with gambling and match fixing, to the point that it actually had to be taken over by the local government in 2001. After the takeover by the government, Guangzhou looked to be headed toward being a top tier club when the "Black Whistle" incidents first became public. Because of these incidents, sponsors who had once been willing to back the club backed out of deals, and the team bounced from one sponsors company to another in subsequent years. The team finally earned promotion to the CSL by winning the second tier title in 2007. Guangzhou would only spend 2 years in the CSL before being relegated in 2009 because of their ties with the match-fixing scandal.

Of course, it was 2010 when Jianyin Xu decided to buy the team and have them sponsored by his real estate company Evergrande Real Estate Group. Despite being in the second division, Mr. Xu was able to sign two Chinese national team stars for a high price, as well as several key foreign players. Guangzhou Evergrande would go on to win the second division title with ease and were promoted back to the CSL. For the 2011 campaign, Mr. Xu opened his pockets even further, purchasing Argentinean Dario Conca, whose deal was rumored to one of the top ten salaries in the world for a professional football player. Guangzhou only lost two matches in their first year back in the CSL, and easily won the 2011 title with several matches left to play. It was clear that Mr. Xu was willing to pay heavily for the team to succeed, something that had not been seen with any other professional football club in all of Asia, let alone China.

Not satisfied with the success of winning the CSL title, Mr. Xu placed his sites on winning the Asian Football Confederation (AFC) Champions League competition. To challenge for this continental title, Mr. Xu fired the coach that led Guangzhou's resurgence, and replaced him with Italian coaching legend Marcello Lippi. Lippi was said to also have come at a high price, as he had won a FIFA World Cup, the UEFA Champions League, as well as five Serie A titles in Italy. Guangzhou won the CSL title in 2012 again (and also won the domestic cup for the second year in a row), but was knocked out of the AFC Champions League in the quarterfinals. Despite this loss, this finish was the best finish a Chinese team had in Champions League in the last 6 years. The 2013 CSL was another repeat, with Guangzhou again running away with the title, losing only (as of today one) match in the entire season to easily win the league. More importantly to Guangzhou, the team became the first Chinese team to win to the finals of the AFC Champions League. In this, Guangzhou emergence is rather remarkable, as under the power of Mr. Xu's financing, the team has gone from the second division of professional soccer in China, to the top of the entire continent in a matter of 3 years.

Guangzhou spent heavily to win titles, and it is clear the financial success of the Evergrande Real Estate Group and Mr. Xu are very important in propping up the franchise. Though the scale may be somewhat different, this method of having a company subsidize operations of a professional sport team is a very common ownership model within Asia. The resurgence of Guangzhou Evergrande has propelled the team and league in regards to popularity and revenue. In 2011, Guangzhou

Evergrande averaged 45,666 spectators per match, and while this number dropped off to 37,250 in 2012, it has surged back above 40,000 per match in 2013. The CSL saw league wide attendance not only reach its highest peak in history, but it also became the highest attended league on average per match in Asia for the first time ever (though the J-League still has higher total yearly attendance because of a greater number of matches played in the league in Japan).

The influx of money from Mr. Xu and the growth and success of Guangzhou Evergrande also served as a catalyst across the CSL to further invest in teams. This investment comes in the form of players and the attraction of high profile managers. While Guangzhou Evergrande were able to land one of the top managers in the world, Hangzhou Greentown signed two-time Japanese World Cup coach Takeshi Okada, who helped Japan to their best ever finish in the World Cup in 2010. Following this signing, Guangzhou Evergrande's cross-town rivals, Guangzhou R&F managed to lure former England manager Sven-Goran Eriksson to be their manager. In this, it is clear Chinese clubs with large corporate backing have not been shy in their attempts to entice world-class managers to come to the CSL.

The emergence of Guangzhou R&F has been another story of high interest in the CSL. As the team was the dominant club in Guangzhou since the late 1990s, it was thought that it would be the ones who would dominate the derby rivalry in the region. Yet, while Guangzhou Evergrande was flourishing, R&F (known as Shenzhen Phoenix at the time) were one of the worst clubs in the CSL and were relegated to the second division. Additionally, while fans were flocking to Evergrande matches, the R&F matches were virtually empty. As the club looked destined for ruin, they were rescued by the real estate company known as Guangzhou R&F. The result was that Guangzhou R&F and Evergrande became rivals on- and off-the-field.

Determined to compete with their rivals, R&F focused on a long-term strategy of bringing talent in regards to players and coaches to try and chip away at the success of Evergrande. In this, the success of these two teams can be directly tied to the property and real estate market of southern China. In some sense, the prosperity of this market has allowed corporations to become heavily involved in subsidizing the success of Chinese professional club soccer. While this has been a treasure for the CSL, the question is whether these corporations will be able to keep it up, as well as if other clubs across the country, especially those in less prosperous regions will be able to follow this new model being set by the Guangzhou clubs. This is especially of concern for teams in regions like Chengdu/Sichuan that have witnessed multiple teams fail due to lack of interest among fans and corporations alike.

The influx of investment into the CSL and the second tier of professional soccer in China created a changing dynamic in the football landscape within the country. While new powers such as Guangzhou Evergrande have risen, it has become the case where the "old guard" of Chinese club football has struggled to try and keep up with teams that had been purchased and invested in heavily by rich corporations and tycoons. A good example is the case of Beijing Guoan, who is one of the most famous and longest existing clubs in all of Chinese football. Based in the capital city, Guoan has long been seen as a powerhouse within the Chinese sporting world. The dominance of Guoan as a historical power has been coupled with their close ties to the Chinese national team, as well as the proximity to the central government. Thus, as professional football has become more professionalized within China, it has become the case that old powers like Guoan have no longer been able to survive on their reputation and ability to draw domestic talent alone.

To counter the changing marketplace in Chinese football, clubs such as Beijing Guoan have been forced to begin to start spending more on star talent, as well as purchase better players and coaching staff members from overseas. In this, the growth of commercialization and big business in Chinese football lead to the league becoming more open and internationalized. As it stands in 2013, 10 of the 16 clubs in the CSL have coaches who were from overseas, with five of these coaches being from Serbia. In addition, the CSL relaxed the rules on foreign players that a club is allowed to have on their squad and in a match. Back in the early years of the league, most squads were capped at four foreign players, with only three allowed to be in a match at any one time. These regulations were actually made even stricter with only three foreign players on a squad and two allowed in a match from 2004 to 2006. Yet, as the league moved forward in its business operations and attempts to become the dominant football league in Asia, the CSL changed the restrictions again. From 2009, all clubs are allowed to have five foreign players on their squad, where at least one of those players must be from Asia. Likewise, three foreign players are allowed on the field, as well as one additional foreign player from another country in Asia. In a final move toward trying to bring an AFC Champions League title to China, league executives decided all teams competing in the Champions League would be allowed to have extra foreign players on their roster because of the extra matches that would need to play. Most of the CSL is currently allowed five foreign players, with Jiangsu Sainty, Guangzhou Evergrande, and Beijing Guoan allowed to have seven foreign players on their squads.

The Future of the CSL

As the CSL has evolved over the past two decades from its early days of professionalism in the form of the Jia-A league, it has become the case that financial backing is a key point for success in the league. Teams that qualify for the AFC Champions League are naturally put into a position where they are allowed to have more potential talent on their roster. In this sense, the quest for bringing a title to China could be making certain clubs more powerful in continental competitions, but could actually be hurting the competitive balance of the domestic game. In this sense, most of the excitement in the CSL is not in the title race, but rather in the competition to make third to place to see which team will be the last of three teams to qualify for the AFC Champions League, as well as the battle to avoid relegation down to the China League One. In some sense, the CSL has evolved to mirror the behavior and results found in many of the top football leagues in Europe. In essence, only a few teams will have a chance at winning the championship in either China or the English Premier League or German Bundesliga. Those teams that consistently challenge for the title will be the perennial powers who are heavily funded by the corporation that sponsors and/or owns them.

From this, a question arises as to whether there might need to reconsideration of revenue distribution within the CSL. While the revenues from the ACL are not to such a level like those in Europe, where the teams that compete in the competition are far above any other clubs, there is still a revenue imbalance issue within the CSL. Part of this imbalance comes from the fact that there are teams that have larger followings such as Beijing Guoan, Guangzhou Evergrande, and the clubs in Shanghai. In this, these clubs have a large following because of the tradition and current on-field success of clubs, as well as being based in some of the areas with largest and most dense urban populations in the world. Naturally, the larger population centers of China have not only come to have higher attendance at sporting matches, but also have a large number of big corporations which can afford heavy investment and subsidizing of sport franchises. Thus, it may only be natural that the CSL will find itself eventually dealing with several regions of China that will dominate the league because of the power of large populations and industry. A possible solution to such an issue would be to place a salary cap on player salaries to try and level the playing field between teams, however, all the actions the league has taken to date have been ones which seem contrary to creating a league with parity.

Literature Review

The demand for sport literature is one of the most studied areas in the field of sports economics. Borland and Macdonald (2003) presented a comprehensive overview of the literature dating back to the founding work of Rottenberg (1956) and Neale (1964). Within the literature, Borland and Macdonald (2003) noted the importance of several groups of factors in determining demand of sport, as well as the distinction between different types of demand for sport goods. The sport product that is most often measured in the demand literature is live attendance at sporting events. In this, the attendances for these events are reliable data denoting the actual number of people who were at a sporting event. This chapter similarly focuses on the demand for attendance at CSL matches in the 2012 season. The dependent variable employed in the model within this chapter is the reported attendance for every CSL match through the entire 2011 calendar year.

In the greater body of demand for sport literature, the majority of research has been conducted on North American, European, and Australian sport leagues and tournaments. While there are a few studies that have been published on the economics of Japanese professional baseball, limited research exists looking at the sport in Asia let alone football in East Asia. One study that has examined the demand for attendance at Asian football matches, found that regional definitions were important to Japanese football fans (Watanabe 2012). Regional definitions are of great importance in examining Chinese football markets as well. China, like Japan, has a good deal of its population centered on certain cities across the country, and thus it becomes important in how one defines a region when choosing to examine the demand for sport teams in Asia. The discussion of regional definitions is further elaborated upon in the data section of this chapter.

In examining the demand for sport literature, there has been a portion of the literature that has considered the importance of pricing in regards to demand. It has been noted that ticket price data are often difficult to obtain, because of the nature of the data and lack of data collection for all teams in a league (Borland and Macdonald 2003). Out of the large portion of studies that have included pricing data in their research, many of these studies have been forced to use the average price or lowest price for tickets. A problem that exists in the pricing of sport tickets is that at an event there may be several different prices at which one can buy a ticket. Because of this, it is often hard to accurately capture ticket price in a single variable when considered the attendance at a sporting event for the entire venue.

In recent years, there have been several research studies that have considered the importance of these multiple levels of pricing at sporting events. It is noted that price dispersion in the sport marketplace occurs for when there is more than one price for a sport product (Rascher and Schwarz 2012). Thus, the concept of having the same or similar goods sold at different prices within the market place refers to the concept of price dispersion. The price dispersion literature can be traced back to Stigler's (1961) early research examining the differences in prices of cars at dealerships in the Chicago area. It was noted that price dispersion occurs because of: lack of knowledge by the consumer, instability of supply and demand for the product, and determining prices set by rival producers (Borenstein and Rose 1994). Price dispersion has been considered in regards to concerts and theater, where it was found that price dispersion was beneficial to organizations in attempting to boost their revenue (Huntington 1993). While theaters and concerts have received a good deal of attention from economists in regards to price dispersion, there is still a lack of understanding of price dispersion within the sport industry.

Considering sport franchises as organizations which are attempting to capture fans in the form of individual attending events, as well as revenue, price dispersion offers one way in which a business can maximize its revenue. Salop and Stiglitz (1982) argued firms might try to increase the price for their goods to try and capture additional consumer surplus. In this, the ability to offer tickets at different price ranges may be sport firms trying to capture more consumer surplus. It is also noted that sport franchises that are attempting to maximize their revenue may forgo having large attendance numbers, and instead increase prices to try and maximize their revenues. As noted earlier, prior evidence in theaters has displayed that organizations that employed price dispersion were found to have greater revenues (Huntington 1993). From a sport perspective, price dispersion has been considered in regards to its effect on attendance at sporting events from multiple viewpoints (Humphreys and Soebbing 2012; Watanabe et al. 2013).

Humphreys and Soebbing (2012) examined the effect of price dispersion on win percentage, and found that teams with large variations in win percentage had a decrease in the number of price points at which tickets were sold. The authors of this research concluded that the teams that had the larger variations in win percentage were able to gain more knowledge about the demand for their product. Thus, those teams were able to offer tickets at fewer price points to increase the demand for their product (Humphreys and Soebbing 2012). Watanabe et al. (2013) examined the effect that the online secondary ticket market website StubHub had on price dispersion in MLB. Their research determined teams increased the number of price points at which they had sold tickets to games since the creation of StubHub. In addition, it was found that there was inequality in the ticket price levels, hinting that teams had offered a greater number of ticket prices, but that a large number of these price points were for higher priced tickets (Watanabe et al. 2013). While the literature focused on price dispersion in professional sport has made important breakthroughs in understanding ticket price, the fact that only a few such empirical studies in sport ticket pricing displays the need for further research.

As noted in the introduction, the examining the CSL is of interest because of their pricing practices for league matches. It is the case where some of the teams in the league have yet to begin using price dispersion. In 2011, of the 16 clubs in the CSL, two of them did not employ price dispersion. Those teams were Whowin and Hengyuan, of which Hengyuan was relegated. The 2012 season presented a curious case, where Whowin continued to have a single ticket price to all matches, but two teams that had used price dispersion in 2011 actually switched to a single ticket price in 2012. Curiously, both clubs, Jiangsu Sainty and Renhe, sold tickets at five different price levels in 2011. Renhe sold tickets ranging from 20 to 60 Chinese RMB, with the average price being 40 RMB, and Jiangsu Sainty sold tickets in to 20–100 RMB range, with the average price at 48 RMB. In this, the two clubs both lowered their 2012 prices, with Renhe offering a single ticket at 35 RMB, and Sainty lowering its tickets to a price of 30 RMB. Pricing practices in the CSL have yet to reach the complexity of the price dispersion and dynamic ticket pricing methods used in North America. However, the CSL presents a unique opportunity to examine the effect of price in a sport league where only portions of the teams sell tickets at multiple prices for a match. To further investigate, this research examines the 2012 CSL by estimating a demand model that considers the importance of these different ticket-pricing methods.

Data

The data for ticket prices for the 2012 season of CSL teams were collected by visiting the website of every franchise in the CSL and recording all the prices at which tickets were sold. In some cases there was but a single price, and in other cases tickets were sold at multiple prices. The league practice is to set admission prices prior to the beginning of the season, and to not change prices until the following season. There is some fluctuation during the season in pricing of special VIP seating areas. These areas are akin to box seats in North American sport leagues.

To check the validity of these data, the research team employed several native speakers of Chinese to examine websites that contained information on purchasing CSL tickets, as well as CSL attendance figures, results, and other franchise specific information. Ticket pricing for every franchise and every match was examined for the CSL, and the price points were found to be consistent for each franchise through the 2012 season. In this, the ticket price data employed within this chapter are composed of prices as reported by the league and franchises, similar to how ticket price data have been collected for studies examining pricing in other sport leagues like MLB.

In addition to price, data were also collected from the CSL website in regards to the attendance figures at every match in the 2012 season. In this, four lines of data were dropped from the data set, as the league did not report attendance for three of these matches. For the fourth match, the league reported attendance of "zero" for one match. Further research found this match was locked out to fans as a "closed door" match, and thus no tickets were sold. As there were no tickets to be purchased, it was only natural to remove it from a data set examining the effect of ticket pricing strategies on attendance. The CSL league website also provided information on the day which matches were played, the score for both teams in the match, as well as the outcome of the match. Finally, team specific websites as well as the Chinese search engine "Baidu" website provided information on all stadiums in the league, including the year the stadiums were built and the 2012 stadium capacity.

Data Issues

One variable of concern in the reports through which the data were gathered was the attendance numbers for individual matches, as well as the average attendance figures for all teams. In this, it is only natural for teams to inflate their attendance numbers to some extent; however it could be possible that the numbers for the CSL could be inflated in a similar manner to that which was done in Major League Soccer (MLS) in the USA. In some cases, it was reported that MLS franchises might have overestimated attendance at matches by up to 50%. In order to try and get around this issue, the data collected for this chapter were cross-references with data collected by private citizens who have been attending CSL matches in person, and have been keeping track of attendance figures for all matches.

As noted in the previous section, there are potential issues with the population and GDP data that are part of this dataset; however, they are the best-known reliable data for these market characteristics within China. A final issue that needs to be considered in examining data from the CSL is the potential for the league to have deleted data or changed data after franchises have reported it. In crosschecking data, there were a few incidents where data reported by a club were different from the one reported on the official CSL website. With the prior issues of corruption that has hit the league, it is only natural to remain skeptical when gathering and examining the data from the league. Despite this, in the three cases where there was a difference between the league and team websites in regards to attendance, the league always reported the lower attendance number. In this, the CSL league site data have also been checked against other independent sources, and it was found that the CSL data matched the third-party data. In this, it would seem that many of the franchises still are trying to over-represent the number of fans in attendance at matches, and thus the CSL attendance variables are more reliable. This study employs the data from the CSL official league website, as it seems to be the most valid and reliable source for match specific data and information in existence.

Methodology

In order to investigate the relationship that price dispersion had with attendance in Chinese professional soccer, this research employed data from the entire 2012 CSL season. In this, there were 235 total useable observations in the dataset, once matches with no reported attendance were removed. The dependent variable within this research is the attendance variable that measures the reported attendance for every match of the 16 clubs which played in the CSL in 2012. The use of game level match attendance is something that has been employed in previous research studies (Bruggink and Eaton 1996; Coates and Humphreys 2010; McDonald and Rascher 2000; Tainsky and Winfree 2010).

Variables

We operationalize price dispersion in two ways. The first is whether the team offers one or more than one ticket price for the observed game (PriceDisp). The second way is the number of price points (PricePoints). These prices were for all standard seating within a stadium, and did not include the luxury or special administrative seats generally not available to the public for CSL matches. Based upon the previous literature (e.g., Dana Jr. 2001), one would anticipate an increase in the number of price points as well the variation of those price points would lead to an increase in attendance. As many researchers have noted (Borland and Macdonald 2003, it is important to control for a variety of factors that may influence the demand for sport products. In this, a number of variables are employed within this model to control for factors specific to the quality of teams, as well as certain characteristics of individual markets. Average price is also considered in the models as a potential determinant of demand, as prior research has noted importance of price on the demand for sport (Borland and Macdonald 2003). For the case of this research, average price was calculated for CSL teams to consider whether fans were sensitive to price, as previous research has produced mixed results in regard to the effects of price (Borland and Macdonald 2003; Coates and Humphreys 2010; Fort 2004). To control for the performance of both teams, this research includes difference in winning percentage between the home team and the visiting team prior to the game (WinPctDiff). The next set of variables is an indicator variable for each day of the week, isolating the effect of different days of the week on attendance. In addition to the days of the week variables, there are variables denoting each month of the regular season of the CSL season. These variables isolate the effect that different periods of time through the season may have on attendance. The CSL regular season begins play in March and ends in November. Additional factors considered in regards to characteristics of

Table 1 Summary statistics ($n=226$)

Variable	Mean	Std. Dev.	Min	Max
LogAttendance	9.66	0.620	7.45	11.09
AvgPrice	77.17	66.82	20	260
PriceDisp	0.814	0.390	0	1
PricePoints	3.451	1.630	1	6
WinPctDiff	−0.018	0.199	0.750	0.667
Monday	0.017	0.129	0	1
Tuesday	0	0	0	0
Wednesday	0.013	0.112	0	1
Thursday	0.004	0.065	0	1
Friday	0.113	0.317	0	1
Saturday	0.561	0.497	0	1
Sunday	0.289	0.454	0	1
March	0.084	0.278	0	1
April	0.159	0.367	0	1
May	0.142	0.349	0	1
June	0.080	0.271	0	1
July	0.159	0.367	0	1
August	0.142	0.349	0	1
September	0.093	0.291	0	1
October	0.115	0.320	0	1
RivalryDerby	0.097	0.297	0	1
Promoted	0.126	0.332	0	1
Stadium Age	22.04	22.54	3	80
Pop (× 1000)	14,148	13,943	3037	44,294
GDP per cap	26,395	7347	11,071	40,592
Capacity	39,450	13,698	20,525	66,161

the CSL include a rivalry variable (RivalryDerby), which measured games which were either rivalry games between teams, or derby games played between franchises from the same city or region. A variable (Promoted) was included to control for teams who had newly been promoted into the CSL in the 2012 season. The age of the stadium (StadiumAge) reflects quality of fan's game day experience in the stadium. We have two variables that control for the market in which the match occurs. The *population* and GDP per capita variables examine the "built up" region of the cities in which CSL franchises played. These areas are similar to the Metropolitan Statistical Area (MSA) employed in North American demand studies in that it considers not just a city itself, but also the surrounding suburban regions in close proximity. Finally, we also include the stadium's capacity to control for stadium size and its effect on game-day attendance.

The table of summary statistics can be viewed in Table 1. The mean average price was 77.17 Chinese RMB. During the sample period, teams averaged about 3 ticket price points per game. Most of the games occurred on a Friday, Saturday, and Sunday. The months of April and July include the most games during the season.

Model

We estimate the following regression models, with Eq. 1 considering price dispersion and Eq. 2 consider the number of price points at which tickets were sold for CSL matches. Equation 1 takes the form of:

$$\begin{aligned}\text{Attend}_i = {} & \theta_1 + \beta_1\text{AvgPrice}_i + \beta_2\text{PriceDisp}_i + \beta_3\text{WinPctDiff}_i + \beta_4\text{Monday}_i \\ & + \beta_5\text{Wednesday}_i + \beta_6\text{Thursday}_i + \beta_7\text{Friday}_i + \beta_8\text{Saturday}_i + \beta_9\text{Sunday}_i \\ & + \beta_{10}\text{March}_i + \beta_{11}\text{April}_i + \beta_{12}\text{May}_i + \beta 13\text{June}_i + \beta_{14}\text{July}_i + \beta_{15}\text{August}_i \\ & + \beta_{16}\text{September}_i + \beta_{17}\text{October}_i + \beta_{18}\text{RivalryDerby}_i + \beta_{19}\text{Promoted}_i \\ & + \beta_{20}\text{StadiumAge}_i + \beta_{21}\text{Population}_i + \beta_{22}\text{GDPPerCapita}_i + \beta_{23}\text{Capacity}_i \\ & + \beta_{24}\text{TeamDummy}_i + \mu_i\end{aligned} \tag{1}$$

Equation 2 takes the form of:

$$\begin{aligned}\text{Attend}_i = {} & \theta_1 + \beta_1\text{AvgPrice}_i + \beta_2\text{PricePoints}_i + \beta_3\text{WinPctDiff}_i \\ & + \beta_4\text{Monday}_i + \beta_5\text{Wednesday}_i + \beta_6\text{Thursday}_i + \beta_7\text{Friday}_i \\ & + \beta_8\text{Saturday}_i + \beta_9\text{Sunday}_i + \beta_{10}\text{March}_i + \beta_{11}\text{April}_i + \beta_{12}\text{May}_i \\ & + \beta_{13}\text{June}_i + \beta_{14}\text{July}_i + \beta_{15}\text{August}_i + \beta_{16}\text{September}_i + \beta_{17}\text{October}_i \\ & + \beta_{18}\text{RivalryDerby}_i + \beta_{19}\text{Promoted}_i + \beta_{20}\text{StadiumAge}_i + \beta_{21}\text{Population}_i \\ & + \beta_{22}\text{GDPPerCapita}_i + \beta_{23}\text{Capacity}_i + \beta_{24}\text{TeamDummy}_i + \mu_i\end{aligned} \tag{2}$$

In these equations, θ_1 is the constant term, *i* index matches, and the error term (μ_i) within the equations μ_{it} captures the factors not controlled for within the equations.

Result and Discussion

The results from the regression models are presented in Table 2. Ordinary least squares (OLS) regressions were run for both models, and tests found evidence of heteroskedasticity. Corrections were made by estimated results for Model 1 and 2 through employing an OLS regression with White robust standard errors. By the R-square measure, about 72 % of the observed variation in the data is explained by the first model, and 71 % in the second model.

The attendance models developed in this chapter provides some interesting insight regarding 2012 game attendance demand in the CSL. Examining the results from the first model in Table 2, one can see that AveragePrice was insignificant in regards to attendance. However, the Price Dispersion variable was negative and significant, indicating that the smaller the range of prices tickets were offered at, the lower attendance was at matches. The second model found that the average price variable was negative and significant, which is consistent with economic theory in

Table 2 Regression results

	Model 1			Model 2		
Log attendance	Coef	Stnd error	*p*-value	Coef	Stnd error	*p*-value
Avg Price	−0.007	−0.007	0.270	−0.001	0.001	0.067
PriceDisp	−0.488	0.152	0.002	–	–	–
PricePoints	–	–	–	−0.079	0.027	0.005
WinPctDiff	−0.109	0.139	0.433	−0.109	0.139	0.433
Monday	0.123	0.189	0.518	0.123	0.189	0.518
Wednesday	−0.308	0.209	0.142	−0.308	0.209	0.142
Thursday	0.207	0.142	0.147	0.207	0.142	0.147
Friday	−0.058	0.095	0.538	−0.058	0.095	0.538
Saturday	−0.089	0.080	0.267	−0.089	0.080	0.267
Sunday	−0.119	0.076	0.122	−0.119	0.076	0.122
March	−0.239	0.172	0.167	−0.239	0.172	0.167
April	−0.229	0.141	0.107	−0.229	0.141	0.107
May	−0.185	0.139	0.185	−0.185	0.139	0.185
June	−0.174	0.142	0.222	−0.174	0.142	0.222
July	−0.154	0.153	0.314	−0.154	0.153	0.314
August	−0.078	0.146	0.597	−0.078	0.146	0.597
September	−0.276	0.147	0.063	−0.276	0.147	0.063
October	−0.082	0.144	0.569	−0.082	0.144	0.569
RivalryDerby	0.471	0.093	<0.001	0.471	0.093	<0.001
Promoted	−0.417	0.084	<0.001	−0.583	0.096	<0.001
Stadium Age	−0.004	0.002	0.008	−0.006	0.002	<0.001
Population (×1,000,000)	0.017	0.027	0.540	−0.024	0.024	0.334
GDP per Cap (×1000)	0.042	0.060	<0.001	0.037	0.081	<0.001
Capacity (×1,000)	0.040	0.031	<0.001	0.362	0.026	<0.001
Constant	7.89	0.237	<0.001	8.24	0.285	<0.001

regards to price and demand. In addition, the second model found that Price Points was negative and significant, which shows that the more price points a team offered, the lower attendance was at matches. Both of the models within this research found that the measures of price dispersion had an inverse relationship with attendance, a finding which is counter to the prior research into price dispersion in Western sport leagues. This result provides some insight regarding consumer behavior. It could be that consumers are sensitive to ticket prices for the CSL. Depending on how the stadiums are constructed, consumers may not be able to distinguish between differences in seat quality. If this is the case, offering multiple prices for the game may not matter in the event that the quality of the seat (or the section) is hard to distinguish from another seating section of the stadium. In addition, it may also be that teams are trying to maximize their attendance and not revenue at the game. As the CSL is still a growing league, it could very well be the case that the pricing practices are at a stage where the focus is on bringing fans to a game, and not capturing as much consumer surplus as possible. However, we do not have any information on team revenues to test this proposition at this time.

In further examining the results, it is evident that the difference performance of the teams prior to the beginning of the game did not impact attendance. In regards to timing, the month of September was negative and significant at the 10% percent level in both models. All other match timing variables, including the rest of the months and all the match days, were not significant in regards to attendance. It is unclear as to why the month of September is negative and significant in regards to attendance at CSL regular season games. Some ideas could be due to the monsoon season that affects some parts of China during the month of May through part of September. In September 2012, there were suspensions of matches due to a territorial dispute between Japan and China over an island located in between the two countries. In addition, the results from the regression show that matches between teams that have a rivalry based on geographic location or historical factors had increased attendance.

In both models, the Rivalry matches, GDP per capita and stadium capacity were all positive and significant at the 1% level. In this, there would seem to be more interest in attending CSL matches because of the spectacle of playing against rival teams, then in the relative level of strength between the two teams. Furthermore, both models note that having larger stadium capacity allowed teams to have larger attendance, which is probably essential in many of the cities which have growing population numbers as China continues to urbanize. In addition, the results from the GDP per capita variable indicate that income level was an important determinant of attendance at CSL matches, hinting that locales with higher purchasing power were likely to have more people attend matches.

Results of both Models 1 and 2 found stadium age and newly promoted teams to the CSL were negative and significant. That is, teams which had older stadiums had lower attendance, as did teams which had been promoted from the lower division of Chinese professional football. Finally, the three clubs of Hangzhou Greentown, Jiangsu Sainty, and Dalian Shide were all negative and significant in regards to attendance. The remaining teams in both models were not significant or were omitted from the estimated regression results.

Additional models were run using the normal form of attendance to check the robustness of results. Using the base form of attendance as the dependent variable did not change the estimated results of the model in regards to the significance of variables. Furthermore, we looked at the difference between the home team performance and the away team performance (i.e., home winning percentage minus the away team winning percentage). The results for both the ticket price variables as well as the winning percentage variables were consistent with what is reported in Table 2.

Conclusion

Overall, the results provide some interesting insight regarding attendance demand of the CSL. The average price of tickets was found to be negative and significant in one model, hinting that Chinese sport fans may be sensitive to the price of tickets. In regards to price dispersion, the results found that both measures were negative and significant, indicating that as teams sold tickets at more prices, or in a larger range of prices, demand for attendance at CSL matches decreased. To date, the research focused into price dispersion has generally found positive effects from different measures of price dispersion on revenues and attendance at sport and other leisure events. The findings from this research display that this type of pricing may not be as effective a tool to enhance demand or revenues for sport leagues in China. As mentioned earlier in this chapter, there could still be skepticism on the part of consumers regarding the legitimacy of the matches given the many instances of match fixing in the past. This unobserved factor may have significant effect on overall game attendance in the 2012 season. Furthermore, many factors that have found to significantly influence attendance in North American and European demand studies, such as timing of matches and regional population, are not found to influence demand in soccer. This broad result would seem to indicate a need for further research understanding the behavior of the Chinese sport consumer and CSL franchises. It could be that different factors influence consumer behavior in China compared to other countries around the world.

As noted in prior work into Asian soccer demand, it is important to consider factors such as geographic definitions (Watanabe 2012) in estimating the demand for attendance at matches. Because of various factors such as population concentrations, differences in income inequality and the importance of tradition, it could very well be the case that consumers of professional sporting events in China exhibit a different behavior than their Western counterparts. While some variables in this model displayed different results than those found in Western-focused sport demand studies, generally the results are similar to the findings of these studies. As Watanabe (2012) noted, some of the differences which do exist may be because of regional definitions and travel distances or times. Furthermore, as the Chinese labor force continues to migrate from the countryside to larger cities for the purposes of work, it may be that population size may not be a good measure of the market for consuming sporting events. However, it is important to point out that due to only examining one season of data, we are limited in attempting to generalize these results regarding consumer and team behaviors.

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Part II
Governance Structure

Professional Sports Teams as Advertisements: The Case of Nippon Professional Baseball

Michael A. Leeds and Sumi Sakata

Abstract Many firms advertise by sponsoring sports activities. Team names, however, remain off-limits in the major North American sports. While teams serve owners' outside interests, they are not a part of that outside interest. In contrast, most Nippon Professional Baseball (NPB) teams are subsidiaries of larger corporations that treat them as a form of advertising. We study whether owning a sports team is a profitable investment for a Japanese corporation by evaluating the impact of the purchase and sale of NPB teams on the profits of their parent companies. To do so, we perform an event analysis using stock-market data for the five NPB teams that changed hands after the 2004 season. Our findings show that the purchase or sale of an NPB franchise has little long-run effect on the profits of the parent companies.

Introduction

Sponsorship has long been a popular form of advertising. Firms seek both exposure to potential consumers and a halo effect from associating their product with a popular event, location, or group. In recent years, sponsors have increasingly sought to put their names directly on the items they sponsor. This has been particularly noticeable in the realm of sports. Racecars and soccer uniforms have become mobile billboards. Most North American sports teams now sell naming rights to the facilities in which they play. Japan has taken the concept of corporate sponsorship one step further. Rather than seeking to exploit mutually advantageous synergies with outside interests, almost all Nippon Professional Baseball (NPB) teams are wholly-owned subsidiaries of Japanese corporations that bear the names of their parent companies. (See Table 1). In effect, "the team … exists mainly as a PR vehicle for the sponsoring firm." (Whiting 1977, p. 126)

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Table 1 Ownership of Nippon Professional Baseball (NPB) Teams

Central League[a]			Pacific League[a]		
Team	Parent Company	Parent Industry	Team	Parent Company	Parent Industry
Chunichi Dragons (Nagoya)	Chunichi Shimbun Co., Ltd.	Media	*Lotte Marines* (Chiba)	Lotte Co., Ltd	Candy, beverages, hotels, fast food[b]
Hanshin Tigers (Osaka)	Hankyu Hanshin Holdings, Inc.	Transportation, retailing, real estate, etc.	*Nippon Ham Fighters* (Sapporo)	Nippon Meat Packers, Inc.	Food processing
Hiroshima Toyo Carp (Hiroshima)	Mazda[c]	Automobiles	*Orix Buffaloes* (Osaka/Kobe)	Orix Corp.	Financial Services
Yakult Swallows (Tokyo)	Yakult Honsha Co., Ltd.	Food and beverages, pharmaceuticals, cosmetics	*Rakuten Golden Eagles* (Sendai)	Rakuten, Inc.	On-line shopping
Yokohama DeNa Bay Stars (Yokohama)	DeNa Co., Ltd.	E-commerce	*Seibu Lions* (Tokorozawa)	Seibu Group	Railways, tourism, real estate
Yomiuri Giants (Tokyo)	Yomiuri Group	Media	*SoftBank Hawks* (Fukuoka)	SoftBank Corp.	Telecommunications

[a] Home cities appear in parentheses

[b] Lotte is a Japanese and Korean conglomerate. The company also sponsors the Lotte Giants in the Korean Baseball Organization

[c] Mazda owns about 34 % of the team. The Matsuda family, who founded Mazda, own 60 %. The team gets its name from Hiroshima Castle, which is known as "The Castle of the Carp."(Whiting 1977)

Major League Baseball (MLB) teams also have a long history of mixing baseball and business. In 1882, Chris von der Ahe bought the St. Louis Browns as a way of promoting business at his nearby saloon. Almost exactly 70 years later, Augustus Busch, Jr. bought the St. Louis Cardinals as a way to promote his own beer sales. For the next 43 years, Cardinals games were 3-hour-long commercials for Budweiser beer. (For a detailed account of the relationship between the Cardinals and Anheuser-Busch, see Helyar 1994, pp. 103–104). More recently, media moguls from Ted Turner to Rupert Murdoch have used sports teams to promote viewership of their TV networks. However, the connection between MLB teams and the outside interests has had definite limits: MLB team owners do not formally incorporate the teams into their outside business and use the team itself as a form of signage.

Such limits contrast with the early years of the National Football League (NFL) and the National Basketball Association (NBA), whose sponsors frequently used sports teams as a form of advertising. For example, the NFL's Chicago Bears were originally the Decatur Staleys, named for the Staley Manufacturing Company, a maker of cornstarch, and the Green Bay Packers took their name from the Indian Packing Company in exchange for money to pay for uniforms and equipments. The most recent example of such sponsorship among the major North American sports leagues is probably the Detroit Pistons. Until 1957, the team was called the Fort Wayne Zollner Pistons, named for the Zollner Corporation, a manufacturer of pistons for cars, tractors, and other vehicles. Today, some North American leagues actively discourage such formal relationships. The NFL, for example, requires that at least 30% of each franchise be individually owned.[1]

The decline of such a tight identification of teams with firms might have a rational basis, as several studies indicate that large-scale sponsorships do not pay. Cornwell, Pruitt, and van Ness (2001) find little value in sponsoring sports activities that are unrelated to a company's core business. For example, sponsoring a winning entry in the Indianapolis 500 is of limited value for firms that are not in the automotive industry. More generally, Leeds, Leeds, and Pistolet (2008) show that purchasing the naming rights for sports facilities does not increase corporate profits. In contrast, a recent paper by Chen and Chen (2012) claimed that NPB teams have value for their parent companies. They use event analysis to show that the teams' parent companies benefit when their teams make it to the Japan Series and benefit even more when their teams win the championship.

In this chapter, we answer a more basic question regarding the value of NPB teams. We ask whether a company sees its profits increase from owning a team at all. We use event analysis to estimate the impact of the wave of purchases and sales of NPB franchises that took place in the mid-2000s. If acquiring a baseball team increases the profitability of the parent company, the holding period return of the parent company's stock should increase during the days and weeks surrounding the acquisition. Similarly, if a baseball team is a losing proposition, one should find that the parent company's holding period return increases when the parent company sells the team. We find no clear evidence that either purchasing or selling an NPB team affected the value of the parent companies in our sample.

[1] The community-owned Green Bay Packers are specifically exempted from this requirement.

In the next section of this chapter, we provide a brief history of the relationship between Japanese baseball teams and the firms that own them. In the section "Empirical Model", we present the empirical model we used to estimate the value of teams to parent companies and describe the data used in the analysis. The section "Results" of this chapter presents the results of our estimation and then the section "Conclusion" concludes this chapter.

A Brief History of NPB

From its introduction during the Meiji Restoration in the late nineteenth century until prior to World War II, baseball in Japan was almost strictly a high school and collegiate sport.[2] Early attempts to create professional teams were sporadic and were largely treated as sideshows to some other form of entertainment.[3] Professional baseball finally began as an attempt to sell newspapers. In 1934, Matsutarō Shoriki, the owner of the *Yomiuri Shimbun,* Japan's largest daily newspaper sponsored a hugely successful tour by MLB All Stars of Japan.[4] The tour included several MLB All Stars, including Babe Ruth, well past his prime but still the sport's most popular player. The All Stars played against a Japanese team that consisted of former high school and college stars. Having seen how popular the series was, Shoriki kept his Japanese All Star team together and staged a successful tour of the USA in 1935.[5] The team took the name *Dai Nippon Tokyō Yakyū Kurabu* (All-Japan Tokyo Baseball Club)*,* a name that was soon altered to *Giants* for the uncomprehending American audience. This change explains why, to this day, Japanese teams have English-names. It also explains why team and players' names are written in Latin characters and players' numbers appear in Arabic numerals. The players on the Giants were employees of the *Yomiuri* newspaper chain, and their exploits were reported exclusively in the *Yomiuri Shimbun.*

Other firms soon sought to duplicate the business the Giants were generating for the *Yomiuri Shimbun*, and, in 1936, the Japan Professional Baseball League was born. The league consisted of seven teams, four sponsored by newspapers, and three sponsored by railway companies. In addition to generating advertising for their railways, the companies directly benefited from owning the routes that took fans to the stadiums.[6] In the 1960s and 1970s, food and beverage companies like

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[2] The militaristic nature of schools at the time affected how players and fans approached the game, that is still felt in NPB.

[3] See, for example Guttman and Thompson (2001, pp. 135–136).

[4] We Anglicize all Japanese names by putting the family name last. For a good treatment of the tour, see Reaves (2002, pp. 66–76).

[5] The "only" negative point of the tour was a nearly-successful attempt on Shoriki's life by a far-right fanatic who was offended by the presence of foreigners on the "holy ground" of Meiji Jingū Stadium.

[6] In this way, Japanese baseball teams resembled early British soccer teams, many of which were sponsored by railroads as well. See, for example, Goldblatt (2006, pp. 53–54). See also Guttman (2001, p. 137).

Yakult, Lotte, and Nippon Ham, sought to raise the brand awareness of their own products by purchasing NPB teams. The most recent wave of new entrants to baseball consists of information technology companies who joined the owners' ranks in the early to mid-2000s.

Ideally, the current structure of NPB provides teams with the financial backing they require and the firms that own them with a boost in recognition that American purchasers of stadium naming rights can only dream of. Whiting (2004), for example, reports that Orix's name recognition rose 90 % after the company bought the Hankyū Braves 1988 and renamed them the Orix Blue Wave. Unfortunately, the arrangement often does not work so smoothly. Most teams have been "operated largely by officials temporarily dispatched from the parent company who knew little about baseball and, in some cases, even disliked the sport."[7]

Sometimes, the business rivalry between two sponsors spills onto the field. One example was the absence of any players from the Chunichi Dragons from Japan's roster in the 2009 World Baseball Classic (WBC). The omission was not due to a lack of talent, as the Dragons have consistently made the playoffs in recent years and won the 2007 Japan Series. The reason can be found in the rivalry between the *Chunichi Shimbun*, the owner of the Dragons, and *Yomiuri Shimbun*. The *Yomiuri Shimbun* had exerted its power as the dominant force in NPB to become the sponsor of the Japanese team in the 2009 Classic. Angry at being left out in the cold, the *Chunichi Shimbun* responded by not permitting its players to try out for Japan's WBC team.

The relationship between NPB teams and the firms that sponsor them is therefore a mixed blessing. The potential for mutual gain exists, but there is ample reason to believe that firms do not operate their baseball subsidiaries in a profit-maximizing fashion. While most teams do not publicly release their financial statements, most independent observers believe that only a few teams are profitable. Estimates have indicated that the teams comprising the less popular Pacific League operate at an average annual loss of 3–4 billion yen. The Central League was able to be profitable primarily through the television rights for games involving the perennially popular Yomiuri Giants. Teams are able to continue operating at such a loss for decades for one simple reason: since 1954, Japan's national tax authority has permitted corporate owners to treat the losses incurred from operating a baseball franchise as a marketing cost, a simple line item on their tax forms. As long as teams provided their owners with the desired name recognition and promotional opportunities, they were generally not scrutinized for their financial performance.

The financial problems facing NPB were most evident in the fall of 2004 and winter of 2005. Late in the 2004 season, NPB announced that the Kintetsu Corporation was selling its interest in the (Osaka) Kintetsu Buffaloes, to the Orix Corporation, the owner of the (Kobe) Orix Blue Wave. At the time, the Kintetsu Buffaloes' annual losses were over 4 billion yen, and their owner, a railway company, was suffering from a financial downturn and could no longer afford to run the team. Orix, in turn, would merge the two teams and play in both cities, though it would play the

[7] Whiting (2004, p. 90). For a first-hand account of the tensions between the baseball and business sides of the teams, see Fitts (2005, p. 149).

majority of its games in the larger city of Osaka. Although Livedoor Co., Ltd., an internet start-up company, offered to purchase the Buffaloes, the offer was rebuffed by the other team owners, led by Tsuneo Watanabe, then-President of the Yomiuri Giants. Watanabe had opined in an interview that the owners could not just let in someone they did not know, implying his disdain for Takafumi Horie, the brash and outspoken owner of Livedoor, who had previously made news by attempting an American-style hostile takeover in Japan. In fact, the owners seemed averse to letting any other companies join their ranks, and had openly begun to consider collapsing the two leagues into one league of 10 teams, a position that became public when the Orix merger talks began.

With the Pacific League shrinking to 5 teams and further contraction seeming likely, the players took the unprecedented action of going on strike. The strike lasted only 2 days and did not stop the merger, but it sparked a public swelling of support for the player union's cause, helped in part by Watanabe's thoughtless statement in declining to meet with the players' union president, then-catcher for the Yakult Swallows, Atsuya Furuta. Watanabe stated that Furuta was just a player and should "know his place."

Public outrage caused the NPB to reconsider contraction and to permit the addition of an expansion team, with a lowered expansion fee, down from 6 billion to 500 million yen (plus an insurance bond payment of 2.5 billion yen, to be repaid in 10 years). The Rakuten Golden Eagles, owned by the internet retail company Rakuten, joined the Pacific League during the off-season. Adding to the turmoil, the Daiei Corporation sold its interest in the Hawks baseball team to the telecommunications firm SoftBank in January 2005. We use this turnover to study the impact of the purchase and sale of an NPB franchise on the value of Daiei, Kintetsu, Orix, Rakuten, and SoftBank.[8]

Empirical Model

We use event analysis to estimate the value of NPB franchises to their parent companies. The extensive sponsorship of teams, facilities, and mega-events has made event analysis a valuable and popular tool in the sports economics and marketing literatures.[9] Event analysis measures the impact of an incident or the announcement of an action on a firm's expected future profitability and, hence, its current value. Specifically, event analysis estimates the effect of an incident on the holding period return of the firm's stock. If the expected profitability of the firm rises, ownership becomes more attractive, and the demand for the firm's stock immediately increases. The rise in the price of the company's stock, in turn, leads to a brief increase in the holding period return to the firm's stock. If investors later discover that the event

[8] NPB has been relatively stable since that time. Only one franchise, the Yokohama DeNa Bay Stars has changed hands since the flurry of activity following the 2004 season.

[9] See, for example, Miyazaki and Morgan (2001); Cornwell et al. (2001); and Leeds et al. (2009).

had no real impact on the firm, there will be a corresponding decline in the stock's holding period return.

Estimation of the holding period return is complicated by the fact that the event is only one factor that affects the firm's holding period return. In particular, the return to an individual firm's stock could reflect market-wide movements. Researchers thus look for *abnormal* returns that exceed the expected return based on the overall movements of the market. We estimate the abnormal returns caused by the purchase or sale of a team in NPB using a variant of the "market model" set out by MacKinlay (1997). Our model postulates that the holding period return to a specific firm's stock is a linear function of the return to a market index and of a sequence of dummy variables that capture the effect of the event:

$$R_{i,t} = \beta_0 + \beta_1 R_{M,t} + \sum_{s=t-20}^{t+20} \delta_s D_s + \varepsilon_{M,t}, \tag{1}$$

where D_s is a dummy variable equal to 1 for the sth day before or after the event. The day of the event occurs when $s=0$. We interpret β_1 as the impact of the market return, $R_{M,t}$, on firm's holding period return (in finance terms, the firm's "beta"). The coefficient δ_s is the abnormal holding period return for day s. The event generates a statistically significant abnormal return on the day of the event if $\hat{\delta}_0$ is significantly different from zero (For a full treatment of this estimation procedure and of event analysis in general, see Leeds and Leeds 2012).

Some events create a brief spell of euphoria that is immediately replaced by less optimistic analysis. This could cause $\hat{\delta}_0$ to be positive and statistically significant, while subsequent, negative δ_s offset the brief rise in the value of the firm.[10] To test whether the event has a more lasting effect on the company's value, Eq. 1 includes dummy variables that extend well after the day of the event. We compute the cumulative abnormal return (*CAR*) by adding all the coefficients corresponding to days after the event. If the *CAR* is positive and statistically significant, we say that the event had a lasting effect on the firm's value. When the abnormal return on the day of the event is positive but the *CAR* is not significant, we conclude that the event had a transitory impact on people's outlooks but had no long-term impact on the value of the firm. In this case, the abnormal return on the day of the event just reflects the irrational exuberance on the part of investors.

There is no single, correct period (event window) over which to compute the *CAR*. A short event window (e.g., 1 week) might not allow enough time for investors to recover from their initial euphoria (or disappointment), assimilate all available information, and act more rationally upon their knowledge. A long event window (e.g., 1 month) might cause the *CAR* to capture unrelated, later events. Many researchers compromise by using a 21-day event window, which consists of the day of the event and the 20 days that follow it (see MacKinlay 1997).

[10] Such brief euphoria was found in China in the wake of Beijing's being named the host of the 2008 Summer Olympics. See Leeds et al. (2009).

Table 2 Summary statistics for holding period returns (HPR)

Company	Mean HPR	Minimum HPR	Maximum HPR	HPR at $t=0$
Daiei	−0.0029	−0.0806 ($t=-14$)	0.1958 ($t=-12$)	−0.0553
Kintetsu	0.0007	−0.0101 ($t=17$)	0.0121 ($t=-13$)	−0.0027
Orix	0.0039	−0.0423 ($t=-18$)	0.0548 ($t=-16$)	−0.0274
Rakuten	0.0018	−0.0388 ($t=4$)	0.1083 ($t=-12$)	−0.0251
SoftBank	0.0012	−0.0275 ($t=0$)	0.0556 ($t=-11$)	−0.0275

If investors anticipate the event ahead of time or if word of an announcement leaks out, then informed investors might take actions that cause the stock's holding period return to rise or fall well before the actual event. In such a case, using an event window that begins the day of the event might result in an estimated *CAR* that is statistically insignificant even though the event permanently affects the value of the firm. In such a case, abnormal returns could appear days or even weeks before the event but fail to be captured by standard analysis. We include dummy variables for the 20 days before the event to capture the possibility that investors might have anticipated the event before it occurred. We therefore use several versions of Eq. 2 to compute the *CAR*.

$$CAR = \sum_{s=t_0-k}^{t_0+n} \delta_s \qquad (2)$$

where the event window begins k days before the event and ends it n days after the event.

The estimation for Rakuten and SoftBank is further complicated by the fact that Rakuten's purchase consisted of three announcements. First, Rakuten announced that it planned to bid for the expansion franchise. It next announced that it had submitted a bid. Finally, NPB announced that Rakuten's bid had been successful. There are therefore three possible events and three possible windows over which one could compute a *CAR*. Similarly, SoftBank and Daiei first announced an offer for the Hawks and then NPB announced that the offer had been accepted, giving this transaction two events and event windows. We account for the series of events by beginning our estimation 170 days before the first of the announcements and ending it 20 days after the announcement of the final sale. We include dummy variables for all dates starting 20 days before the initial announcement and ending 20 days after the final sale.

Data for this study come from the Japanese version of *Yahoo!* This site provides stock information for companies listed on the Nikkei exchange and on JASDAQ. Because *Yahoo!* does not provide information on holding period returns, we had to construct the returns from closing prices for the individual stocks and for the relevant market indices. Summary statistics for the holding period returns of each company appear in Table 2. The table shows the mean holding period return, the minimal return, and the maximal return during the 41-day window extending from 20 days before the deal was announced to 20 days after the deal was announced.

Table 3 Kintetsu

Variable	Coefficient	*t*-statistic
Market HPR	0.5642	4.67
12 days before sale	0.0231***	2.58
11days before sale	−0.0244***	2.71
Sale date	0.0271	3.03
5 days after sale	0.0190**	2.12
19 days after	0.0152*	1.70
Adjusted R^2	0.1056	
21-day *CAR*	0.0895*	2.05

*Significant at the 10% level
**Significant at the 5% level
***Significant at the 1% level

Table 4 ORIX

Variable	Coefficient	*t*-statistic
Market HPR	1.4281	7.92
1 day before sale	0.0282**	2.11
Sale date	−0.0162	1.22
2 days after	−0.0272**	2.03
20 days after	−0.0323***	2.41
Adjusted R^2	0.2317	
21-day *CAR*	−0.0513***	0.79

**Significant at the 5% level
***Significant at the 1% level

Results

Tables 3, 4, 5, 6, and 7 show selected estimates of Eq. 1. For the sake of space, the tables contain only the coefficients for the impact of market returns, for the coefficients of the dummy variables that denote the relevant event dates, and for the coefficients of dummy variables in the event window that are statistically significant at the 10% level or better. Finally, each table shows the *CAR* for the period that starts the day that the sale or purchase of the franchise was announced and ends 20 days later. Where relevant, other *CARs* are mentioned in the text below. Some of the adjusted R^2s in the tables are quite low because they contain a large number of statistically insignificant dummy variables that we had to include as part of the event analysis. The unadjusted R^2s (not reported here) are all much higher.

Table 3 shows that Kintetsu's profitability rose when it sold its interest in the Buffaloes to Orix. The results indicate that the rise was not anticipated ahead of time, as the *CAR* for the 20 days preceding the announcement is statistically insignificant. The holding period return for 12 and 11 days before the announcement are consistent with investors' anticipating the sale, but the results for the 2 days are approximately equal and of opposite sign, indicating no lasting impact. The day of the announcement, Kintetsu's stock showed an abnormal return of about 2.7%. This

Table 5 Rakuten

Variable	Coefficient	*t*-statistic
Market HPR	2.1462***	15.60
12 days before bid[a]	0.092628***	3.06
Sale date	0.007455	0.25
Adjusted R^2	0.4425	
21-day *CAR*	0.00155	0.18

***Significant at the 1 % level
[a] 43 days before winning the franchise

Table 6 SoftBank

Variable	Coefficient	*t*-statistic
Market HPR	1.7038***	7.74
11 days before bid[a]	0.0640**	2.48
Bid announced	−0.0177	0.68
Sale date	0.0142	0.55
Adjusted R^2	0.0901	
21-day *CAR*	0.0154	1.03

**Significant at the 5 % level
***Significant at the 1 % level
[a] 39 days before sale of franchise

Table 7 Daiei

Variable	Coefficient	*t*-statistic
Market HPR	2.1637***	4.59
12 days before bid[a]	0. 2123***	3.84
Bid announced	−0.0452	0.82
Sale date	0.0610	1.10
5 days after sale	0.1158**	2.10
Adjusted R^2	−0.0088	
21-day *CAR*	0.1025	0.38

**Significant at the 5 % level
***Significant at the 1 % level
[a] 40 days before sale of franchise

rise was significant at the 1 % level. The fifth day after the sale, the abnormal return was 1.90 % and was significant at the 5 % level. The *CAR* for the 21-day period including and following the announcement of the sale of the Buffaloes was 8.95 %, which was significant at the 1 % level. The increase in the holding period return is consistent with our observation that Kintetsu, Co., Ltd. was losing money in the early 2000s and could no longer support the team.

The underlying health of Kintetsu—and not its sale of the Buffaloes—may be the reason for the positive *CAR*. Selling its share of the combined Buffaloes and Blue Wave to Orix provided Kintetsu a much-needed infusion of cash. The greater liquidity of Kintetsu's assets could easily have overcome any marketing loss that selling the team brought.

The impact of the same transaction on Orix (Table 4) is less clear. One day before Orix's purchase of the Buffaloes was announced, investors seemed to both anticipate and welcome the acquisition, as there was an abnormal return of 2.8 %. However, this was quickly offset by a 2.7 % decline 2 days after the purchase announcement. The rest of the dummy variables are insignificant until a 3.2 % decline 20 days after the purchase. Overall, the 21-day *CAR* that starts with the date of the sale and extends to 20 days after the sale is statistically insignificant.

The 21-day *CAR* for Orix could understate the true *CAR* for two reasons. First, the abnormal return the day before the sale suggests that investors might have anticipated the sale. Second, the negative holding period return on day 21 of the event window is so far removed from the sale that the negative return on that date could easily be a response to some other event. We therefore computed a new 21-day *CAR*, this one starting 1 day before the sale was announced and ending 19 days after the announcement. This alteration of the event window causes our estimate of the *CAR* to switch from negative to positive (0.09), but the *CAR* remains statistically insignificant. The evidence thus suggests initial enthusiasm for Orix's purchase of the Buffaloes but no long-term impact on Orix's profitability.

The only statistically significant dummy variable for Rakuten's purchase of the rights to an expansion franchise, shown in Table 5, came 12 days before Rakuten announced that it was going to bid for the new franchise (43 days before NPB announced that the bid was successful). This day saw an abnormal return of 9.26 %, which was significant at the 1 % level. No other coefficient was significant at the 10 % level, and the *CAR* for the 21-day event window starting the day Rakuten won the bid was small (0.15 %) and statistically insignificant. We also computed *CARs* for several alternative event windows, including those that captured holding period returns 20 days prior to the sale, and those that captured the 41 days that surrounded Rakuten's submission of its bid. All these *CARs* were also statistically insignificant. Thus, there is some evidence that investors responded positively to prior knowledge that Rakuten was interested in owning an NPB franchise, but, as with Orix, the initial enthusiasm was short-lived and had no lasting impact.

The results for SoftBank's purchase of the Hawks from Daiei, seen in Tables 6 and 7, resemble those for Rakuten. The only statistically significant dummy variable in Table 6 corresponds to 11 days before SoftBank announced that it had made an offer for the Hawks (39 days before the sale was announced). As was the case for Rakuten, the abnormal return for this date was strongly positive (6.40 %) and statistically significant (at the 5 % level). However, also like Rakuten, SoftBank's 21-day *CAR* was statistically insignificant. The same result held for all other *CARs* that we computed for SoftBank, again indicating no lasting impact on the firm's profitability.

The results in Table 7 indicate that Daiei did not experience the same gain from its sale of the Hawks that Kintetsu got from its sale of the Buffaloes. Instead, the results for Daiei's sale very closely resemble those for SoftBank's purchase of the same team. The holding period return for Daiei was abnormally large 12 days before SoftBank announced its bid (40 days before the sale) to purchase the team. The proximity of this large (almost 20 %), significant return (at the 1 % level) to the abnormal return for SoftBank suggests that investors anticipated the sale before the official announcement. The only other statistically significant dummy variable is a positive return that occurs 5 days after NPB announced that Daiei would sell the Hawks to SoftBank. Again, the 21-day *CAR* (and every other *CAR*) is statistically insignificant. Taken together, the results for Daiei and SoftBank indicate that, as was the case for Rakuten, investors anticipated the event, but the information had only a short-term effect.

Conclusion

Our results show little reason for firms elsewhere in the world to follow the example of Japanese firms and adopt professional sports teams as promotional vehicles. We find evidence of brief enthusiasm by investors when a company buys a sports franchise. However, we find little evidence that purchasing a team brings long-term changes in profitability. With one exception, all the *CARs* were statistically insignificant, even when we chose windows that we felt were most likely to generate positive *CARs*.

Interestingly, all three firms that bought franchises and one of the two firms that sold a franchise (Daiei) experienced a brief increase in holding period return about 12 days before the transaction was announced. These increases, however, proved to be only transitory, as each was quickly offset. The insignificant results tell us that Japanese firms did not generate unusually large profits when they purchased NPB franchises. This does not mean that the purchase is bad for the firm. It just means that the firm could do equally well following some alternative advertising strategy.

Kintetsu forms the sole exception to this general rule, as we find clear evidence that Kintetsu became more profitable when it sold its interest in the Buffaloes to Orix. This finding makes sense, as the team had struggled under Kintentsu's ownership. The Buffaloes have always been a distant second in Osaka to the much more popular and generally more successful Hanshin Tigers. In addition, Kintetsu's parent company saw its own financial difficulties eased at least in part by the revenue from its sale of the Buffaloes. Given its own financial difficulties and the limited publicity generated by the Buffaloes, Kintetsu came to the logical conclusion that it could no longer support a team. In this case, selling the team appears to have been the best possible action, though—given Kintetsu's troubles—this result does not seem generalizable to other firms.

Aware of the financial risks it faced upon entering the baseball world, Rakuten made clear from the outset that unlike most teams, it would focus on keeping the team profitable. Critics forecasted that the Rakuten Eagles, who primarily relied on players cut from the merged Orix Buffaloes, would lose 100 games and 4 billion yen in its first year. The Eagles did lose 97 games, but eked out a profit of 240 million yen in its first year, giving some reassurance to Rakuten shareholders.

While we find no evidence of abnormal value to owning an NPB franchise, we cannot claim that teams never generate value for their parent companies. As noted earlier, Chen and Chen (2012) find that success in the postseason does bring abnormal returns. In addition, our sample is necessarily limited, and does not include the two teams that generate the greatest synergies with their parent companies. Unfortunately, these two teams—the Yomiuri Giants and the Hanshin Tigers—are probably the most difficult to study. The Giants and the Tigers are by far the most popular teams in Japan and, by all accounts, are the most profitable franchises as well. However, they are also two of the oldest professional baseball franchises in Japan. They have been in existence since 1936 and have not changed ownership since they were formed, which makes the necessary data much harder to collect. In fact, as noted above, the Giants predate any league in Japan, which further complicates the identification of an appropriate event date. A broader, historical study of NPB franchises and their value to the firms that own them awaits further study.

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KBO and International Sports League Comparisons

Rodney Fort, Joon-Ho Kang and Young Hoon Lee

Abstract We provide an overview of the economic and business evolution of professional baseball in Korea. We map out the state of Korean Baseball Organization (KBO) revenues, costs, profits, team values, and regulations in the player market, and the state of competitive balance compared to Major League Baseball (MLB). After that, we go ahead and speculate on the major issues facing KBO if it were to choose to move Korean baseball toward a different business model, profits rather than advertising subsidiaries.

Introduction

The Korean Baseball Organization (KBO) is enjoying a renaissance that started in 2009 with attendance surpassing the previous record set in 1995.[1] This is after a truly gruesome decline over the period 1997–2006 when attendance fell to half of its 1995 level. There were various causes. Of course, there is the Great Recession and its accompanying income declines as well as hard times for the parent companies of the KBO's pro teams. This was also a period in time when stars began to migrate to other leagues. Super stars went to Japan and the USA and young amateur players with great potential also went to Major League Baseball (MLB) in the USA. In addition, competitive balance worsened since teams suffering reduced financial support from parent companies often sold good players for cash. Finally, there is the MLB effect. After Chan Ho Park became a starting pitcher, every Dodgers game was televised live in Korea, so, these MLB games became a strong substitute for

[1] KBO is the name of the governing body of Korean professional baseball league and simultaneously the brand name of the league. Technically, its professional teams play in the Korean Professional Baseball League, but we will stick with the generic brand name in this chapter.

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KBO games. Lee (2006) found empirically that the MLB effect is the largest cause of the dramatic attendance decline.

All of this goes part and parcel with the recent alterations in the Korean business model. Before the crisis, government and companies were interested in fast growth. Companies carried large debt and great investment on their books. Macroeconomic instability in Korea in 1997 and around the world circa 2007 demonstrated the vulnerability of this approach to financial shock. Korean companies responded by returning to the current bottom line rather than expectations of later return. Since baseball teams have breakeven bottom lines only because of large cash injections by parent companies, with cost about two times generated revenue, the KBO business model is now a focus of attention.

In the past, KBO teams were marketing devices for parent company sales. They created fan identity and advertising value and were managed as an input to that process. Winning subject to breaking even seemed to facilitate this value. KBO is definitely in transition.

Below, we map out the history of KBO, the state of KBO revenues, costs, profits, team values, and regulations in the player market, and the state of competitive balance are compared to MLB. After that, we go ahead and speculate on the major issues facing KBO if it were to choose to move Korean baseball toward a different business model, profits rather than advertising subsidiaries.

Brief History

The KBO was established in 1982 with six teams and it also governs the Futures League (minor league) as well (The Korean Baseball *Association* governs amateur baseball in Korea). The original teams were Hatae Tigers, OB Bears, Taepyungyang Dolphins, MBC Blue Dragons, Lotte Giants, and Samsung Lions. The KBO expanded with the Binggrae Eagles in 1986 and the Ssangbangwool Raiders in 1991 and, with some rearrangements in ownership shown in Table 1, the KBO has had ten teams since (there is a pending expansion for 2015 shown in the table as well). While not every province has a KBO team, Table 2 shows that the provinces that do have a team find it located in their largest cities. Seoul is the only city to host multiple teams with three (Doosan Bears, LG Twins, and Nexen Heroes).

The governance system in Korean professional baseball teams is similar to Japanese Professional Baseball League (NPB) but different from MLB. All teams in KBO except Nexen Heros are affiliated with major corporations. The parent company does not expect its baseball team to stand alone on its own bottom line. Instead, the major role of a baseball team is marketing its parent company. The parent company is willing to cover baseball team losses (and most do lose money on generated revenues) if the team helps to enhance its reputation. The direct financial injection by the parent company is viewed as a marketing expense by the parent company.

The aforementioned Nexen Heroes add heterogeneity to governance structures in KBO. Like MLB teams, Heroes is not associated with any corporation and operates independently. Unlike other teams that put their parent company names in front

Table 1 KBO expansion teams, entrance fees, and team sale prices, 1986–2014

	Number of teams	Expansion team	Entrance fee[a]
1982–1985	6		
1986–1990	7	Binggra Eagles	8,292
1991–2010	8	Ssangbangwool Raiders	9,976
2013–	9	NC Dinos	14,569
2015–	10	KT Wiz	5,406
Season	*Team*	*Purchasing team*	*Sales price*
1995	Taepyungyang Dolphins	Hyundai Unicorns	69,417
2000	Haetae Tigers	KIA Tigers	27,912
2000	MBC Chungrong	LG Twins	17,279
2002	Ssangbangwool	SK Wyverns	31,072
2007	Hyundai Unicorns	Nexen Heros	12,916

[a] 2009 million won

Table 2 Member teams and market size, 2013. (Source: Korean Statistical Information Service (http://kosis.kr))

Team name	Location	Population (million)	Income (million won)
KIA Tigers	Gwang-ju	1.5	13.1
SK Wyverns	Incheon	2.7	15.7
Doosan Bears	Seoul	9.8	20.9
Lotte Giant	Busan	3.4	13.4
Samsung Lions	Daegu	2.4	11.5
Nexen Heroes	Seoul	9.8	20.9
LG Twins	Seoul	9.8	20.9
Hanhwa Eagles	Daejeon	1.5	13.6
NC Dinos	Changwon	1.1	20.2[a]
Average		5.11	16.7

[a] Per capita income for Changwon is for Gyeongnam Province

of team names (for example, Samsung Lions), Heroes sold its name to the second largest tire manufacturing company, Nexen. The verdict is not in on this additional governance dimension; for example, Heroes had to sell star players for cash in order to survive in the early period of 2007–2011.

In comparison, very few MLB teams are used for their advertising ties to their owners. The most notable early on was the Chicago Cubs owned by the Wrigley family and their chewing gum empire and the St. Louis Cardinals related closely to the Busch family and its beer empire. It is perhaps an apocryphal story but apparently the original owners of the Toronto Blue Jays, Labatt Breweries, were quite chagrined that fans latched on to "The Jays" rather than "The Blues" since the latter would have added brand identity to their primary beer variety. Technically, no corporate name has ever been associated officially with an MLB team (or any major professional sports team in North America, for that matter).

At the beginning, KBO adopted a split-season format, 40 and 55 games in separate spring and fall pennant races. Winners in each race met in the Korean Series. If one team won both pennant races, they were champion and no Korean Series were held (this occurred once and the Samsung Lions were champions in 1985). The next year, KBO adopted a playoff system to ensure postseason games. The top two teams in each pennant race engaged in the playoff to determine each season's champion and the champions of two seasons played the Korean Series. This split-season format was altered to a single-season format in 1989, then to a two-league format for 1999–2000, and back to the single-league version in 2001. Currently, the league winner (by winning percent) goes directly to the seven game Korean Series. Their opponent is decided by a three-team playoff. The third and fourth best regular-season teams play a best-of-five game series. The winner plays the second best team in an additional five game series and the winner moves on to the Korea Series. The 133-game regular-season race begins early April and ends in early October.[2]

There was no division play in MLB until 1969 when the champions of the East and West Divisions in each league met and then those winners moved on to the World Series. The playoffs were altered to include a "Wild Card" team after the Central Division was added in each league in 1994. Thus, in the modern MLB format, there is now the League Division Series (LDS, five game series) that includes the three division champions plus the "Wild Card" team in the league identified by highest winning percent. After the LDS, the League Championship Series (LCS, seven game series) pits the winners of the LDS against each other. Winners of the LCS then meet each other in the World Series (seven game series).

Demand and Revenue

Revenues are driven by demand (at the gate and on TV for advertised products and direct subscription viewing). In turn, population and income are important determinants of demand. In a comparison of KBO and MLB, it will end up that income is the deciding factor and this can be seen as follows. Table 2 shows population for the nine KBO teams. By way of comparison, MLB population varies from 808,367 in the greater Milwaukee area to 9.4 million in New York, averaging 1.8 million. So, in terms of major league city population, KBO teams have the larger drawing potential. But, as always, simple population comparisons never tell the entire story.

Turning to income, the variation in US major league cities ($ 1 = 1,087 won) is from a per capita value of 60.6 million won ($ 55,749) in Miami to 105.5 million won ($ 97,095) per capita in Washington, DC, averaging 73.3 million won ($ 67,457) across all MLB cities. Table 2 also shows that per capita income in Korea ranges from 11.5 million won in Daegu to 20.9 million won in Seoul, averaging 16.7 million won across all KBO cities. The income difference in the USA will surely fuel much larger economic outcomes for MLB.

[2] In the 2013 season, KBO adopted the 128-game regular-season race as the ninth team was added.

Table 3 KBO team stadium capacities, 2013

Team name	Venue	Capacity
KIA Tigers	Moodeong Stadium	12,500
SK Wyverns	Moonhak Baseball Park	27,600
Doosan Bears	Jamsil Baseball Stadium	27,000
Lotte Giant	Sajik Baseball Stadium	28,500
Samsung Lions	Daegu Citizen Stadium	10,000
Nexen Heros	Mokdong Baseball Stadium	12,500
LG Twins	Jamsil Baseball Stadium	27,000
Hanhwa Eagles	Daejeon Baseball Park	10,500
NC Dinos	Masan Baseball Park	14,164
Average		18,863

The first place to see the impact of this difference is in stadium capacity. Table 3 shows stadiums and capacities for KBO teams. Stadium capacity varies from 10,000 for the Lions to 28,500 for the Giants, averaging, 18,863. By comparison, the smallest MLB stadium is Fenway Park in Boston, 36,298. The largest is Dodger Stadium in Los Angeles, 56,000. Thus, the smallest MLB stadium is larger than the largest KBO stadium. We should expect that attendance would follow suit.

The total regular season attendance along with attendance per game (APG) was more or less constant during the period of 1982–1988 as shown in Fig. 1. Spectator interest in all sports jumped in 1988 when Korea hosted the Summer Olympic Games in Seoul and KBO was no exception. Attendance increased for the 1989 season and continued to do so until 1995. The 1995 attendance peaked at 5.4 million, and 11,000 per game on average, more than twice its 1988 level. This increase pushed many teams to their capacity constraints—at the time, five of eight teams had small stadiums ranging from 10,000 to 13,400. However, attendance declined after this historical high. Five years later, 2000 season attendance shrank to 2.5 million, or less than half its 1995 level. So, we can refer to the period 1998–2006 as the Dark Age of KBO attendance but there has been a rebound of late. Attendance crept up again in 2005, eventually passed its 1995 record in 2009, and rose again in 2010–2013. Again by way of comparison, MLB averaged 22.9 million in the 1980s, 30.1 million in the 1990s, and 36.8 million in the 2000s. The Yankees topped attendance with just 4.0 to 4.3 million from 2005–2008. This comparison is consistent with the income-driven differences in stadium size.

Attendance is interesting both as a measure of interest in baseball and as an indicator of attendance-related revenue (from tickets, parking, and concessions). Attendance-related revenue, of course, should show the same temporal variation as its underlying cause, attendance itself. But it is interesting to get to ticket prices as well. Historical ticket price data have not yet been found, but current KBO ticket prices can be 9,000 won ($ 8.50) for general admission and up to 42,000 won ($ 39.50) for lower level reserved. In MLB, average ticket prices across the league, adjusted to current dollars, have been as follows: 1980s—10,700 won ($ 9.85); 1990s—15,990 won ($ 14.71); 2000s—22,850 won ($ 21.02). In real terms, this is an annual growth rate of 4.1 % from the 1980s to the 1990s and 3.6 % from the 1990s to the 2000s, right through the teeth of the recent “Great Recession” when the

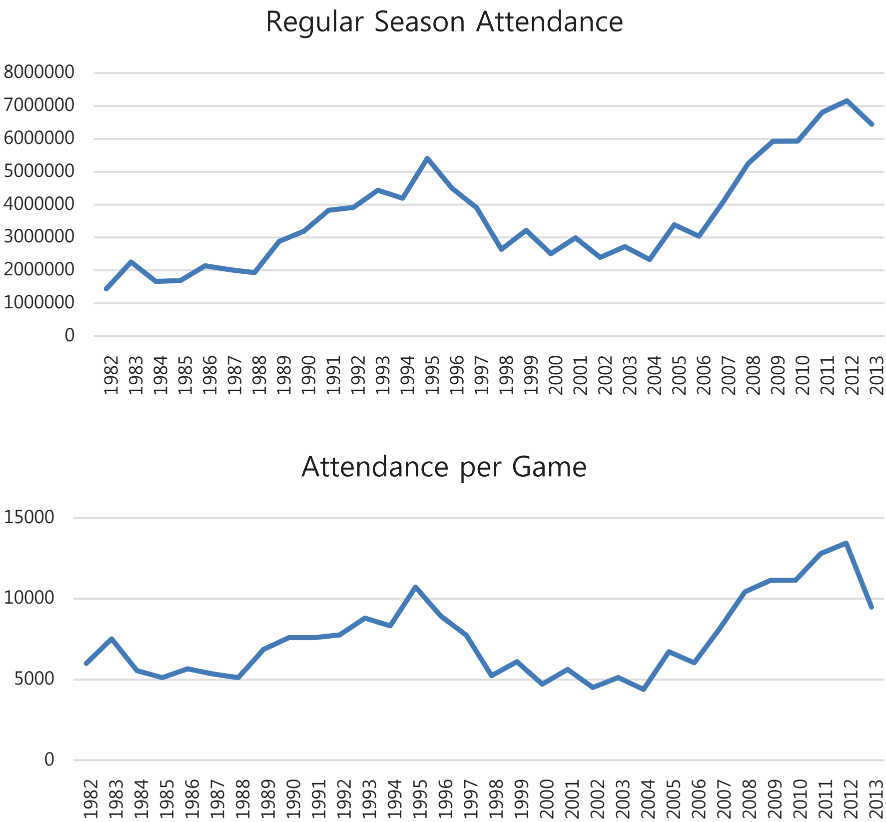

Fig. 1 Attendance at KBO games, 1982–2013

economy in the USA was relatively stagnant. The more expensive seats *in* Yankee Stadium (as opposed to luxury suites), down the Yankee dugout side, range from 706,550 won ($ 650) to 1.4 million won ($ 1,250).

As shown in Table 4, the value of broadcast rights is small for KBO teams, as little as 7.6 billion won as late as 2009. Further, while rights fees have jumped significantly from 2010 on, gate remains the most important revenue category for KBO. For the latest data we could find, league gate revenue in 2012, including both regular and postseason, was around 77 billion won (Fig. 2). This compares to TV revenues in that same year that are about 23.5 billion won; gate revenue is just over triple the amount of TV revenue. By comparison, national broadcast rights for MLB, 2007–2014, totals 6.2 billion won ($ 5.7 billion). The annual average 774.5 billion won ($ 712.5 million) would be about ten times the rights value for KBO in 2014. Since the revenues from the national contract are shared equally in MLB, that's 25.8 billion won for each MLB team. Teams in KBO also equally share the revenues and then, that would be 8.6 billion won for each KBO team.

But we hasten to add that there are also *local rights* negotiated by each team in addition to the previously discussed contract rights for games broadcast nationally.

Table 4 Broadcasting rights (2009 million won)

Year	KBS	MBC	SBS	Korea sports	CBS	ESPN	IPTV	All other channels	Total
1982	421	460							881
1983	503	505							1,008
1984	582	582							1,164
1985	852	852							1,704
1986	967	967							1,935
1987	1,073	1,073							2,146
1988	1,001	1,001							2,003
1989	1,303	1,303							2,605
1990	1,254	1,254			175				2,683
1991	718	1,257	95		75				2,145
1992	714	1,277	766		126				2,884
1993	1,434	1,434	896		143				3,907
1994	1,417	1,417	902		157				3,893
1995	1,614	1,614	1,614	323	174				5,340
1996	1,692	1,692	1,692	508	185				5,770
1997	1,766	1,766	1,702	633	186				6,053
1998	1,643	1,643	1,583						4,868
2001	8,941								8,941
2002	9,570								9,570
2003	10,170								10,170
2004	10,432								10,432
2008	1,645	1,645				1,645	1,645		6,581
2009	1,900	1,900				1,900	1,900		7,600
2010							5,051	10,684	15,735
2011							6,538	16,811	23,348
2012									23,523
2013									27,032
2014									31,194

Note: For 2010–2011, the only data available are for IPTV and all TV channels, including cable, combined. For 2012–2014, TV, IPTV and internet rights are included and specific contract amounts were not accessible. 2014 is calculated by using predicted CPI from KDI

Local rights values are not widely known, but in 2013 various reports put the LA Angels at the top with 133.7 billion won ($ 123.0 million) and the league median was around 35.9 billion won ($ 33 million). In addition, MLBAM returns Internet-streaming video values back to teams of around 130.4 billion won ($ 120.0 million). The total of national and local rights for MLB teams is thus in the neighborhood of 192.1 billion won, or 22.3 times an equal share of the KBO TV money from Table 4.

Operating Profits and Team Sale Values

Table 5 shows annual income and expense statements for three teams over the last 5 years where data could be found—the Doosan Bears, Samsung Lions, and Nexen Heroes. Net operating profit is essentially zero for all three team in all years. This

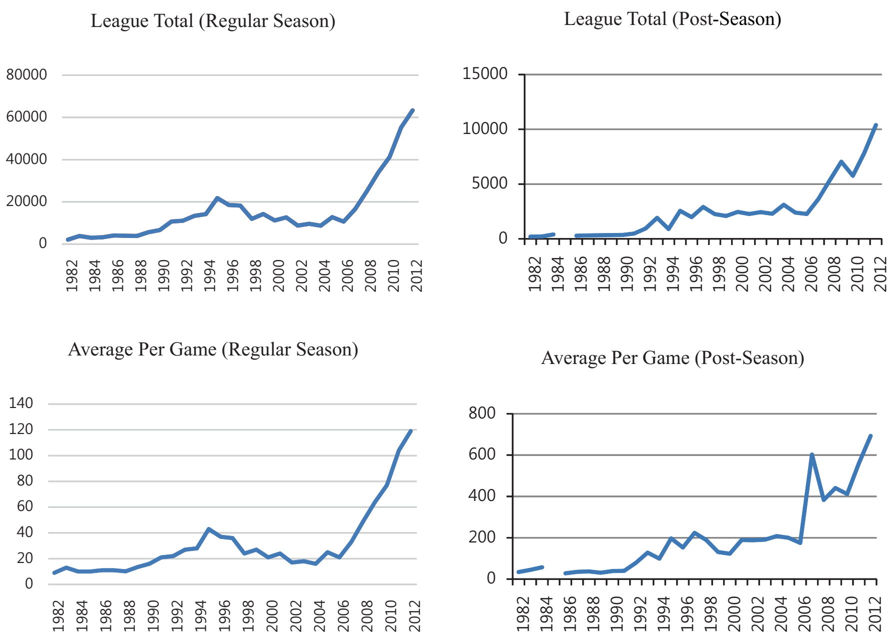

Fig. 2 Gate revenue (million won) update data up to 2012

Table 5 KBO income and expenses (million won), 2008–2012

	2008	2009	2010	2011	2012
Doosan Bears					
Ticket sales	4.808	6.096	7.509	9.235	10.563
Other revenue	18.447	20.377	21.298	23.351	24.929
Total revenue	23.255	26.473	28.806	32.586	35.492
Cost	23.435	26.356	27.601	30.327	34.664
Profit	−0.18	0.117	1.205	2.259	0.828
Samsung Lions					
Ticket sales		2.237	3.445	6.919	8.599
Other revenue		31.861	39.653	43.868	44.803
Total revenue		34.098	43.098	50.786	53.402
Cost		34.126	43.987	49.806	54.052
Profit		−0.028	−0.889	0.980	−0.650
Nexen Heroes					
Ticket sales	1.381	2.290	2.815	4.232	5.330
Other revenue	10.183	13.631	16.214	15.408	16.915
Total revenue	11.564	15.921	19.029	19.640	22.245
Cost	15.427	16.554	19.552	23.787	26.793
Profit	−3.863	−0.633	−0.523	−4.147	−4.548

nearly breakeven outcome in these years for these teams is primarily due to the "other revenue" category, comprised of sponsorship revenue, parking, and concession revenue, revenue from advertising in the stadium, and (1) direct payment by the parent companies for Doosan and Samsung and (2) player sales for cash for Nexen. Unfortunately, we have no information on the size of direct parent company cost component inside this total of "other revenue." Taking into account that gate and broadcasting revenue are the major sources of revenue, and their amounts as shown in Tables 4 and 5 are smaller than *total* revenues, it seems clear that the balance comes from the parent company. However, it has been made clear in general statements from members of KBO that breaking even with the direct payments from parent companies has become a less acceptable result.

Net operating results for MLB are not generally made public and actually deriving the value of ownership is complicated by complicated tax treatment (Coulson and Fort 2010) and by many values that accrue to owners beyond the team bottom line (Fort 2006). However, the market always speaks and the punch line boils down to a comparison of the value of teams for their respective purposes—branding and marketing the parent company for KBO and team profits plus other values of ownership in MLB. As discussed, Table 1 displays information on expansion fees and team sale prices for KBO, adjusted for inflation. Sale price was the highest in 1995 when attendance in the regular season was over 5 million but fell dramatically after that. The example of the current Nexen Heroes proves instructive on this point. Hyundai purchased the Dolphins for 69.4 billion won in 1995 when fan attendance demand was at a then historic high. However, within 12 years, Hyundai sold the team to Nexen for only 12.9 billion won in 2007, an astonishing 13.1 % real annual rate of decline over 12 years. We note that part of this decline also was due to the other reason that Korean companies would find KBO teams less attractive—the regime change from high growth investment prior to the Great Recession to the focus on current profit during this historically awful economic episode. Thus, KBO team values took a double hit—fan interest fell off and demand by Korean companies did too.

MLB team sale prices are astronomically higher than KBO team sale prices as should be expected by the difference in both net operating revenue and other values of ownership in the USA. Some of the sale values of MLB teams are in Table 6. The entries in Table 6 are only for team sales without any ancillary asset involved. Some partial sales, adjusted to full sale equivalent values are also in Table 6. Adjusted for inflation, on average MLB team sale prices were about 81.6 billion won ($ 75.1 million) for the 1980s, 235.9 billion won for the 1990s, and 247.5 billion won for the 2000s. The increase from the 1980s to the 1990s is truly phenomenal. In the span of just ten years, the real annual rate of growth in team sale prices was 11.2 %, or about 3.7 times the typical 3 % rate of growth in the US economy at large. But this appears to have been a single decade episode since team sale prices settled at about the same level through the 2000s. MLB teams in the last decade have sold for just over 11 times the average sale price of the four KBO teams in Table 1 sold in the same decade.

There also are three KBO expansion episodes in Table 1, in 1986, 1991, 2013, and another is coming in 2015. The closest proximate expansion in MLB brought

Table 6 MLB team sale prices, 1980–2010 ($ 2009 million)

Year	Team	Sale price	Year	Team	Sale price
1980	NY Yankees	22.1	2000	Cleveland	323
1980	Oakland	12.7	2000	Kansas City	96
1981	Philadelphia	31.2	2000	Toronto	175
1981	Seattle	13	2001	Colorado	35
1983	Detroit	53	2002	Florida	158.5
1983	Kansas City	22.4	2002	Montreal	120
1984	Cincinnati	24	2002	NY Mets	391
1984	Minnesota	44	2003	Anaheim	184
1985	Pittsburgh	22.2	2004	LA Dodgers	371
1986	Cleveland	35	2004	Cincinnati	91.5
1986	NY Mets	80.7	2004	Colorado	142.9
1988	Baltimore	87.5	2005	Milwaukee	220
1989	Seattle	80	2005	Oakland	180
1989	Texas	79.3	2006	Cincinnati	270
1980s Ave.		43.4	2006	Washington	450
			2007	Atlanta	450
1990	Montreal	86	2009	Chicago	900
1990	San Diego	75	2009	San Diego	530
1991	Toronto	134	2000s Ave.		282.7
1992	Houston	103			
1992	Seattle	176.7	2010	Texas	590
1992	San Fran.	100	2011	Houston	615
1993	Baltimore	173	2012	LA Dodgers	2300
1993	Detroit	82	2010s Ave.		1168.3
1994	San Diego	94			
1995	Oakland	85			
1996	Pittsburgh	92			
1998	LA Dodgers	311			
1998	Texas	250			
1999	Anaheim	186.7			
1999	Cincinnati	183			
1999	Florida	158.5			
1999	Montreal	142.9			
1999	NY Yankees	600			
1990s Ave.		168.5			

the Florida Marlins and Colorado Rockies into the NL in 1991 and 1992, respectively. The expansion fee paid by the two owners was 103.3 billion won ($ 95 million). In the expansion before that, Seattle and Toronto entered the AL for a price of 7.6 billion won ($ 7 million). Adjusting for inflation, the real annual rate of growth in expansion price is another very large result, 11.2 %, and the level of expansion value in MLB at that time simply swamps that in KBO. MLB expansion occurred again in 1998 when the Arizona Diamondbacks and Tampa Bay Devil Rays also joined the NL paying an expansion fee of 141.3 billion won ($ 130 million). Adjusting for inflation, the real annual rate of growth from the early 1990s expansion was a much tamer 2.8 %.

Table 7 KBO and MLB Player Pay Rules, 2013

	KBO	MLB
Minimum salary[a]	24	434.8
Years to salary arbitration	3	3
Years to free agency[b]	9	6
Compensation to team losing a free agent[c]	200 % of player's salary + 1 unprotected player or 300 % of player's salary	High-level draft choices.

[a] 2009 million won. For MLB, 434.8 million won = $ 400,000
[b] For KBO, 8 years for players graduating from a 4-year university. For MLB, in the 6th year for top players, after the 6th year for the rest
[c] Prior to 2011, for KBO, it was 300 %/450 %

The Player Market

In Japan and North America, some professional baseball teams were established before a league was organized. As leagues formed, they developed their own rules for operation and, the point of this section, rules governing player pay. Of course, these rules were tested and refined through the court system early on, and then through labor law after 1935. The evolution of rules governing player pay in Korea was quite different. It is well known that the military government prompted the formation of a professional baseball league by persuading major corporate companies to establish baseball teams in the early 1980s. The organizing office, KBO, was formed prior to the formation of individual teams.

KBO studied player mobility rules in both NPB and MLB and it clearly learned the importance of restricting player movement between teams; the more mobile are players, the higher their pay and the higher are operating costs. As shown in Table 7, from the outset in 1982, KBO established reserve clause, minimum salaries, and salary arbitration rules, but it did not adopt free agency rules. Free agency rule was established in 1999, but in a restricted way as they required that teams losing a free agent to another were to be compensated by the receiving team. While the types of player mobility rules are the same, their form is much different in KBO compared to MLB. The reason is the difference in the bargaining power of players.

Korean players made a weak attempt to form a players' association in the early 1990s but the first serious attempt occurred in 1999. The KBO member owner response was similar to that by MLB owners when players began to exercise their collective bargaining rights in 1965 as the Major League Baseball Players Association (MLBPA). KBO owners agreed to release outright several of the players most active in the formation of the players association and tried to persuade players not to participate in the meetings of the fledgling players association. Eventually, the owners agreed to recognize the Korean Professional Baseball Player Association (KPBPA) but not until the end of 2000 season. Further, in exchange for the free agency system described below, the KPBPA agreed to not be recognized formally as a union so there is no collective bargaining between KPBPA and KBO. This is similar to the state of the MLBPA in the 1940s–1950s, an association that did not formally exercise its rights as a union until the mid-1960s.

So, what can we observe about labor-management outcomes? One should not make too much of the difference in minimum salaries in Table 7 (18 times higher in MLB) since all demand and revenue factors are simply so much larger for MLB as shown above. But the remaining differences are quite important.

While the time to arbitration eligibility is the same in KBO and MLB, arbitration outcomes in the two organizations could not be more different. To see this, we start first with the final offer salary arbitration (FOSA) system in place in MLB. Under FOSA, a three-person arbitration panel must choose either the demand by the player or the offer by the team owner. As dictated by collective bargaining outcomes between owners and the MLBPA, the panel may only consider a limited set of criteria in making its decision. This guarantees that both owners and players already know the criteria and have determined they are fair through bargaining.

However, pay will increase since the owners' offers, while lower than the players' demands, are in excess of their previous pay so that owners appear fair in the eyes of the panel. Players will make more and more if the panel chooses the player's demanded increase. Arbitration is also the point at which owners reveal which younger players they truly desire to keep on their teams (with free agency not far off in terms of time) and the players that do not go to arbitration earn even higher salaries! It should be expected under FOSA that (1) few cases actually go to arbitration since owners know both that they must offer a fair increase and that the panel will, quite often, side with the player and (2) players going to arbitration may never actually get to the hearing as owners will try to negotiate an outcome lower than the panel will grant.

Turning to the actual MLB arbitration outcomes, we see that both of the above hold true. Through 2013, panel decisions have been 291:214 in favor of owners (57.6 %) from the inception of arbitration in 1974. There were no cases in 2013 for the first time since 1974, but the 2012 outcomes went as follows (Brown 2014). First, of the 175 players eligible in 2012, 46 players (26 %) filed for arbitration. The rest reached an agreement with their team owner and did not file. Second, only seven (15 %) of the 46 players that filed actually went to arbitration. For 2012, arbitrators found in favor of owners five times and players two times.

The KBO version of arbitration seems similar but ends up with decidedly different results. This seems to be due to the fact that the criteria for the arbitration committee have not been derived under collective bargaining and end up favoring owners over players with only a single exception. The arbitration committee considers all cases filed for salary arbitration after each season and the KBO commissioner selects the members of the committee. KBO arbitration results are in Table 8. First note the similarities with the MLB case. From 1984, the first year that any player would have been eligible for arbitration, nearly no KBO players ever filed in the first place and nearly all that did file never actually got to the formal hearing. However, the reason for this, and the outcome for players, is decidedly different than in MLB. From 1984 to 2001, *not a single KBO player ever won their arbitration hearing*. Small wonder, then, that the number of filings falls to essentially zero for the entire period 1994–2000 and that the withdrawal rate averaged 82.7 % through 2000. Rather than the 0.576 winning percent of their MLB counterparts, for a full

Table 8 Salary arbitration and free agency outcomes in KBO

Year	Number of salary arbitration files	Number of withdraws	Number of players eligible for FA	Number of players filing FA	Number of FA changing teams
1984	2	0			
1985	11	6			
1986	8	8			
1987	9	9			
1988	4	3			
1989	3	3			
1990	4	4			
1991	12	10			
1992	11	10			
1993	8	7			
1994	1	0			
1995	0	0			
1996	0	0			
1997	0	0			
1998	2	2			
1999	0	0	5	5	2
2000	0	0	13	6	1
2001	7	6	17	4	2
2002	5	1	15	4	1
2003	3	3	24	13	6
2004	0	0	17	11	3
2005	2	2	21	14	1
2006	0	0	20	12	4
2007	0	0	20	6	0
2008	0	0	27	11	4
2009	2	2	27	8	2
2010	1	0	18	4	–
2011	1	0	28	17	8
2012	0	0	31	11	5
2013	0	0	21	16	6

18 seasons, KBO member owners batted 1.000 against the players in arbitration and clearly the players simply lost any interest in the proceedings. While the players did finally organize their KPBPA by 2002, apparently not much had changed. In that KPBA founding year, one player finally did win an arbitration decision. After that, however, only nine players filed for arbitration from 2003 to 2013 and seven of them withdrew. Clearly, the KBO version of arbitration is a far cry from the collectively bargained FOSA process enjoyed by MLB players.

Table 7 also shows that free agency is quite different between KBO and MLB. First, as a result of past collective bargaining, MLB players reach free agency three years sooner than KBO players after six rather than 9 years. Second, the compensation requirements to MLB owners losing free agents are trivial compared to the requirement in KBO. A KBO receiving owner could pay up to 3–4.5 times a player's salary in the previous season as a transfer fee and then have to pay the player's salary over time. While this type of value may exist for some players, given some of the revenue-generating differences in Table 1 (e.g., population and stadium size, especially for teams in Seoul, with a large parent company versus a relative smaller parent company in other locations), it should not be expected to happen very often. Thus, one would expect that the KBO version of free agency suppresses player movement and puts downward pressure on player salaries. In MLB, on the other hand, the compensation is in terms of the much less certain value of new, incoming players so that compensation is very low to owners that lose free agents to other owners.

Free agent outcomes shown for KBO in Table 8 testify to the immobilizing effect of these rules. Since roster limits are 26 through September 1 and then to 31, with no more than three foreign players, there would be 248 players in the KBO in each year. From Table 8, during 1999–2013, 304 KBO players were eligible to declare free agency, or about 20 per year over this 15-year span. A total of 142 players actually filed, or about 9.5 per year. Finally, only 45 free agent players could find higher bidders than their old teams, or three per year. Thus, 8.1 % of the KBO players were eligible on average (20/248), less than half of those or about 3.8 % of the KBO players actually filed for free agency (9.5/248), and about 1.2 % of KBO players actually changed teams through free agency (3/248). By comparison, for the 40-man roster in MLB, there are 1280 players in a given year. In 2013, after those that retired, there were 217 players eligible for free agency and all filed (including international players). Thirty six were signed by their team so that 181 moved on to new teams. Thus, 17.0 % of MLB players filed for free agency (217/1280) and 14.1 % of all MLB players changed teams through free agency (181/1280). Even accounting for differences in scale, the percentages show that the KBO rules stifle player movement.

Where they went also mattered. Apparently only the teams backed by large parent companies found free agent players of sufficient added value to acquire them—the Samsung Lions, Hyundai Unicorns, SK Wyverns, and LG Twins. MLB free agent players also move in ways that make them better off but this brings us to the issue of competitive balance in baseball, the KBO version or the MLB version.

Competitive Balance

Rottenberg (1956) hypothesized that fans love close games as long as their teams win enough so that entry into the postseason is a recurring possibility. He also argued that if imbalance prevails, so that only the fans of a few teams expect postseason appearances, there could be dire consequences for the league. Fans of perennial losers may not only lose interest in their own teams but also in the rest of the league, especially at playoff time. As a result, even the teams of remaining strong interest to their own fans lose possible revenues in the postseason. Rottenberg made it plain that competitive balance is a characteristic of vital importance to the member owners. Many times owners have advocated particular policies in the name of

Table 9 Temporal variations in competitive balance, through 2013

Team name	Championship appearances	Number of championship
KIA Tigers	10	10 (83, 86–89, 91, 93, 96, 97, 09)
SK Wyverns	7	3 (07, 08, 10)
Doosan Bears	8	3 (82, 95, 01)
Lotte Giants	4	2 (84, 92)
Samsung Lions	16	7 (85, 02, 05, 06, 11, 12, 13)
Nexen Heros	6	4 (98, 00, 03, 04)
LG Twins	6	2 (90, 94)
Hanhwa Eagles	6	1 (99)

KIA/Hatai Tigers; SK Wyverns/Ssangbangwool Raiders; Doosan/OB Bears; Nexen Heroes/Hyundai Unicorns/Taepyungyang Dolphins; LG Twins/MBC Blue Dragons; Hanwha/Binggrae Eagles. There was no series in 1985 and Samsung Lions were champion

competitive balance, from the draft to revenue sharing to payroll caps. They have also lamented the passing of some policies in the name of competitive balance, most notably, the reserve clause.

Now, as Fort and Maxcy (2003) made clear, it is different to just track competitive balance than it is to actually determine the impact of balance on fan behavior (e.g., fan attendance). In addition, care must be exercised to be sure to cover all of the bases—regular season balance, playoff balance, and postseason championship balance all can matter to fans as they plan their attendance for a season. Here, we just summarize and extend in a minor way other findings on both tracking and attendance impacts.

On tracking, Lee (2004) compared regular season balance for KBO, NPB, the AL, and the NL, 1981–2000. By his measure, the AL and NL had the best regular season balance in MLB, and are the most balanced, followed by the NPB's Pacific and Central Leagues. KBO was the least balanced league among the five leagues; by his measure, KBO is 21.5 % less balanced than in NPB leagues during the regular season and 27.2 % less balanced than MLB leagues.

Nearly nothing has changed since then. We have calculated the measure used by Lee through 2000 for the period 2000 to 2013. The measure improves by about 9.5 % but still leaves KBO with the least regular season balance of any professional baseball league in the world.

Moving on to the postseason, Table 9 also shows information on the number of championships for each KBO team through 2013. Clearly, KIA Tigers rule the championship but mainly under their previous ownership by the Haitai Company. Since the usual model of team performance relates talent on the field to winning outcomes, subject to any variation in management skill, a good question is just why it is that Haitai found it more valuable than other owner/companies to invest in winning so many championship outcomes. Playoff imbalance also characterizes MLB through most of its history although lately there seems to be a bit more equal access.

Turning to the impact of balance on attendance, Lee et al. (2012) formulated a model of league average attendance per game determined by regular season balance, playoff balance, and postseason championship balance measures. Their model also included the impact of standard economic variables like team quality, ticket prices, population, purchasing power, and stadium capacity. Finally, the model included measures of the performance of Korean-born stars playing in other leagues and the special years where Korea hosted the Olympic Games (1988) and FIFA's World Cup (2002).

If Rottenberg's hypothesis holds for Korean fans of KBO, the types of imbalance exhibited in both the regular season and the playoffs would be a contributing factor to both the fluctuations in attendance and the related value of teams to KBO owners. These researchers find that it depends upon the model specification. If the competitive balance measures are calculated at the league-level aggregate, the estimates of regular season balance, playoff balance, and postseason championship balance have signs consistent to the uncertainty outcome hypothesis of Rottenberg (1956), but only postseason championship balance had a statistically significant impact. On the other hand, if the competitive balance measures are calculated at the individual team level, then game uncertainty was statistically significant.

Issues Identification: Changing the Shape of Korean Baseball?

Nearly all would agree that the most profitable league is North America is the NFL with revenues typically reported at 9.8 trillion won ($ 9 billion). This is both common belief, typical report, and verified by the size of popular estimates of team sale values, now nearly all over 1.1 trillion won ($ 1 billion) by *Forbes* magazine. Most attribute this success to revenue sharing and the payroll cap, along with being the most popular sport year after year in the USA in recent history and many often argue that this is the league to emulate. However, we offer a more general, broad comparison process for those interested in changing the shape of baseball in Korea.

First, we recommend an assessment of the goals of the organization. At present, KBO runs its baseball teams to sell other products. The current dissatisfaction is with the few billion won that teams put into their teams in order to accomplish this aim but that could be a short-term concern as the Great Recession ends. Changing the entire structure of Korean baseball in the face of a short-term economic challenge may not be the most valuable choice available to the members of KBO. In a version of the basic economic short-run shutdown rule, many firms in the face of the present Great Recession have drastically cut back some of their efforts rather than alter the fundamental goals of their organizations. Perhaps this is an option for KBO to consider—simply reduce investment in baseball for the time being to match the reduced value of branding and fan identification it provides. In moving to some other ambition for KBO (e.g., making profit rather than selling product), a short-term response may result in long-term regrets.

In this careful approach, the primary issue is whether running baseball teams in Korea in any other fashion provides a superior outcome to the current approach. Changing the focus to profit may led to the wrong comparison—it is not profits that the KBO is structured to generate currently! Right now, the company/owners put a few billion won per year into their teams presumably in return for whatever the teams are worth in terms of customer loyalty and actual sales. Perhaps the company/owners know the return to this investment but to simply focus on the fact that a few billion won goes into the teams without considering the returns could lead to a less valuable choice and a move to profit maximizing teams may be just such a less valuable choice.

If some form of alteration in KBO is the final conclusion, then understanding what KBO is now, and the form of baseball it has already wrought, essential to gauging the value of change. The single overriding observation about KBO seems to us as follows. Since there are not competing firms with similar products, engendering fan identification by product, then fans mostly go for the event atmosphere and because they enjoy baseball. While there, they receive a dose of advertising. This means that current company/owners manage teams to the greatest advertising effect. For example, presumably, Haitai Company (but not KIA, starting in 2001) found that creating a KBO dynasty (five of six championships from 1986 to 1991, and two in the later 1990s) was more important to selling retail and instant foods than Lotte or LG (and before them, MBC) did for their sales purposes.

Any change away from this orientation means a fundamental alteration in the cultivation of fan interest in the new KBO baseball product. In considering an alternative structure (and a few are suggested, below), the main transition consideration would appear to us to be branding fans to the team rather than to the owners' companies. In MLB (and the rest of the North American major leagues), the branding is mainly by city or, in the case where more than one team can be supported in a given city, by neighborhood. In NPB, the branding is by subcity since so many are in close proximity in Tokyo/Yokohama.

However, in the rest of the world where football (soccer) is the preeminent sport, fans identify with teams by becoming members of major league clubs. In turn, this organizational structure is valuable to firms through sponsorship and advertising. Under this alternative structure, membership is its own brand, even in the same city. The most famous example is Manchester United versus Manchester City in the English Premier League. However, the same is true of the various member clubs at the top level of play in Rio de Janeiro.

Quite relevant to the discussion of any possible alteration in the structure of Korean Baseball is the fact that this alternative, member club form is not operated with profits as the goal. Instead, member clubs are operated to maximize the utility of the members. To the extent that members are satisfied, the group of administrators of any club gets to continue on in that role. If not, the members can change the administration of the club. European academic analysts have made some headway looking at winning as the imperative subject to some financial constraint (sometimes imposed by government). However, this is controversial and there is precious little work comparing profit-motivated leagues to member welfare motivated leagues.

So, what organization form will be of highest value to current KBO company/owners? We think the answer will be found by focusing on organization type, rather than jumping headlong into a "let's go for profits" mentality. Profit requires ownership and ownership is the North American and NPB model. But the highest value may be in sponsorship relationships with a member organization as in world football. Of course, the tradeoff in this case is in terms of giving up team control to the club members.

Regardless of whether it is a conservative retrenching of the current KBO goals, a club/sponsor model, or a model of individual team ownership for profit, KBO will eventually confront Rottenberg's fundamental challenge. KBO will have to determine the distribution of talent across the teams (member clubs) in the league that best facilitates its goal. Even under the most conservative alternative of reduced investment, the severe level of competitive imbalance—both for the regular season and for the playoffs—may not be the level that best facilitates KBO's goal. Care must be exercised in the choice of competitive balance for any alternative as well. Currently, the distribution of talent sells product. In a move to member clubs or profit ownership, KBO must consider the distribution of talent in Korean major league baseball that will maximize sponsorship value or profits from the league perspective. Then KBO needs to figure out how to distribute this value in a way agreeable to the team owners or club directors.

This consideration has far-reaching consequences. For example, part and parcel to this choice is the issue of the absolute level of talent that can survive in Korean baseball. Going strictly to member welfare, or profit, will change the amount of money offered to players. This, in turn, will affect the choice by those players to stay in Korea or move on to NPB or MLB. Thus, one impact of any chosen organizational alteration will be the level of absolute talent that will be in KBO. For another example, subject to Korean labor law and current relationships with their own players, plus the outside pressure by foreign leagues (primarily NPB but with a few great players going to MLB), KBO must consider the level of mobility that best facilitates their new objective function. It could be that keeping its best Korean players by allowing the increased level of player pay that goes along with increased mobility is the best way to create more fan identification with teams, as opposed to companies. The current rules that simply do not result in much player movement at all, and suppresses player pay, may or may not facilitate a new organizational objective.

In closing, there are important, fundamental, and nontrivial issues for KBO and Korea baseball policy makers to consider prior to any alteration in the organizational form of baseball in Korea. Eventually, debates may emerge over whether there should be revenue sharing, payroll caps, or alteration in entry drafts. Some of these, like payroll caps, help determine both the distribution of talent and competitive balance as well as sharing of the proceeds between owners and players. Others, like revenue sharing and entry drafts, facilitate the sharing of the proceeds from an altered league structure between owners. Before that, however, must come careful and cautious consideration of just what it is that KBO wishes to accomplish.

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The Effects of Adopting and Discarding Sports Teams on Firm Values: Evidence from Taiwan

Chih-Chun Chen and Chun-Da Chen

Abstract This study employs an event study and cross-sectional regression model to investigate stock price performances when companies announce to adopt or discard professional sports teams. The results show that there is a negative impact on the stock price of parent companies after announcing adoption, whereas, a positive impact occurs after announcing discarding. Nevertheless, the effects of adopting and discarding events on stock prices are both negative *before* announcements. In addition, the relationship between the degree of impact and the price to earnings ratio is negative—that is, the stock price of a lower profitability company will drop more when the event happens. Therefore, although many companies increase their awareness by adopting sports teams, investors still need to consider cautiously when deciding to make a short-term investment in the sports team's parent company.

Introduction

Many studies have analyzed the effects of holding *sports events* on stock prices and entire stock markets of the countries, such as Ozdurak and Ulusoy (2013), Chang et al. (2012), Chen and Chen (2012), Bernile and Lyandres (2011), Palomino et al. (2009), Edmans et al. (2007), Brown and Hartzell (2001), Ashton et al. (2003), and Avery and Chevalier (1999). These studies mostly take the viewpoints from behavior finance, investor sentiment, or sports sentiment to argue whether sports events affect a company's performance in the stock market. However, our study presents that adopting or discarding a *sports team* impacts the stock price of the parent company from the perspective of investment analysis and corporate finance. The purpose of this study is to investigate investors' responses when such adopting

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and discarding events happen and to examine the effectiveness of decisions made by managers in the parent companies.

We first focus on previous studies related to behavior finance and investor sentiment that are mostly investigated from psychological factors and note that the mood of investors affects stock returns. The variables that impact investors' moods relate to weather conditions, lunar phases, and Ramadan.[1] These conditions have no direct impact on the performance of a company's stock, but primarily influence investors to be pessimistic or optimistic and additionally affect their investment decisions.

The performances of sports events are usually the theme of studies related to behavior finance and investor sentiment. For example, Brown and Hartzell (2001) show that the results of Boston Celtics' basketball games significantly affect partnership stock returns, trading volumes, and volatility. Ashton et al. (2003) identify a statistically significant relationship between the performance of England's national football team and the change in stock prices traded on the London Stock Exchange. In the broadest of terms, a good (poor) performance by the national team is followed by good (poor) stock market returns.

Edmans et al. (2007) analyze the influence of the World Cup and the main continental cups' (e.g., European Championship, Copa America, and Asian Cup) results on stock market performances by using stock market indices from 47 countries. They find a statistically significant stock index decline after the national soccer team lost a game. Palomino et al. (2009), Bernile and Lyandres (2011), and Ozdurak and Ulusoy (2013) examine the relationship between soccer game results and stock market performances in several European countries. They indicate that the results of soccer games do affect stock market returns and trading volumes. Chang et al. (2012) use the National Football League (NFL) in the USA and show that a team's loss leads to lower next-day returns for locally headquartered stocks, and that this impact increases for a surprising loss or a critical game loss. Chen and Chen (2012) look at the influence of the Nippon Professional Baseball Championship on the stock returns of parent companies from 1996 to 2009. They show that parent companies have significantly positive abnormal stock returns when their own teams qualified for the final championship series, and furthermore, the parent companies have higher and more significant cumulative abnormal returns when their teams win the championship.

All the above studies use game performance as study events, but in this chapter we focus on the impacts on companies' stock returns when those companies adopt or discard a sports team. This is an important topic for investors in stock markets. For example, a discarding announcement could be a negative signal to investors implying that the parent company cannot afford to support the sports team due to difficulty in operations. On the other hand, discarding a sports team could also be a positive signal to investors, signaling a benefit to a company's performance in the

[1] For example, Kamstra et al. (2000, 2003, and 2012), Symeonidis et al. (2010), Jacobsen and Marquering (2008), Levy and Galili (2008), Chang et al. (2008), Cao and Wei (2005), Hirshleifer and Shumway (2003), and Saunders (1993) indicated that weather conditions, including sunshine, daylight, and temperature, affect stock returns. In addition, Yuan et al. (2006) found that lunar phases have a great influence on stock market performance, showing that stock markets present poor performances during a full moon.

future, since owing a sports team is usually considered as a nonprofitable business in a company. For those companies that decided to adopt sports teams, the parent company's stock price may be affected differently by whether investors are convinced that adopting a sports team can increase the overall firm value, or whether they are concerned that adopting a sports team may just increase the parent company's expenditures. Unlike sports events, announcements about sports teams cannot fall under the effect of "sports sentiment" on a company's stock price because the response of parent company's stock trading activity might reflect investors' investment decisions.

There have also been empirical studies of the impacts of sports events on a company's performance. Harris (1993) demonstrates that using sports has become one of the most favored event marketing strategies for companies in the USA. Formula One auto racing (F1, FIA Formula One World Championship), for example, holds 17 races each year and is broadcast live in nearly 60 countries with a total audience of over 1 billion, which helps drive remarkable advertising effectiveness. In addition, many famous companies attempt to enhance their visibility and brand awareness through sports sponsorship. Audi and Adidas are both sponsors of the Real Madrid Club de Fútbol, the most frequent winner in the Union of European Football Association (UEFA) European Football Championship. The purpose of this sports sponsorship is to increase the visibility of the companies' products in the European market.[2] BenQ Corporation of Taiwan was the main sponsor for the 2008 European Football Championship, Volkswagen Group sponsored the 2008 Beijing Olympics Games, and Acer Group sponsored the 2012 London Olympics Games. These cases are all related to sports marketing, showing that companies should frequently focus on big-time sporting events.[3]

Crawford and Bruce (1999) point out that the stock price of Nike Incorporated dropped by US$ 3 (about 2 %) right after Michael Jordan announced his retirement from the National Basketball Association (NBA) for the first time (in 1993). Mathur et al. (1997) indicate that the anticipation of Jordan's return to the NBA, and the related increased visibility for Michael Jordan, caused the market value of Jordan's endorsement firms to drop almost 2 %, knocking off about US$ 1.5 billion in stock market value in 1995. Giardina (2003) reports that the stock price of Manchester United Football Club climbed £ 7–158 on the London Stock Exchange, when rumors came out about the potential transfer of David Beckham, because of the club's success in gaining cash income of £ 30 million by trading him.

According to the above studies, we note that sports events indeed affect the stock prices of some companies, and this could be attributed to sports marketing. Michael

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[2] Please refer to Audi's official site (http://www.audi.com) and Real Madrid Club (http://www.realmadrid.com/cs/Satellite/en/Home).

[3] BenQ Corporation was the major sponsor of UEFA in 2008 (http://www.uefa.com/newsfiles/503988.pdf). For related sponsor information of Volkswagen AG and Acer Group, please refer to the following two websites for detailed information. http://www.volkswagenag.com/content/vwcorp/info_center/en/news/2008/03/volkswagen_sponsors_the_2008_olympic_games.html and http://www.acer-group.com/public/News/2012/20120604-3.htm. Furthermore, Acer Group invited Chien-Ming Wang, a pitcher for the New York Yankees (2005–2009), to endorse one of its new computer launches in Taiwan (http://aspire8920 g.acer.com.tw/).

Jordan suddenly leaving the NBA, for example, resulted in declining sales of Nike products and affected Nike's stock price. However, a company's stock price could increase, because of selling a star player—for example, Manchester United Football Club selling Beckham. The points discussed above are similar to this study's core concepts and lend value to the analysis to indicate whether adopting or discarding sports teams affects the stock price of companies.

The remainder of this chapter is organized as follows. The next section describes the data, adjustment procedures, and the characteristics of the model. The subsequent section presents empirical results for the samples and model specifications. A brief conclusion rounds out the chapter.

Data and Methodology

This study examines the impacts of adopting and discarding a professional sports team on the parent company's stock price after the announcement. We use the event study method and cross-section regression analysis for the time period of 1995–2013. In Taiwan, a single company (corporation) is allowed to adopt professional sports teams and this study selects companies and professional sports teams in Taiwan as the sample (Table 1).[4]

There are four kinds of professional sports in Taiwan: baseball, basketball, eSports, and billiards.[5] However, the sport of billiards does not allow company adoption, so it cannot be included in the study sample.[6] We collected the stock price data of companies adopting or discarding sports teams from the Taiwan Economic Journal Database (TEJ Database). The time periods of events are sourced from the official websites of sports alliances, sports teams, or related companies.

This study employs an event study method to determine whether a company shows an abnormal return (AR) when adopting or discarding a professional sports team. Before examining for abnormal returns, we need to predict the stock returns by a market model. The market model this study conducts is:[7]

$$E(R_{i,t}) = \alpha_i + \beta_i R_{m,t} \tag{1}$$

where $E(R_{i,t})$ is the expected return, α_i and β_i are the estimated parameters, and $R_{m,t}$ is the stock return of the Taiwan capitalization weighted stock index (TAIEX)

[4] Please refer to Table 1 for the detailed information of companies and the event days.

[5] eSports (Electronic sports) is a term for organized video game competitions, especially between professionals. The international e-Sports Federation was founded in 2008 by nine e-Sports associations from Denmark, South Korea, Germany, Austria, Belgium, The Netherlands, Switzerland, Vietnam, and Taiwan.

[6] There are two alliances of professional baseball teams during the study period; one is Chinese Professional Baseball League (CPBL) and the other is Taiwan Major League (TML). Likewise, professional basketball teams have two alliances; they are Super Basketball League (SBL) and Chinese Basketball Alliance (CBA). The alliance of eSports is Taiwan e-Sports League (TeSL).

[7] This chapter determines the event period and estimated period from Chen and Chen (2012).

Table 1 The event day list of companies and sports teams

Sports team	Corporation (stock number on the exchange)	Adopting day	Discarding day
Panel A. CPBL			
Sinon Bulls	Sinon Co. (1712)	1995/11/5	2012/12/13
EDA Rhinos	Yieh Hsing Co. (2007 Yieh Phui Co. (2023)	2012/12/13	–
Wei Chuan Dragons	Wei Chuan Co. (1201)	–	1999/12/13
Mercuries Tigers	Mercuries Data Systems (2427) Mercuries Life Insurance (2867) Mercuries Co. (2905) SCI Pharmtech (4119) Horizon Securities (6015)	–	1999/11/8
Chinatrust Whales	Chinatrust Financial Holding Co. (2891)	–	2008/11/11
First Agan	First Financial Holding Co. (2892)	2003/1/10	2003/12/16
TML			
GIDA	SAMPO Co. (1604)	1996/1/20	–
FALA	SAMPO Co. (1604)	–	2002/11/26
AGAN	China Man-Made Fiber Co. (1718)	1998/1/20	1999/1/21
ACER AGAN	ACER (2353)	2002/2/28	2003/1/10
Far Eastone LUKA	Far Eastone Telecommunications Co. (4904) Asia Cement (1102) Far Eastern New Century Co. (1402) Horizon Securities Co. (1460) Oriental Union Chemical Co. (1710) U-Ming Marine Transport Co. (2606) Far Eastern International Bank (2845) Far Eastern Department Stores (2903)	2000/3/23	2001/3/28
Walk LUKA	AGV Products Co. (1217)	2001/3/28	2002/3/14
Panel B. CBA and SBL			
Taiwan Mobile	Taiwan Mobile (3045) Fubon Financial Co. (2881)	2007/9/17	–
LUCKIPar	Lucky Cement Co. (1108)	–	1999/3/9
Dacin Tigers	Chung Hsin Electric & Machinery Mfg. Co. (1513)	1995/7/13	–
Panel C. TeSL			
WAYI Spider	Wayi International Digital (3086)	2008/1/29	–
GAMA Bears	Gamania Digital (6180)	2008/1/29	—
7–11 IRONMEN	Uni-President (1216) TTET Union Co. (1232) Scino Pharm Taiwan Ltd. (1789) Mospec Semiconductor Co. (2434) President Securities (2855) President Chain Store (2912) Tait (5902) EAGLE Cold Storage Enterprise Co. (8905) Ton Yi Industrial Co. (9907) Kang Na Hsiung Enterprise Co. (9919)	2009/2/2	2011/2/15
Thermaltake Apollos	Thermaltake Technology Co. (3540)	2009/12/15	–

on day t. For the calculation of stock return, we follow Fama (1976). When conducting an event study, the empirical stock return needs to be calculated by a continuous compounding formula in accordance with the normal distribution assumption of basic regression analysis. By following this perspective, the definitions of stock return and market return are:

$$R_{i,t} = Ln\left(\frac{P_{i,t}}{P_{i,t-1}}\right) = Ln(P_{i,t}) - Ln(P_{i,t-1}) \tag{2}$$

where $R_{i,t}$ is the stock return of company i on day t, and $P_{i,t}$ and $P_{i,t-1}$ are the stock returns of company i on days t and $t-1$, respectively.

The abnormal return is the raw return during the event period minus the expected return, and the definition of model is:

$$AR_{i,t} = R_{i,t} - E(R_{i,t}) \tag{3}$$

where $AR_{i,t}$ is the stock's abnormal return of company i on day t. We also calculate the average abnormal return (AARs) and the cumulative average abnormal return (CAARs) for an individual event to examine whether events affect the stock price of companies that adopt or discard sports teams. We respectively calculate the AARs and CAARs by model 4 and model 5 below:

$$AAR_t = \frac{\sum_{i=1}^{N} AR_{i,t}}{N} \tag{4}$$

$$CAAR_{(t_1,t_n)} = \sum_{t=t_1}^{t_n} AAR_t \tag{5}$$

Empirical Results

Results of the Event Study

Table 2 presents the results of all adopting and discarding events. For adopting events, the parent company has negative AARs surrounding the event date and the AAR on day 2 (−1.64 %) is statistically significant which implies that the announcement of adopting a professional sports team is bad news for a company. From stockholders' and investors' perspective, this result suggests that adopting or owing a sports team will have a large and long-term expenditure in the future. Therefore, the company's stock price experiences a significantly negative return, and the trend of CAARs decreases sharply to −7.56 % on day 7 after the event day $(t = 7)$.

When companies announce to discard a sports team, Table 2 documents that the companies have a significantly positive abnormal return after the event day on day 1 $(t = 1)$. The results imply that investors expect the companies may gain

Table 2 Event study analysis of companies adopting events and discarding events

Event days	Adopting event				Discarding event			
	AARs (%)		CAARs		AARs (%)		CAARs	
−20	−0.7945	(−1.81)*	−0.7945	(−1.81)*	0.1455	(0.33)	0.1455	(0.33)
−19	−1.1465	(−2.61)**	−1.9410	(−3.13)***	−0.2931	(−0.66)	−0.1476	(−0.24)
−18	0.0495	(0.11)	−1.8915	(−2.49)**	0.0189	(0.04)	−0.1287	(−0.17)
−17	0.1420	(0.32)	−1.7496	(−1.99)**	−0.4439	(−1.00)	−0.5726	(−0.65)
−16	−0.1588	(−0.36)	−1.9084	(−1.95)*	−0.1991	(−0.45)	−0.7716	(−0.78)
−15	−0.2299	(−0.52)	−2.1383	(−1.99)**	−0.6585	(−1.49)	−1.4301	(−1.32)
−14	−0.0826	(−0.19)	−2.2209	(−1.91)*	−0.2001	(−0.45)	−1.6302	(−1.39)
−13	−0.6050	(−1.38)	−2.8259	(−2.28)**	−0.2858	(−0.65)	−1.9160	(−1.53)
−12	0.6550	(1.49)**	−2.1709	(−1.65)*	−0.5968	(−1.35)	−2.5128	(−1.89)*
−11	0.1652	(0.38)	−2.0057	(−1.45)	−0.4384	(−0.99)	−2.9512	(−2.11)**
−10	0.1967	(0.45)	−1.8090	(−1.24)	−0.1986	(−0.45)	−3.1498	(−2.15)**
−9	−0.7936	(−1.81)**	−2.6026	(−1.71)*	−0.4810	(−1.09)	−3.6308	(−2.37)**
−8	−0.5404	(−1.23)**	−3.1430	(−1.99)**	0.3166	(0.72)	−3.3142	(−2.08)**
−7	−0.4737	(−1.08)	−3.6166	(−2.20)**	0.1856	(0.42)	−3.1286	(−1.89)*
−6	0.3260	(0.74)	−3.2906	(−1.94)*	−0.3575	(−0.81)	−3.4861	(−2.04)**
−5	−0.7958	(−1.81)*	−4.0864	(−2.33)**	−0.0765	(−0.17)	−3.5626	(−2.01)**
−4	0.0903	(0.21)	−3.9933	(−2.21)**	0.4044	(0.91)	−3.1582	(−1.73)*
−3	−0.0849	(−0.19)	−4.0783	(−2.19)**	0.7032	(1.59)	−2.4551	(−1.31)
−2	0.3645	(0.83)	−3.7138	(−1.94)*	−0.3057	(−0.69)	−2.7607	(−1.43)
−1	−0.2297	(−0.52)	−3.9435	(−2.01)**	−0.4958	(−1.12)	−3.2566	(−1.65)*
0	−0.2058	(−0.47)	−4.1493	(−2.06)**	−0.4548	(−1.03)	−3.7113	(−1.83)*
1	0.1847	(0.42)	−3.9647	(−1.93)*	0.7668	(1.73)*	−2.9446	(−1.42)
2	−1.6384	(−3.74)***	−5.6030	(−2.66)***	0.2778	(0.63)	−2.6668	(−1.26)
3	−0.0153	(−0.03)	−5.6183	(−2.61)***	−0.2955	(−0.67)	−2.9623	(−1.37)
4	−0.4532	(−1.03)	−6.0715	(−2.77)***	−0.5403	(−1.22)	−3.5026	(−1.58)
5	−0.3929	(−0.90)	−6.4644	(−2.89)***	−0.3288	(−0.74)	−3.8314	(−1.70)*
6	−0.4278	(−0.98)	−6.8921	(−3.02)***	0.1178	(0.27)	−3.7136	(−1.62)
7	−0.6697	(−1.53)*	−7.5618	(−3.26)***	0.0153	(0.03)	−3.6983	(−1.58)
8	0.2827	(0.64)	−7.2792	(−3.08)***	0.2654	(0.60)	−3.4329	(−1.44)
9	0.7483	(1.71)*	−6.5309	(−2.72)***	0.0916	(0.21)	−3.3413	(−1.38)
10	0.0286	(0.07)	−6.5023	(−2.66)***	0.1095	(0.25)	−3.2318	(−1.31)
11	−0.0096	(−0.02)	−6.5120	(−2.62)***	−0.5442	(−1.23)	−3.7760	(−1.51)
12	−0.5011	(−1.14)	−7.0130	(−2.78)***	−0.4968	(−1.12)	−4.2728	(−1.68)*
13	0.7718	(1.76)*	−6.2412	(−2.44)**	0.0073	(0.02)	−4.2655	(−1.65)*
14	0.4470	(1.02)	−5.7942	(−2.23)**	0.2194	(0.50)	−4.0461	(−1.55)
15	0.2167	(0.49)	−5.5774	(−2.12)**	0.5788	(1.31)	−3.4674	(−1.31)
16	0.2804	(0.64)	−5.2970	(−1.99)**	0.9974	(2.26)**	−2.4700	(−0.92)
17	−0.1515	(−0.35)	−5.4486	(−2.02)**	−0.2857	(−0.65)	−2.7557	(−1.01)
18	−0.5723	(−1.30)	−6.0209	(−2.20)**	0.5973	(1.35)	−2.1584	(−0.78)
19	−0.2006	(−0.46)	−6.2215	(−2.24)**	0.9069	(2.05)**	−1.2516	(−0.45)
20	0.2745	(0.63)	−5.9470	(−2.12)**	0.4936	(1.12)	−0.7580	(−0.27)

This table presents the abnormal returns surrounding the event date $t=0$. Abnormal return is computed as the difference between the observed and expected returns. Expected return is generated from the standard market model regression. The T-statistics test the null hypothesis that the average abnormal returns or the cumulative average abnormal returns are equal to zero and are in parentheses. ***, **, and * mean statistically significant at 1, 5, and 10%, respectively nonoperating income after discarding a sports team. According to the results of CAARs, however, we note that the trend of CAARs is downward sloping from day −18 and becomes stable after the event day. The reason is that companies might publicize the desire of discarding the sports team before official announcement and investors may have had an advanced negative reaction for the companies. After the event day, investors are convinced that the companies can reduce their expenditure upon official announcement of the discarding and the parent company's stock return turns positive. The result is consistent with the finding from Giardina (2003).

Figures 1 and 2 report the respective trend performances of AARs and CAARs by study events. For adopting events, Fig. 1 displays that CAARs go down before the events happened. The early response from investors may happen because the rumors came out of the potential adoption of a sports team by the company before the company officially made the announcement. Furthermore, the stock prices of the companies fell further when the official announcement was made. For discarding events, Fig. 2 shows that CAARs also go down before the events happen. This may result from the company looking for a new buyer for the team by broadcasting this message to the market. Therefore, these results are consistent with the explanation from the first part, which assumes that companies discard sports teams when they have difficulty with operations, and investors may have a prior negative evaluation for the companies.

Results of Cross-Sectional Regression

We also employ a cross-sectional regression to further explore the influences of the study events on companies' characteristics. Adding to the analysis of the trend of company performance or abnormal return when the event happens, the regression method allows us to analyze those factors that affect abnormal returns. According to Ismailescu and Kazemi (2010), the stock price of a company changes during the event window of three days $(t = -1\ to\ 1)$, and therefore we use $CAAR(-1,\ 1)$ as the dependent variable of cross-sectional regression. For the independent variable, we use the current price to earnings ratio of the company. Following Fama and French (1993), we also control the beta, firm size, and the book-to-market ratio of the company. The cross-sectional regression model is:

$$CAAR_i(-1,\ 1) = \alpha_0 + \beta_1 PER_i + \beta_2 Beta_i + \beta_3 Size_i + \beta_4 BMR_i + \varepsilon_i \tag{6}$$

where $CAAR_i(-1,\ 1)$ is the cumulative abnormal return during the event over 3 days (Tex translation failed). The PER_i is the price to earnings ratio of company i. Moreover, the $Beta_i$, $Size_i$, and BMR_i respectively represent the beta, firm size, and book-to-market ratio of company i.

Table 3 shows that there is a negative relationship between PER and CAR, which implies that the cumulative abnormal return of the company drops more under a higher price to earnings ratio. On the other hand, the stock price of the company

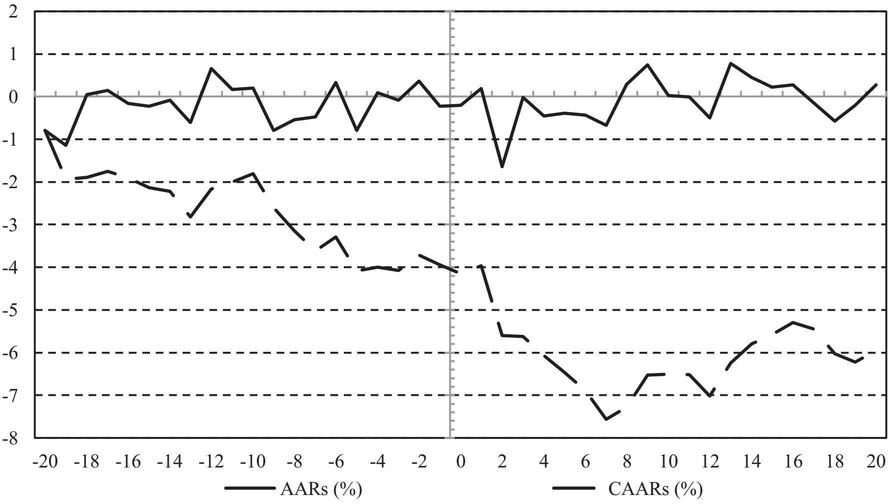

Fig. 1 Trends of AARs and CAARs of a company adopting a sports team

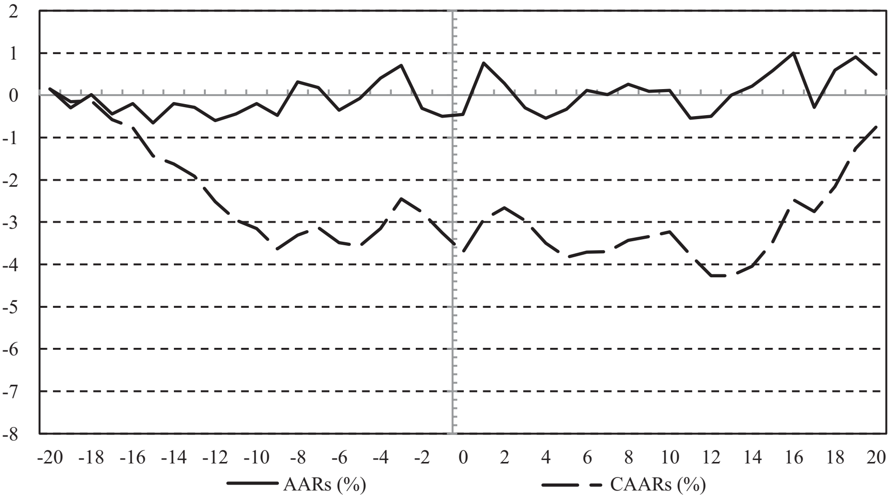

Fig. 2 Trends of AARs and CAARs of a company discarding a sports team

with a higher EPS does not drop, because of the event. These results indicate that the performance of the company can be a reference for investors. The stock price of the company will not drop after adopting or discarding a sports team when the company has a strong operating performance. However, when the company has a poor operating performance, the stock price will go down. In other words, the influence of events on stock prices results from investor sentiment rather than the operating performance of the companies.

Table 3 Cross-sectional regression analysis of adopting events and discarding events

	Adopting event		Discarding event	
Intercept	1.62	(2.11)**	1.58	(0.98)
PER	−4.13	(−2.39)**	−3.82	(−2.28)**
Beta	3.33	(1.86)*	2.61	(0.88)
Size	1.16	(1.13)	−1.11	(−0.88)
BMR	−2.96	(−0.24)	−3.41	(−0.88)
Adj. R^2	0.0375	–	0.0379	–

This table presents the estimated coefficients and *t*-statistics (in parentheses) for regressing the event day cumulated average abnormal returns CAAR (−1,1). ***, ** and * mean statistically significant at 1, 5, and 10 %, respectively

Conclusion

This study analyzes the effect of adopting or discarding professional sports teams on firm values in Taiwan. We find that adopting and discarding a sports team are negative signals to investors and parent companies, since there are negative impacts on stock prices surrounding the official announcement. This kind of event also affects the stock returns before the event day implying that there are information leakages before the official announcement. When a company announces it is going to discard a sports team, we still find negative abnormal returns around the event day, but after about 2 weeks the stock returns turn positive and have upward sloping CAARs. The reason is that, owning a sports team always leads to larger expenditures in a company, and if the company considers discarding a sports team (implying that the company cannot afford a sports team), that may bring a negative impression to the investors. After an official discarding announcement a price correction occurs, since selling a nonprofitable business (discarding a sports team) and then gaining a nonoperating income could be a good signal to the investors. The above conclusions could be important information for both the managers and investors of the company.

From the results of the cross-sectional regression model, we find that there is a negative relationship between price to earnings ratio and CAR, which implies that the cumulative abnormal return to the company drops more under a higher price to earnings ratio. On the other hand, the stock price of the company with a higher EPS does not drop because of the event. This indicates that the performance of the company can provide a reference for the investors. The stock price of the company will not drop by adopting or discarding a sports team when the company has a nice operating performance, but will drop when the company has a poor operating performance. In other words, the influence of events on stock prices results from investor sentiment rather than the operating performance of the companies.

According to the above results, a company should review its profit performance when deciding whether or not to adopt a sports team. Chen and Chen (2012) indicate that the effect of sports marketing on stock prices is different across a variety of industries. Our study finds that profitability has a significant impact on the market reaction of adopting or discarding sports teams. Therefore, when one of these two events happens, we suggest that investors and administrators consider the profitability of the company when making any strategic decision.

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The Evolution of Governance in the Australian National Basketball League, 1979–2013

Robert D. Macdonald and Rick Burton

Abstract The Australian National Basketball League (NBL) first tipped off in 1979, as the product of far-sighted club officials and Basketball Australia (national governing body) administrators who desired national club competition in a sport that was to boom as part of a global social trend. By the early 1990s, basketball was Australia's fourth most popular spectator sport behind Australian football, rugby league and cricket. Yet the NBL was struggling soon thereafter and today it rarely rises above the level of niche spectator sport, in spite of high grassroots basketball participation and strong national teams. We review the evolution of NBL governance, especially the creation of a league competition organiser controlled by the NBL clubs and Basketball Australia in 1989; the merger of that entity, NBL Management Limited, and Basketball Australia in 2009, followed by the subsequent 2013 'de-merger' and formation of a new competition organiser, NBL Pty Ltd, owned by the NBL clubs and private investors. Along the way, the NBL has experienced regular cycles of expansion and contraction. More than 30 clubs came and went in 35 seasons. The current eight-club competition includes a challenging mix of large- and very small-market clubs, private owners and public membership-based entities. Continual financial instability and power struggles between Basketball Australia and the NBL club owners/managers have resulted in a failure to devise a governance model that was a long-term, stable, efficient and profitable agreement between either the NBL clubs themselves, or between the NBL competition organiser and Basketball Australia.

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Introduction[1]

The challenge for a professional sporting league competition organiser is to ensure those parties involved in the league collectively generate sufficient net benefits to guarantee league and club survival. In the 35 season history of the Australian National Basketball League (NBL), this is a challenge the various NBL participant clubs, the NBL competition organiser and the national governing body, Basketball Australia (BA), have all struggled to master.

Ten clubs contested the inaugural 1979 season of the National Invitational Basketball League (NIBL). Renamed the NBL one season later, the new league grew rapidly and split into two conferences for 1983 and 1984, peaking at 17 clubs in the latter season. By 1989, the NBL had stabilised as a one-conference league with 13 clubs located in all six Australian States and the Australian Capital Territory (ACT). In the late 1980s and early 1990s, basketball 'was hot' and had become Australia's fourth most popular spectator sport behind the winter codes of Australian football and rugby league, and cricket in the summer (Shoebridge 1994). From 196,000 in 1979, annual NBL attendance boomed to an all-time high of 1.127 million, or 5692 fans per game in 1994.

Yet by 1995, long-serving NBL Chief Executive Bill Palmer noted that 'for the first time' his annual report 'contains more lows than highs' (Palmer 1995, p. 36). Fiscal imbalance between large- and small-market clubs led to a downsizing from 14 to 11 clubs for 1997. Intense competition from rival sports prompted the shift of the NBL competition from winter (April–October) to the summer months (October–April), beginning with season 1998/1999.

The League was already administratively independent of BA when NBL Management Limited was incorporated in 1989 to be the league competition organiser. Financial instability and regular strategic reviews however resulted in administrative integration of NBL Management Limited and the Australian Basketball Federation Inc. (trading as 'Basketball Australia') in 2002. A merger of the two followed in 2009, with the formation of a new entity, BA Limited (also trading as 'Basketball Australia'), only for a demerger four years later. National Basketball League Pty Ltd was formed by the remaining eight NBL clubs and private equity investors in June 2013, then licensed by BA Limited to conduct the NBL competition from season 2013/2014.

We sketch the evolution of NBL governance in this chapter and question whether governance reform has helped or hindered the growth of the NBL, for it has remained consistently difficult to ensure the financial viability of a sufficient number of NBL clubs, the NBL competition organiser or even BA itself. Expediency, as much as intended strategy, has prompted at least seven major reforms of NBL

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governance. League designers have struggled to determine the appropriate degree of integration between either (a) the NBL clubs and the NBL competition organiser on one dimension, or (b) the NBL competition organiser and BA on a second dimension.

Governance in Sport

The OECD (2004, p. 11) regards corporate governance as being the 'set of relationships between a company's management, its board, its shareholders and other stakeholders' which structure the processes for designing corporate objectives, the means of their attainment and methods for monitoring performance against those objectives. For the purposes of explaining the evolution of governance in the NBL, we therefore define '*Sport Governance*' as the corporate governance issues in the relationship between the NBL participant clubs; the NBL competition organiser; the eight state and territory basketball associations which govern the sport at a sub-national level, and BA, the national governing body originally formed as a federation of the state associations. We specifically distinguish '*League Governance*' as the corporate governance issues in the relationship between the NBL participant clubs and the NBL competition organiser.

In both League Governance and Sport Governance, first-order considerations are the allocation of (residual) decision-making rights and (residual) claim to a financial surplus, as defined by the property rights of these parties and the (corporate) constitutional and other contractual arrangements between them. These rights and responsibilities relate to matters of corporate governance; economic regulation of labour, product and capital markets in the NBL, other leagues and the sport at large; the development of elite/professional, elite/representative and non-elite/recreation elements of the sport, and sporting issues including the rules of the sport, competition tournament formats and the maintenance of the integrity of sporting competition. The perceived wisdom or profitability of decisions regarding these issues often motivates parties to 'spill the board' or trigger a process of structural governance reform.

Australian sport has seen two prime models of League Governance and Sport Governance. In the traditional *'delegate'* model, the board of directors of a league competition organiser or national governing body is typically comprised of persons appointed by the 'members' (where a not-for profit entity) or owners (where a for-profit entity) of the company. These delegates are typically instructed to vote in the interests of the party (whether the league clubs, state associations or some other party) appointing them to the board of directors. The contemporary *'independent board'* (or independent commission) has been the main alternative to the delegate model (Perrine 2002; Shilbury et al. 2013). The degree of board independence depends upon: (a) the extent of member/owner rights to collectively elect or individually appoint company directors; (b) the requirements for directors to be materially independent from those members/owners, as well as materially independent from the management of the company itself; (c) the proportion of the board comprised of such directors; (d) the scope of the decision-making authority of the board relative to that of the member/owners, and (e) the extent of the corporate integration of the company and its members/owners.

Sport Governance in Australia

The Australian Government first commenced substantive funding of Australian sport in 1973/1974, with expenditure rising to more than $200 million per annum since 2006/2007 (Jolly 2013).[2] The *Australian Sports Commission Act* 1989 integrated several agencies to give the Australian Sports Commission (ASC), which had been created in 1985, the primary role in Australian Government sport policy. The ASC has a mandate to lead sport development, increase participation in sport and improve (international) sporting performance.

The ASC first published sport governance principles for 'National Sporting Organisations' (NSOs) in 2002. Updated in 2007, 2012 and 2013, Freeburn (2010) criticised earlier versions of these guidelines as being overly prescriptive, a problem exacerbated by reinforcement of the 'if not, why not' approach to compliance with a requirement for mandatory adoption of the 2013 principles for NSOs receiving over $5 million in annual ASC funding (including BA Limited). Compliance is also a prerequisite of the 'eligibility criteria' for ASC 'recognition' of a national governing body as an NSO, which affords an entity the opportunity to apply for ASC funding. These eligibility criteria, along with NSO affiliation to the relevant International Federation (IF), effectively create a state-sanctioned monopoly in the provision of sport governance services for each sport.[3]

This 'Australian model' emphasises the importance of an independent board of directors, where the company members elect directors who enjoy wide-ranging powers, with few residual decision-making rights assigned to the members. Local commentators suggest the 'independent commission' model adopted in 1994 by the Australian Football League (AFL), represents best practice in both League and

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[2] All reported values are in Australian dollars (AUD). During the era of BA Limited as NBL competition organiser (July 2009–June 2013), the AUD exchange rate fluctuated between US $0.77 and $1.10.

[3] The general scheme of the ASC governance principles has been to prescribe an independent board model, that an NSO be incorporated as a company limited by guarantee pursuant to the primary Australian corporate legislation, the *Corporations Act* 2001, with the (majority of the) board of directors elected by the company members, and the board empowered to exercise all powers of the company excepting those required to be exercised at a general meeting of the company members by the *Corporations Act* 2001 or the constitution of the NSO. The company members of most NSOs are the state associations and/or the national league clubs. The ASC eligibility criteria for NSO recognition include requirements that a body is the 'pre-eminent organisation' for the development of the sport in Australia, that it organises annual national championships or national leagues and has a governance structure compliant with the ASC governance principles. For further detail, see Freeburn (2010) and Hume (2013).

Sport Governance (e.g. Macdonald and Booth 2007; Pearce and Thomas 2011). The AFL integrates both NSO and national league competition organiser responsibilities and is the strongest of all NSOs. Variations of this model have been subsequently adopted by most major Australian sports.

The evolution of governance in the NBL may therefore be understood along the two dimensions of League Governance and Sport Governance. A regularly changing mix of NBL club corporate structures and objectives along the spectrum bounded by win-maximisation and profit-maximisation, the (competing) objects of BA and the influence of ASC regulation all complicate identification of 'optimal' governance structures for the NBL and Australian basketball. The history of NBL governance suggests the lag time, decision-making costs and externalities associated with major governance reform may in fact exhaust the perceived benefits prompting such reform, irrespective of the governance model adopted (Macdonald and Burton 2013). As we see in below, the NBL clubs and BA have vacillated on whether the delegate model or the independent board model will maximise the joint surplus and minimise the transaction costs of League Governance. The optimal degree of integration of the NBL competition organiser and BA has also remained an unsettled issue.

Basketball in Australia

The Young Men's Christian Association introduced basketball to Melbourne and Australia in the early 1900s. Local competitions subsequently developed in each State and in 1939, the Amateur Basketball Union of Australia (ABUA) was formed, originally as an alliance of the basketball associations of Victoria and New South Wales (NSW). National interstate championships were first held in 1946 and the ABUA affiliated with the International Basketball Federation (FIBA) in 1948. The large number of US military personnel stationed in Australia during World War II, post-war European immigration and the 1956 Melbourne Olympics all further strengthened the popularity of the sport (Blanch 1981; Bennett 1994). The ABUA was constituted as an unincorporated association in 1946, later renamed the Australian Basketball Union, then the Australian Basketball Federation (ABF) and incorporated as a not-for-profit association in 1982. This entity, Australian Basketball Federation Incorporated (ABF Inc.), was superseded in 2009 by a new company, BA Limited. Both entities have been affiliated with FIBA and recognised by the ASC as the NSO for Australian basketball. However, BA Limited is not a member of the leading NSO lobby group, the Coalition of Major Professional and Participatory Sports.

Available data suggests 192,000 basketball participants in 1975 (Sport 2000 Task Force 1999, p. 113), rising to 536,000 in 1995, just after the peak of NBL attendances (ABF Inc. 1995, p. 61). Participation declined in the late 1990s, before rebounding strongly to 1.015 million grassroots participants, 20,000 clubs and 426 local basketball associations in 2012 (ABF Inc. 2000a, p. 12; BA Limited 2012a, p. 1). Surveys suggest basketball is one of Australia's most popular recreational sports, being among the top three to five organised team sports from 2001 to 2010 for people aged 15 years and over (ranked by total participation); along with association football, Australian football, netball, cricket and touch football (ASC 2011). This strong grassroots support has resulted in exception international performance for a small nation, with star players including Lauren Jackson, Luc Longley, Andrew Gaze and Andrew Bogut. The Boomers (men's national team) have reached the Olympic quarter-finals or semi-finals nine of ten times since 1976. The Opals (women's national team) have been stronger again, winning the gold medal at the 2006 FIBA World Championships, plus three Olympic silvers, two Olympic bronzes and two FIBA World Championship bronze medals since 1996.

The National Basketball League[4]

When it first tipped off in 1979, the NBL became the second *national* club-based league in Australia, following the National Soccer League (NSL), which was formed in 1977. These contrast with the two most popular Australian leagues. Both the Australian Football League (AFL, founded 1897) and the National Rugby League (NRL, founded 1908) only commenced expansion from their respective origins in Victoria and New South Wales in the 1980s.

The NBL is a small professional league with a history of small live attendance and regular but patchy national television coverage. Figure 1 highlights the strong NBL attendance growth of the late 1980s and early 1990s. Over 15 years of attendance stagnation followed, before a recent resurgence, when the NBL also downsized from a dozen clubs to eight. The capacity constraint of small basketball arenas relative to football stadiums is clear. At the peak of NBL attendance between 1992 and 1995, average attendance exceeded the capacity of at least six NBL venues (NBL Management Limited 1995; Shilbury 1994). Average 2013 NBL attendance of 5248 (including both the regular season and finals series) is well below the 2013 average regular season match attendance of comparative national leagues such as the NSL successor, the A-League (12,348), the NRL (15,940) or the most popular Australian league, the AFL (32,163). Long-term attendance trends also highlight the comparatively weak performance of the NBL.

The NBL has been televised in some form since the inaugural 1979 season, first with local broadcast agreements negotiated by clubs in most cities. Four of the five Australian free-to-air networks have (at different times) broadcast live, replay or delayed telecasts of NBL games in national rights agreements for most, but not all seasons since 1985. Some agreements had no cash component. The NBL was also broadcast on pay television between 1995 and 2010 and via a subscription internet channel in recent seasons.

[4] Elements of this section are based upon unpublished transcripts of personal interviews of Bill Palmer and Malcolm Speed conducted by Robert Macdonald on 22 December 1998 and 29 April 1998 respectively.

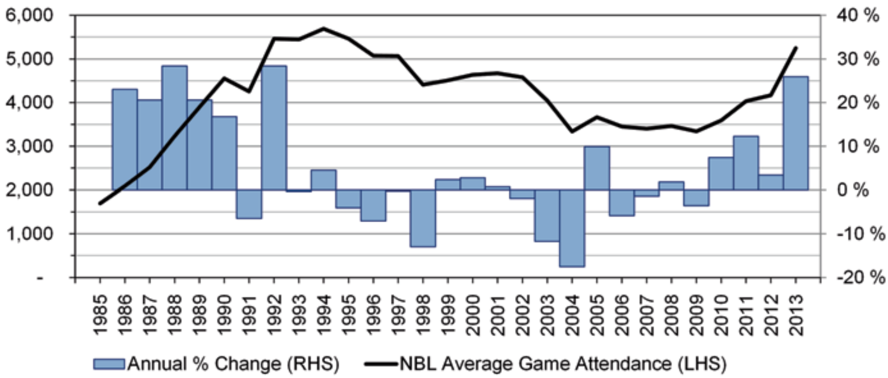

Fig. 1 Average NBL game attendance and annual % change, 1985–2013. Average game attendance includes both regular season and NBL Finals Series matches. Data not available prior to 1985. The NBL season switched from the winter to a summer season from 1998/1999. (Data provided by BA Limited)

Table 1 summarises the history of almost continual reform of NBL League Governance between 1989 and 2013, commencing with the formation of NBL Management Limited. Across the same era, the operating revenue of the NBL competition organiser was less than $5 million per annum, for a 24 year aggregate of $66 million. By way of comparison, the ASC provided Basketball Australia with $48.45 million in funding in the decade between 2003/2004 and 2012/2013, while the 2012 annual revenue of BA Limited was approximately 33 times smaller than the revenue of the industry leader, the AFL.[5]

The NBL Clubs and Competitive Balance

Table 2 presents data on the tenure and performance of the 32 clubs to have competed in the NBL. Only four clubs have survived for three decades or longer and the average club tenure of 13.3 seasons is but one indicator of the fundamental instability of the league.

[5] Macdonald and Ramsay (2014) compare the finances and corporate governance of BA Limited, Football Federation Australia Limited (FFA Limited, the NSO for association football and A-League competition organiser), Australian Rugby League Commission Limited (ARLC Limited, the NSO for rugby league and the NRL competition organiser) and the AFL. The 2012 annual revenue of BA Limited ($14.179 million) was vastly smaller than that of FFA Limited ($84.589 million), ARLC Limited ($185.668 million) and the AFL ($471.493 million). See Macdonald and Burton (2013) for additional specific financial data and detail on Australian basketball, including comparative attendance and competitive balance trends.

Table 1 NBL governance, summary, 1989 to 2013/2014. (Sources: See section "The Evolution of NBL Governance")

Seasons	National Sporting Organisation	NBL Competition Organiser
1989–2008/2009	Australian Basketball Federation Incorporated *ABF Inc. Council* NBL Management Limited is one of 11 members of ABF Inc. (eight State Associations, three leagues), with the right to appoint one of 18 ABF Inc. Council members. *ABF Inc. Board of Directors* Elected by the ABF Inc. Council	NBL Management Limited (licensed by ABF Limited). *Participants* All NBL clubs and ABF Inc. ('Participants') are company members of NBL Management Limited. The *NBL Participants Agreement* grants extensive voting rights on NBL governance and regulatory issues to all Participants, with ABF Inc. consent required for amendment of some clauses. *NBL Management Limited Board of Directors* *1989–1996 Appointees of all Participants + Independent Chair elected by Participants.* *1997–2002* Participants elect four Participant Directors and Independent Chair + two Non-Participant Directors appointed by Board + CEO (ex officio). *2003–2006* Participant Directors from selected NBL clubs + Appointee of ABF Inc. + Independent Chair elected by the Participants. *2006–2008* Appointees of all Participants, with Chair elected by the Directors. *2008–2009* Appointee of one NBL club + five Independent Directors elected by Participants.
2009/2010–2012/2013	BA Limited –	BA Limited *BA Limited Board of Directors* All NBL clubs and eight State Associations are company members of BA Limited. NBL clubs collectively control 40 % of votes and State Associations control 60 % of the votes to elect the independent Board of Directors. *NBL Commission* BA Limited CEO + and two BA Limited Directors + four Commissioners elected by the0 NBL clubs, operating with delegated authority from the BA Limited Board of Directors.
2013/2014	BA Limited *BA Limited Board of Directors* Eight State Associations are company members electing the independent Board of Directors.	National Basketball League Pty Ltd (licensed by BA Limited). *NBL Pty Ltd Board of Directors* NBL clubs and private investors own National Basketball League Pty Ltd.

Table 2 NBL clubs, 1979–2013. (*Sources*: BA Limited (2012b), nbl.com.au)

Location/Club	Seasons	Tenure	Mean WPCT	NBL Champs	Grand Finals	Finals Series	Wooden Spoon
New South Wales & ACT							
Illawarra/Wollongong Hawks[ab]	(1979–2013)	35	0.474	1	3	17	1
Canberra Cannons[b]	(1979–2003)	25	0.512	3	5	11	2
Sydney Kings(in recess 2009–2010)[a]	(1988–2013)	24	0.550	3	5	12	1
Newcastle Falcons[b]	(1979–1999)	21	0.455	–	–	6	2
West Sydney Razorbacks/Sydney Spirit	(1999–2009)	11	0.385	–	2	3	2
Bankstown Bruins/West Sydney Westars[b]	(1979–1987)	9	0.309	–	–	1	2
Sydney Astronauts/Supersonics[b]	(1979–1987)	9	0.402	–	–	2	1
Hunter (Newcastle) Pirates	(2004–2006)	3	0.312	–	–	2	1
Victoria							
Melbourne Tigers[a]	(1984–2013)	30	0.535	4	8	21	1
Coburg/North Melbourne Giants	(1980–1998)	19	0.595	2	4	15	–
Geelong Supercats	(1982–1996)	15	0.440	–	1	4	3
Nunawading/Eastside Spectres[b]	(1979–1991)	13	0.619	–	2	8	–
St. Kilda/Westside/Southern Melb Saints[b]	(1979–1991)	13	0.452	2	2	4	2
South East Melbourne Magic	(1992–1998)	7	0.760	2	4	7	–
Victoria Titans/Giants	(1999–2004)	6	0.575	–	2	4	–
South Dragons	(2007–2009)	3	0.452	1	1	2	1
Frankston Bears	(1983–1984)	2	0.345	–	–	–	–
Queensland							
Brisbane Bullets[b]	(1979–2008)	30	0.564	3	6	21	1
Townsville Suns/Crocodiles[a]	(1993–2013)	21	0.481	–	1	10	1
Cairns Taipans[a]	(2000–2013)	14	0.408	–	1	5	2
Gold Coast Cougars/Rollers	(1990–1996)	7	0.373	–	–	–	1
Gold Coast Blaze	(2008–2012)	5	0.482	–	–	3	1
Western Australia							
Perth Wildcats[a]	(1982–2013)	32	0.586	5	10	27	1

Table 2 (continued)

Location/Club	Seasons	Tenure	Mean WPCT	NBL Champs	Grand Finals	Finals Series	Wooden Spoon
South Australia							
Adelaide City Eagles/Adelaide 36ers[a]	(1982–2013)	32	0.567	4	6	21	3
West Adelaide Bearcats[b]	(1979–1984)	6	0.678	1	3	4	–
Glenelg Tigers[b]	(1979)	1	0.167	–	–	–	1
West Torrens/Forrestville Eagles	(1980–1981)	2	0.273	–	–	–	1
Tasmania							
Hobart Tassie Devils	(1983–1996)	14	0.267	–	–	–	4
Launceston Casino City	(1980–1982)	3	0.412	1	1	1	–
Devonport Warriors	(1983–1984)	2	0.133	–	–	–	1
International							
New Zealand (Auckland) Breakers[a]	(2004–2013)	10	0.532	3	3	5	1
Singapore Slingers	(2007–2008)	2	0.297	–	–	1	–
Total (32 Clubs in 35 Seasons)				35	70	217	37

Australian States are ranked by population; NBL clubs are then ranked by tenure. The NBL switched from the winter to a summer season from 1998/1999. Mean WPCT calculated for regular season games only. The Finals Series has variously included two (1979), four (1980–1982; 2010–2013), six (1985–1991; 1997–2003; 2008) and eight (1983–1984; 1992–1996; 2004–2008) clubs. St. Kilda finished on top of the 1981 NBL league ladder, but instead contested the FIBA Club World Championships, leaving clubs ranked 2–5 to contest the Finals Series; all five clubs are counted as Finalists. A two-conference format resulted in two Wooden Spoon winners for both 1983 and 1984. In Victoria, all clubs (excluding Geelong) were based in Melbourne In South Australia, all clubs were based in Adelaide

[a] Denotes the eight incumbent NBL clubs

[b] Denotes the ten foundation NBL club

The NBL clubs were originally unincorporated not-for-profit groups. All clubs had incorporated by 1988, prior to the formation of NBL Management Limited and by 1995, 11 of the 14 NBL clubs were privately owned (NBL Management Limited 1989, 1995). When BA Limited was incorporated in 2009, six of the eight NBL clubs were privately owned. In response to financial instability, the Cairns Taipans and Wollongong Hawks reverted to a membership-based not-for-profit structure before finalisation of the BA Limited constitution, followed by the Townsville Crocodiles in 2013; all are based in the three smallest current NBL markets. Even in large markets, NBL clubs have struggled. For example, the Melbourne Tigers generated revenue of $2.62 million in 2011/2012, then sold the club's NBL license to a private company for $250,000 in July 2012 (Melbourne Tigers Basketball Club Limited 2012). Five years earlier (season 2006/2007), the NBL clubs collectively lost $7 million (Howell 2008). There has been a diversity of club ownership models and even when privately owned, the historical lack of revenue suggests such owners might be 'sportsmen owners' rather than pure profit-maximisers.

The four oldest clubs, the Perth Wildcats (five championships), Adelaide 36ers (four championships), Melbourne Tigers (four championships) and sole remaining foundation club the Wollongong Hawks (one championship), have collectively won two fifths of all NBL championships. Seven of the 14 NBL championship-winning clubs have won at least three pennants, or 25 of 35 between them. Only three NBL champions (Canberra, Wollongong, Launceston) were based outside the six largest cities of Australia and New Zealand (Sydney, Melbourne, Brisbane, Perth, Auckland, Adelaide)[6]. A dozen clubs have failed to reach the NBL Grand Final Series and of these, only the Newcastle Falcons survived beyond ten seasons.

Table 3 presents time series data for NBL seasonal competitive balance, as measured by the well-known ratio of the actual and hypothetical 'ideal' standard deviations (ASD/ISD) of regular season club winning percentages (WPCT). On average, the NBL has exhibited less seasonal competitive balance than other Australian leagues, but a smaller concentration of champions than the AFL and the NRL across the 1979–2013 era.[7] The seasonal competitive balance trend reflects

[6] *Population*: The estimated June 2012 population of the eight cities hosting current NBL clubs was Sydney* (4.667 million), Melbourne* (4.246 million), Perth* (1.897 million), Auckland (NZ) (1.507 million), Adelaide* (1.277 million), Wollongong (282,000), Townsville (171,000), Cairns (142,000). Former NBL clubs were based in Brisbane* (2.189 million), Gold Coast (590,000), Newcastle (419,000), Canberra* (411,000), Hobart* (216,000), Geelong (179,000), Launceston (86,000), Devonport (33,000) and Singapore (5.312 million). *Greater Capital City Statistical Area (GCCSA) populations, all other Australian cities are Significant Urban Area (SUA) populations. All values are rounded down to the nearest thousand (ABS 2013; DOS 2013; SNZ 2013).

[7] *Seasonal Competitive Balance*: Mean ASD/ISD for the 1979–2013 seasons was 1.91 for the NBL (35 seasons/mean of 12.2 clubs per season/mean regular season length of 26.7 games), 1.80 for the AFL (35 seasons/14.9/21.9), 1.61 for the NRL (36 seasons, including the 1997 Super League season/15.4/23.3) and 1.29 for the NSL/A-League (1977–2004; 2006–2013=36 seasons/13.8/25.8). *Long-Run Competitive Balance*: For the same eras, the concentration of league championships as measured by the Herfindahl-Hirschman Index (HHI) was 0.089 for the NBL (14 champions of 32 clubs in total); 0.110 for the AFL (12 of 19); 0.111 for the NRL (12 of 28) and 0.071 for the NSL/A-League (18 of 50).

Table 3 NBL regular season seasonal competitive balance and NBL club turnover, 1979–2013. (Sources: BA Limited (2012b), nbl.com.au)

Season	Games	ASD/ISD	Clubs			Season	Games	ASD/ISD	Clubs		
			N	In	Out				*N*	In	Out
1979	18	1.93	10	+10		1997	30	1.40	11		−3
1980	22	1.87	12	+3	−1	1998	30	1.67	11		
1981	22	1.41	12			1999[c]	26	1.28	11	+2	−2
1982	26	2.27	14	+3	−1	2000	28	2.42	11	+1	−1
1983	22[a] 22[b]	2.44[a] 2.11[b]	16	+3	−1	2001	28	2.67	11		
1984	24[a] 23[b]	1.97[a] 2.66[b]	17	+1		2002	30	1.11	11		
1985	26	2.29	14		−3	2003	30	1.78	11		
1986	26	1.96	14			2004	33	2.29	12	+2	−1
1987	26	2.32	14			2005	32	1.36	11		
1988	24	2.02	13	+1	−2	2006	32	2.22	11		
1989	24	1.82	13			2007	33	2.25	12	+2	−1
1990	26	2.03	14	+1		2008	30	2.21	13	+1	
1991	26	1.85	14			2009	30	1.58	10		−3
1992	24	1.69	13	+1	−2	2010	28	1.00	8		−2
1993	26	1.85	14	+1		2011	28	1.59	9	+1	
1994	26	2.14	14			2012	28	1.61	9		
1995	26	1.86	14			2013	28	2.04	8		−1
1996	26	1.82	14			*Mean*	*26.7*	*1.91*	*12.2*	–	–

[a] NBL East Conference (eight clubs in 1983, nine clubs in 1984)
[b] NBL West Conference (eight clubs in 1983 and 1984)
[c] The NBL switched from the winter to a summer season from 1998/1999

the significant impact of a few star players upon a basketball team. At face value the smaller concentration of NBL champions might suggest greater competitive balance than rival leagues, but in reality it is a sign of underlying weakness. Eight of the 14 NBL Championship-winning clubs have either merged, folded or exited the league. Unlike the AFL and the NRL, the NBL has generally failed to generate sufficient revenue to sustain weak clubs.

High club turnover (also highlighted in Table 3) mostly reflects financial weakness, but clubs have exited the league in diverse circumstances. For example, the South Dragons won the 2008/2009 NBL championship then voluntarily withdrew, debt-free, after baulking at the substantial cost and compliance requirements under revised terms of participation for 2009/2010 (Bernard 2011). The contraction from 14 to 11 clubs ahead of the 1997 NBL season was partially financed by subsequent license fees worth $1.8 million (NBL Management Limited 1999). Sale and re-sale of the Canberra Cannons' (1979–2003) license created the Hunter Pirates (2004–2006), then the Singapore Slingers (2007–2008). Four clubs were created via mergers; the Adelaide 36ers (an amalgam of Adelaide-based clubs), Sydney Kings (West Sydney Westars—Sydney Supersonics), South East Melbourne Magic (Eastside Spectres—Southern Melbourne Saints) and the Victoria Titans (South East Melbourne Magic—North Melbourne Giants).

Labour Market Regulation

Senior NBL executives have long had a 'commitment to club parity' in on-court performance (Burton 2005, p. 50) because of the belief that 'a well balanced, competitive competition from top to bottom is the best selling product we can have' (Palmer 1994, p. 3). All NBL players enjoy free agency, though in the early seasons, NBL clubs had a right of first refusal and it is known that transfer fees were paid in the early 1980s. The NBL salary cap was first introduced in 1989, at \$260,000, though it has been observed in the breach by many clubs over the years. The salary cap rose to \$645,000 by 1997 and peaked at an all-time high of \$1.05 million for 2001/2002 and 2002/2003. League wide financial difficulties prompted reduction of the 2003/2004 salary cap to \$700,000, introduction of individual maximum salaries and a 'total team points system'. The salary cap steadily rose again in following seasons, before remaining constant at \$1 million per club since 2009/2010.

The NBL competition organiser, the NBL clubs and the NBL Players' Association have signed a series of collective bargaining agreements since 1996, with the minimum salary rising from \$7500 in 1996 to \$37,022 in season 2012/2013, a rate comparable to the Australian national minimum full-time wage. The total team points system commenced in 2003/2004 to complement the NBL salary cap. This system rates all NBL players as being worth one to ten points with appeal mechanisms to ensure the fairness of those ratings. Each club originally had a cap of 66 points, rising to 68 from 2005/2006 and again to 70 points from 2009/2010. NBL clubs have typically employed a 10 to 12 man roster and were originally permitted to engage up to four foreign nationals. Following a 3-year transition period, the 'two import' rule came into full operation in 1990, limiting NBL clubs to employing a maximum of two players who are ineligible to represent Australia according to FIBA regulations (see Macdonald and Burton 2013 for further detail of labour market regulation).

The Evolution of NBL Governance

Origins

Local club basketball in the major Australian cities inevitably led to interstate competition and authors including Blanch (1981), Harris (1992) and Ramsay (2004) have outlined parts of this early history (also see SEABL 2012, pp. 2–5). In 1965, the Victorian Basketball Association (VBA) founded the South Eastern Conference (SEC); a season-length competition including clubs from Melbourne, Sydney, Newcastle, Wollongong, Canberra, Adelaide and Tasmania. The success of a Sydney-based tournament in 1968 and 1969 prompted the ABF to create the Australian Club Championships (ACC), a post-season tournament held between 1970 and 1979, to rival the SEC. High travel costs, the strong local Melbourne competition and tensions between basketball administrators all contributed to the SEC's cancellation in 1971. Melbourne-based clubs then won every title in ACC history.

Negotiations at the 1978 ACC tournament triggered creation of a full season-length national league, the NIBL, in 1979. The ten clubs contributed $10,000 each to cover administrative costs of the new competition (Blanch 1981). Animosities stemming from cancellation of the SEC meant only two Victorian clubs were invited to compete.

Dr John Raschke is regarded as the 'founding father' of the NBL after serving as the inaugural NBL Chair (1979–1982) and later as League Commissioner (1982–1983). Although he was also the ABF President (1972–1982), Raschke favoured a league outside of the direct control of the ABF and the State Associations (Harris 1992, p. 10; Ramsay 2004; SEABL 2012, p. 2). Ron Harvey, who succeeded Raschke as both ABF President and NBL Chair, nevertheless highlights the early importance of the ABF: '[w]hen the clubs were only interested in what was happening on court the ABF was beavering away at making sure this League existed and would continue to exist in a sensible and profitable way' (Harvey, quoted in Harris 1992, pp. 12–13).

The potential for a conflict of interests between the key parties in Australian basketball was clear, so negotiations ensured the participant clubs in the new league could be determined 'by invitation'. This lessened the influence of the State Associations, which enjoyed the right to determine the participant clubs in interstate competitions by virtue of the ABF By-Laws and their status as the members appointing delegates to the decision-making committees of the ABF (Harris 1992). In time, the NBL competition organiser was able to free itself from State Association intervention, but not before League expansion to 17 clubs in 1984, partially due to VBA insistence upon six Victorian clubs in the NBL (Ramsay 2004).

The League was renamed the NBL in 1980 and officially recognised in 1982, when the ABF was incorporated (cited in Nagy 2013; Harris 1992, p. 12). The Constitution of ABF Inc. (1998) stated the Federation's objects and powers as including:

> 4. OBJECTS
>
> 4.1 To control, integrate and foster participation at all levels of basketball in Australia.
> 4.2 To participate successfully in international basketball competitions ….
>
> 5. POWERS
>
> 5.1 To be the sole competent national authority in men's and women's basketball in Australia and to obtain the recognition of such role by international and national sporting associations and the Government of the Commonwealth of Australia. …
> 5.3 To control, administer and promote interstate and national basketball competitions …
> 5.26 To license the conduct and management of basketball competitions ….[8]

Ron Harvey and Malcolm Speed (NBL Chair 1987–1997; ABF Executive Chair 1993–1997) considered the actions ensuring independence of the NBL competition organiser from the ABF to be some of the 'biggest' and 'bravest' decisions, respectively. Integration 'would quite simply have ruined the League' according to Harvey (quoted in Harris 1992, p. 13). Tony King (NBL General Manager 1984–1986) and the NBL administration relocated to Melbourne in 1985, after earlier working from the ABF office in Sydney. Then, following lengthy negotiations,

[8] Our earliest available ABF Inc. Constitution is dated 28 March 1998.

Australian Basketball League Incorporated was formed in 1987. This entity was superseded by NBL Management Limited in 1989 and the clubs of the time were guaranteed a license to participate in the League (Harris 1992). Malcolm Speed later noted this separation of powers: '… worked very well to enable the League to go out and do its own thing. That is not to be critical of Basketball Australia, given the international ranking of its teams and the development of basketball across the country, which are its major roles' (Speed, Personal Interview 1998).

The NBL clubs did not share gate receipts or club sponsorship revenue and in the early years marketing was mostly decentralised, both to give clubs strong incentives and because of insufficient centralised revenue to share. Two crucial decisions, however, were to equalise club contributions to both the centralised league administration costs and the collective travel costs of all clubs in the fledgling national league (Harris 1992; NBL Management Ltd 1995; Palmer, Personal Interview 1998). Private ownership was important to the early growth of the League, though tension between the NBL clubs—especially those privately owned—and the NBL competition organiser was inevitable and arguably increased when the broadcasting rights were centralised between 1985 and 1988 (Harris 1992; Speed, Personal Interview 1998).

NBL Management Limited: 1989–2009

NBL Management Limited was incorporated in February 1989. The 13 NBL clubs of the time and ABF Inc., collectively defined as the 'Participants', were the members of the new company. The Participants and NBL Management Limited were all individual signatories to the *NBL Participants Agreement*.[9] The NBL Management Limited constituent documents established the *NBL Participants Agreement* (1998, clause 6.2) as the foundation document defining both the League Governance structure and the following operating principles:

> The NBL will be conducted on the basis of a national high-class home and away competition, and specifically:
>
> a. To provide the highest possible level of competition between basketball teams in the large towns and cities of Australia.
> b. To provide regular home and away Australia wide competition during each NBL season.
> c. To provide a competition acceptable to the public and the media, so that basketball gains prominence and recognition as a major sport in the Australian community.
> d. To provide a National League competition on substantially the same basis as National League competitions operated in other countries in the world.
> e. To provide a standard of competition which will assist in the preparation of the Australian National Team for World Championships, Olympic Games and other major international competitions'.

[9] The only version of the *NBL Participants Agreement* available for our study was current in December 1998. NBL Management Limited also held one of 18 votes in ABF Inc. Board elections. The eight State Associations and the competition organisers of the Women's National Basketball League and the second-tier nationwide competition were also voting members of the Federation (ABF Inc. 1998, 2002, clause 9.2).

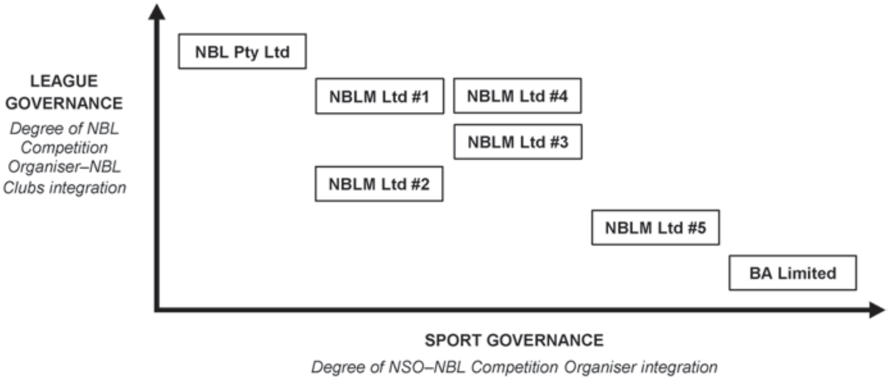

Fig. 2 Changes in NBL governance, 1989 to 2013/2014

The conflicting priorities—and central tension—between the participants was also addressed in the *NBL Participants Agreement* (1998, clause 6.24):

> Each Club acknowledges that the creation of the NBL competition and its substantial public following and goodwill is the result of many years effort by the ABF and its constituent bodies … and as such shall, … without derogating from its other duties and responsibilities under the NBL Participants Agreement, cooperate with and assist the [relevant] State Association … in relation to their control and development of basketball ….

Five eras are defined by the degree of constitutional and financial integration between NBL Management Limited and the participants (see Fig. 2). Amendment of the *NBL Participants Agreement* required the approval of two-thirds of the participants. Specific clauses relating to ABF Inc. and to fundamental elements of the *Agreement* itself further required the consent of ABF Inc. (*NBL Participants Agreement* 1998, clause 14), thereby recognising its authority and the force of ABF Inc. and FIBA regulations. Regular governance reform was partially driven by the rise, but mostly the decline, in financial and other key performance indicators of the key parties involved in Australian basketball.

NBLM Ltd #1. From 1989 to 1996, each Participant appointed one Director of NBL Management Limited, while the Directors appointed an independent Chair. This delegate model did not quell long-running debates over the role of the NBL competition organiser, with the club owners now demanding increased centralised marketing by NBL Management Limited (Speed, Personal Interview 1998). Throughout the 1990s, Bill Palmer (NBL Chief Executive, 1986–1998) regularly noted the continued financial difficulties for many NBL clubs, on-court dominance of large market clubs, declining attendance after 1994 and failure of the television product in the face of competition from the AFL and rugby league (Palmer 1993, 1994, 1995, 1996; Personal Interview 1998). These problems all contributed to three significant decisions: first, contraction from 14 to 11 NBL clubs after the 1996 season (via the exit of small market clubs, Geelong, Gold Coast and Hobart);

second, the shift to a summer season from 1998/1999, immediately following the 1998 season, and third, League Governance reform.

NBLM Ltd #2. A hybrid board model was adopted between 1997 and 2002, with the participants electing four Participant Directors and the independent Chair, the Board appointing two independent Directors and the Chief Executive being an ex-officio Director. The participants however retained residual decision-making rights relating to amendment of the *NBL Participants Agreement*, revenue-sharing regulations, League expansion and contraction, club location, and key financial matters (*NBL Participants Agreement* 1998, clause 3). This era included two major changes to League ownership and administration and spanned the tenure of two Chief Executives, John Rymarz and Peter Ali. Expansion franchises in Western Sydney and Cairns provided license fees, but the latter substantially increased travel costs and continued the problem of small market clubs.

In August 2001, following the loss of several long-term League sponsors and live free-to-air television coverage, NBL Management Limited entered into a marketing and equity agreement with private company, the Sportsworld Media Group. This deal included the $3.5 million sale of 15% of the NBL competition organiser and a reported $3 million annual guaranteed payments for 10 years. Sportsworld promptly encountered trading difficulties. NBL Management Limited eventually terminated the agreement in April 2002, reporting a loss of $1.142 million in 2001/2002 (Howell 2002; McGuire 2002; NBL Management Limited 2001, p. 2). As a partial consequence, ABF Inc. was contracted to provide sponsorship, marketing, media and administrative services to NBL Management Limited from February 2002 (NBL Management Limited 2002, p. 19).

The Federation had also encountered financial difficulties in the 1990s and was still heavily reliant upon ASC funding (ABF Inc. 2000b, p. 6; Ramsay 2004). Analysis of these problems, also partially financed by the ASC, led to the *One Basketball* strategy in 2000. *One Basketball* recommended administrative integration, as a prelude to the full corporate integration of ABF Inc., NBL Management Limited and the competition organisers of the Women's National Basketball League (WNBL) and the second-tier Australian Basketball Association (ABA). This was intended to improve efficiency and cooperation among the four entities and thereby boost investment in the sport (ABF Inc. 2000c). Administrative integration was expedient, so the NBL administration returned to Sydney and the offices of ABF Inc. Yet while *One Basketball* rationalised that the 'leagues exist ultimately for the good of the sport and not the other way around' (ABF Inc. 2000c, p. 17), three of the 11 NBL clubs entered administration in 2002. Later that year the NBL club owners moved to protect their own interests and assume control of the Board of NBL Management Limited.

NBLM Ltd #3. From 2003 to 2006, the NBL Management Limited Board comprised an independent Chair and a small cohort of Participant Directors, including an appointee from ABF Inc. and the owners and/or senior executives of the most powerful NBL clubs of the time (Melbourne Tigers, Sydney Kings, Townsville, Perth (to 2005), Wollongong (to 2004) and Brisbane (from 2004)). Rick Burton was appointed as NBL Commissioner (2003–2007) to build a stronger fan base, generate more media coverage, sponsorship and broadcasting revenue. This was achieved to some extent (Burton 2005), yet annual average match attendance remained below 3700 from 2003 to 2010. New franchises included the return of a second NBL club to Melbourne (the South Dragons), international expansion to New Zealand, as well as to Singapore, after a short-lived return to the small market of Newcastle (the Hunter Pirates).

NBLM Ltd #4. From June 2006 to November 2008, NBL Management Limited reverted to a board akin to its original League Governance model, with all Participants appointing a Director. The Chair of the NBL Board again had close ties to one of the Participants. Mal Hemmerling, who was first elected to be independent Chair in 2003, acquired the Adelaide 36ers in July 2006 (AAP 2006; NBL Management Limited 2007; 2008) but continued as NBL Chair until 2007. Lois Appleby, the Participant Director appointed by ABF Inc., then assumed the NBL Chair from 2007.

Agreement between ABF Inc. and NBL Management Limited triggered another review of basketball governance and structure in March 2007. By this time the Federation was practically beholden to the ASC, which again provided financial and administrative support. A separate ASC review instigated by the Federation in 2006 noted the ASC financed over 90 % of the ABF Inc. budget for developing 'high performance' national players (Fairweather 2008, p. 11), while ASC grants exceeded 40 % of total ABF Inc. revenue in 2007 (ABF Inc. 2007).

Whether the relationship between 'separate bodies with very different objectives and not necessarily working together for the betterment of the sport and optimal international results' was 'sub-optimal' (Fairweather 2008, p. 11) depending upon whose objectives were given primacy. The review of structure and governance concluded that ABF Inc. 'had limited influence over the running of the NBL. Concurrently the NBL has poor links with BA membership and the broader basketball community', while the *NBL Participants Agreement* was criticised for being subject to the control of 'vested interests, i.e. the club owners' (Basketball Review Steering Committee 2007, p. 3 and 5). As the owner of the South Dragons (Cowan, cited in Sheridan 2009, p. 6) later noted of his fellow club NBL owners, 'everyone tends to, with the best intentions in the world, protect their own little patch of turf'. In spite of their recognition of conflicting interests between the NBL clubs and ABF Inc., the Basketball Review committee 'strongly agreed' that full integration was the best solution, ambitiously arguing that integration would create 'one vision for the whole of the sport of basketball … one Board … [and] one management structure' (Basketball Review Steering Committee 2007, p. 5).

NBLM Ltd #5. Between November 2008 and June 2009, in the transition to full integration, NBL Management Limited and ABF Inc. were governed by the same six-person 'Interim Board'. The NBL Management Limited Board included one existing Director (who resigned in April 2009) and five new Directors, led by Chair David Thodey. These five were also the inaugural Directors of BA Limited, which commenced operation on 1 July 2009 with principal activities being 'the promotion of basketball in Australia at all levels and the conduct of elite national level basketball competitions' (BA Limited 2010a, p. 1).

The Interim Board recommended a re-launch of the national league, believing the existing NBL competition was 'not able to play the role as it should in showcasing the sport' (Interim Board of Basketball 2008, p. 4). The 'New NBL' clubs would be required to sign new License Agreements after proving they could meet new financial criteria for participation in the 2009/2010 season (Interim Board of Basketball 2008, p. 7). Released in early 2009, these criteria proved controversial and included a $1 million license fee for new (but not existing) NBL clubs, annual participation fees, paid up capital of $500,000 and a $1 million bank guarantee, plus extensive business and community engagement plans (AAP 2009; Dampney 2009; Keeble 2009).

Between June 2006 and the end of 2009, the NBL competition once again expanded, from 11 to 13 clubs, before the seemingly inevitable rapid contraction. The loss of three clubs ahead of 2008/2009 (Brisbane, Singapore, Sydney Kings) and two more straight after that season (South Dragons, Sydney Spirit) left the largest (Sydney) and third-largest (Brisbane) markets vacant the following season. As with the 1997 contraction, the underlying problem was to find individuals of good financial standing who could make NBL club ownership profitable. The Singapore Slingers faced excessive travel costs and left to co-found the new ASEAN Basketball League. Unlike other clubs, the Slingers were admitted to the League on the proviso that it cover all travel costs associated with their NBL participation (Deane 2008). The Sydney Spirit simply could not draw a crowd, whereas the financial position of the owners of the Brisbane Bullets and the Sydney Kings proved ephemeral (ABC 2008; Magnay 2008). The Melbourne-based South Dragons, the 2008/2009 NBL champions, could not justify the cost of the new participation criteria and withdrew from the League. The Melbourne Tigers also threatened to withdraw from the 'New NBL' (Bernard 2011; Sportal 2009). Only eight clubs would contest the first NBL season managed by BA Limited.

BA Limited: 2009–2013

The integrated BA Limited, a company limited by guarantee, reflected the requirements of the ASC Sport Governance Principles and the influence of ASC consultancy advice by providing for five to seven independent Directors, who elected the Chair from among themselves. No more than five Directors were to be elected by the Members, with no more than two Directors appointed by the Board. The objects of the company included (BA Limited 2009a):

> 2.1.1 [to] act as the Australian national member federation of FIBA …
> 2.1.2 conduct, encourage, promote, advance, control and manage all levels of Basketball in Australia interdependently with Members and others;
> 2.1.3 conduct elite national level competitions for both males and females. …
> 2.1.8 select, prepare and enter Australian teams in international competitions;

The eight State Associations and the NBL clubs represented the two categories of Members with voting rights at General Meetings of the company. That all NBL clubs, whether privately owned (including the New Zealand Breakers) or membership-based, were Members of the NSO, was a necessary compromise of the NBL Management Limited–ABF Inc. merger. However, other than election of Directors, constitutional amendment, or the act of winding up the company, the Members enjoyed no substantive residual decision-making rights. The BA Limited constitution further provided that the State Associations collectively held 60 % of the votes at a General Meeting, though the specific number held by each State Association could differ (as determined by the Directors). Each NBL club held an equal number of votes at a General Meeting, summing to a maximum of 40 % of all votes (BA Limited 2009a: clause 13.1). The NBL clubs became Members of the company by virtue of the license granted by BA Limited (BA Limited 2009a: clause 5.4.1; BA Limited 2009b: clause 2.5). Neither Membership of BA Limited, nor admission of new clubs to the NBL was subject to a vote of the Members.

The League Governance structure of BA Limited also created the seven-person NBL Commission, which enjoyed some delegated authority from the BA Limited board. Commission members included the Chief Executive and two Directors of BA Limited, along with four others elected by the NBL clubs. Terms of reference for the NBL Commission specifically noted the NBL competition was to be 'appropriately linked to the high performance pathway for the development of players, coaches and officials' (BA Limited 2009c, p. 2). This was reinforced in the NBL Rules and Regulations (BA Limited 2009b) that specified:

> 1.5 A key component of the reform of the basketball [sic] is connecting and engaging the growing basketball participation base with the NBL and the national men's (Boomers) team. NBL clubs will be required to work closely with state and local associations to achieve this aim.
>
> 1.6 NBL Clubs have a responsibility for the continued growth of the sport at grass roots level in Australia. Similarly, the success of the Boomers at international level is also a responsibility of NBL clubs. The clubs do not have primary responsibility in either area, however, must be committed to these greater goals, for the reform of the sport to succeed.

These goals were presented in the context of reform, but the intent and language was little different to that in the *NBL Participants Agreement*. The new NBL Rules and Regulations (BA Limited 2009b) and NBL License Agreement provided BA Limited exclusive rights to exploit broadcasting rights, merchandising, game statistics and sports betting related income. As with previous arrangements, clubs retained all gate receipts and related revenue from regular season home games. The NBL salary cap, team total points system and travel cost equalisation policies were also retained in essentially the same form. Continuity of NBL management was provided by Chuck Harmison, who was appointed NBL General Manager (2009–2013) working under several BA Limited Chief Executives (Larry Sengstock, Scott Derwin and Kristina Keneally), after 11 years serving NBL Management Limited as a Participant Director, then Chief Operating Officer and Chief Executive Officer.

With new ownership, the Sydney Kings returned to the competition from 2010/2011 (BA Limited 2010b). It was no coincidence that the NBL returned to free-to-air television (AAP 2010) and average match attendance climbed beyond 4000 in the same season. However, the Gold Coast Blaze survived only 4 years, withdrawing prior to the 2012/2013 season; the second NBL club failure in this small market. The New Zealand Breakers (consecutive NBL champions, 2010/2011 to 2012/2013) and Perth Wildcats (2009/2010 NBL champions, 2011/2012 and

2012/2013 runners up) dominated the courts in the BA Limited era, renewing concerns about competitive balance.

National Basketball League Pty Ltd: 2013

In March 2013, following a Basketball Australia white paper, the eight NBL clubs elected to 'de-merge' the NBL competition organiser from BA Limited. The BA Limited board endorsed this decision, recognising the future direction of the NBL 'should in many respects be determined and driven by those who are financially supporting it' (BA Limited 2013a). National Basketball League Pty Ltd consequently assumed competition organiser responsibilities ahead of the 2013/2014 season (BA Limited 2013b; NBL Pty Ltd 2013).

Reports of the new League Governance arrangements indicate NBL clubs own half of the new entity. The remaining equity investors are expected to include some individual NBL club owners, in addition to—but independent of—their club investments. The new NBL competition organisers hoped such personal shareholdings will give NBL club owners 'a greater interest in the health of the entire league, rather than concentrating and making decisions in the best interest of just their own team' (Dunn, cited in Stensholt 2013; NBL Pty Ltd 2013). As part owners of the new company, the NBL clubs will enjoy both residual decision-making rights and the claim on any residual surplus. BA Limited continues as the NSO, and as the licensor of NBL Pty Ltd, will retain residual decision-making rights on some sporting and regulatory matters, as required by FIBA regulations (BA Limited 2013c; FIBA 2010: article 12; FIBA 2012: articles 57–82). Constitutional amendments to remove the NBL clubs as Members of BA Limited were pending in late 2013.

Discussion and Conclusion

Australia is a geographically large nation with a small population and intense competition in most markets for sports consumers and participants. For all its substantial merits, the NBL has traditionally been an underfunded league of second-tier athletes in a global sport that has struggled to attract Australian fans, sponsors and broadcasters. This has prompted almost continual demand for governance reform.

Sport Governance reforms have ranged from a full integration of the NBL competition organiser and national governing body (BA Limited), to a model where the NSO enjoys neither ownership nor membership of the NBL competition organiser (NBL Pty Ltd). Today, BA Limited is merely a licensor NBL Pty Ltd. Under the most recent League Governance arrangements, the NBL clubs, as part owners of NBL Pty Ltd, have become more closely integrated with the NBL competition organiser, relative to their position as the minority class of voting Members electing the independent Directors of BA Limited. Between these extreme positions in Fig. 2, we see differing degrees of League Governance and Sport Governance integration where the day-to-day administration of NBL Management Limited (NBLM Ltd #1 to #5) was more closely integrated with the NSO (ABF Inc.) due to financial necessity. Throughout league history, NBL clubs have regularly sought greater control, often favouring the traditional delegate model of League Governance in the NBL Management Limited boardroom.

Private club ownership has long been a feature of the NBL, yet even in the early years, before private ownership became common, it was recognised that the NBL would flounder if too closely tied to the ABF or the State Associations. This is because the NBL clubs have some complementary, but also numerous other interests to those of Basketball Australia (whether in the ABF Inc. or BA Limited eras). The evolution of NBL governance can therefore be seen as a succession of (failed) attempts to solve product market problems by first changing the identity and then the incentives of the principals and agents in the League Governance and Sport Governance structures of Australian basketball.

The objectives of Basketball Australia have been to increase the level of basketball participation, optimise national representative team performance as well as to generally maintain and improve the standing of basketball in the Australian community. Basketball Australia has regularly exerted its custodial authority to stipulate that NBL clubs do more to engage in basketball development activities and help better prepare Australian male basketball players for international competition. It was also emboldened by the sport governance policy advice of the ASC, upon which it was also heavily reliant for funding, to promote a 'one basketball' philosophy and push for integration with the NBL competition organiser. Ultimately though, Basketball Australia was neither able to clearly articulate, nor demonstrate in practice, the benefits of such integration.

On the other hand, the NBL club owners often found themselves ill prepared to profitably manage their clubs or the NBL competition and looked to Basketball Australia in times of crisis. These clubs exist primarily, if not solely, to field teams in an elite-level national basketball competition. In doing so, some seek to make a profit, all seek to break even, but too many have achieved neither. At times when the club owners have taken control of the League, there has been a failure to adopt a sufficient level of 'league-think' to ensure regulatory decisions that might grow revenue and minimise operating costs for all NBL clubs. In part, this is a failure of League Governance driven by the heterogeneity of club ownership structures and in the size of local markets, but it is fundamentally due to the thin profit margins across the League. Even for privately owned large market clubs, on-court success has been a necessary but often insufficient condition for profitability. Alas, the NBL has never reached a stage where every club was consistently profitable irrespective of team performance on the court. This meant an ongoing challenge for the NBL competition organiser of the day. The consistent need to find new club owners or shrink the League at short notice regularly sent negative signals to fans, sponsors, broadcasters and investors alike.

Today, a talented local is just as likely to bypass the NBL altogether in favour of college basketball in the USA or a more lucrative salary playing in Europe, if not in the National Basketball Association (NBA). The NBL is now one of many pathways to the Australian Boomers. Irrespective, the desire of Basketball Australia for control and integration of the NBL into its administrative and talent development structures remained. The club owners, managers and players still desire on-court success in a strong national league, even if the NBL is a second-tier or even third-tier professional competition on the global scale. For the clubs, integration of the NBL competition organiser with Basketball Australia was a financial necessity, yet always an awkward convenience with an inherent clash of priorities.

In 1990, Bill Palmer made the hard-learned yet prescient observation that 'too much time and energy is spent in the League focussing on internal matters rather than developing strategies to exploit our marketplace' (Palmer 1990, p. 21). This observation also demands understanding of the Australian marketplace, where fans (and thus sponsors and broadcasters) have shown a regular preference for *elite* professional sport. As an indigenous football code, the AFL has prospered. The NRL is the best competition in the world. International cricket is traditionally more popular than domestic cricket by several orders of magnitude, while the NSL and the A-League have paled in comparison to Europe. Even when booming, the NBL lived (at least partially) in the cultural shadow of the NBA. The question then, is whether any governance structure would have improved decision-making and boosted NBL revenue? The regular cycles of league expansion, contraction and club mergers suggest the NBL has consistently lacked the necessary level of commercial, if not also public, interest to sustainably prosper.

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Generic Models of Sports Governance and Their Potential for Sustainability

Ross Booth, George Gilligan, Francesco de Zwart and Lee Gordon-Brown

Abstract This chapter discusses how generic governance models may influence sporting organisations in Australia to improve their prospects for utility and sustainability. It draws on a research study that focused on the sports of bowls, hockey and swimming which examined how governance, and management structures and practices affected a sport's capacities in revenue generation and sustainability.[1] The results of the study are considered within the context of two broad questions on sport governance:

1. Is sport a 'special case' in terms of governance in comparison to the broader business sector (including not-for-profit)?
2. Are there specific models of governance that seem to have more influence in Australian non-profit sports organisations?

[1] The Project Team comprised the authors and Dr. Robert Kidston (Senior Consultant, Governance and Management Improvement, Innovation and Best Practice Program, Australian Sports Commission), Mr. Rob Clement (General Manager, Innovation and Best Practice, Australian Sports Commission), Mr. Stephen Fox (Senior Consultant, Australian Sports Commission). The Project Team acknowledges with gratitude research assistance, literature review, interviews with participants and a report entitled, *The Influence of Governance and Management on the Capacity for Revenue Raising by Sporting Organisations, Preliminary Report,* unpublished (copy on file with authors), conducted and/or provided by Mr. J A (Jim) Ferguson (Consultant, former Executive Director of the Australian Sports Commission).

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The conclusion is that the answer is no to question 1, although sport does have particular special characteristics (some of which may apply to other sectors), and a qualified yes to question 2. This chapter considers the extent to which three generic governance models: traditional model (TM), policy governance model (PGM) and executive led model (ELM) apply to each of the three sports.

Introduction

Concurrent with general worldwide pronouncements on good governance in general (The International Bank for Reconstruction and Development/The World Bank and Organisation For Economic Co-operation and Development 2003, 2005), the OECD (Organisation for Economic Co-Operation and Development 2004), the IMF (International Monetary Fund 1997), (Kaufmann 2004), the Cadbury Report (The Committee on the Financial Aspects of Corporate Governance and Gee and Co Ltd, 1992), the Australian Stock Exchange (ASX Corporate Governance Council 2003, 2007), the OECD (Organisation for Economic Co-Operation and Development 2005, p. 11; AVECO 2005), an awareness of the importance of good governance to sporting organisations—whether governing or participatory—has grown, as has the relevant literature, for example (European Olympic Committee 2001; Ferkins et al. 2005, 2009; Forster 2006; Hoye and Cuskelly 2007; Hoye et al. 2009). This chapter discusses how generic governance models may influence sporting organisations in Australia to improve their prospects for utility and sustainability.

In particular, this chapter discusses how this dynamic mix of sports interests can shape how models of governance evolve in relation to different sports. National Sporting Organisations (NSOs) and State Sporting Organisations (SSOs) are diverse in their governance and management structures, competition regime and *outputs* (for example, volunteer development, club development, junior sport, disability sport, women in sport and indigenous sport). By contrast, preferred NSO and SSO *outcomes* are reasonably uniform, for example, more members, more participants, podium success and more non-government and government revenue. It is especially important to note that with regard to revenue sources, many NSOs in Australia are dependent on government funds as their primary revenue stream.

The Australian Sports Commission (ASC) is a Commonwealth statutory authority charged with the responsibility of distributing Commonwealth Government funds to NSOs. Given its funding responsibility, Australian Sports Commission (2002, p. 1) has stated:

> [i]t is important, therefore, that the ASC has a clearly stated position with respect to the governance of national sporting organisations to which the ASC provides taxpayer moneys.

For this purpose, in 2002, the ASC issued its *Governance: Principles of Best Practice* (Australian Sports Commission 2002, p. 1) and these have been revised (Australian Sports Commission, 2007, p. 1) to *Governance Principles, A Good Practice Guide for Sporting Organisations.*

In the sphere of sport, long-term economic sustainability for a sporting organisation is, it is submitted, essential (or, at least, highly desirable) for that organisation to achieve its long-term objectives. Unlike the corporate sphere, the sporting organisation's pursuit of economic sustainability is not, in many cases, only for the purpose of maximising returns to 'owners' or measures such as 'operating performance', 'valuation' and 'shareholder payout'. For many non-profit or voluntary organisations, these will not be the major strategic goals and may only represent a 'means to an end' rather than ultimate objectives. In this respect, the multiple priorities and purposes of sporting organisations (and consequential stakeholder interests) are a 'dynamic mix' which can alter to changing political and economic circumstances.

This dynamic mix of sports interests is certainly not static, as emphasised by some examples from the relevant sports management literature. Ferkins et al. (2009) noted that in applying theories of sport governance in the corporate, non-profit and sport management domains, the distinction between governance issues in the private for-profit setting and in the public and non-profit setting has been recognized. According to Shilbury (2001), for-profit organization's motivations are mostly financial, whereas non-profit organizations are motivated by a variety of goals, nevertheless sport occurs in all three settings (public, private for-profit, and private non-profit) with NSOs overseeing a mix of private for-profit franchises, non-profit associations and clubs, and interacting with public funding agencies.

There is no shortage of theories of corporate governance that may have some traction in the sports sector. Ferkins et al. (2009) noted that many scholars in the field of sports governance have applied established theories such as multiple constituency theory, agency theory, stewardship theory, managerial hegemony theory, institutional theory and stakeholder theory to sports organisations. Hoye et al. (2009) drew on the work of Clarke (2004), discussing how theories of corporate governance such as agency theory, stewardship theory, institutional theory, resource dependence theory, network theory and stakeholder theory can have application to the governance of sport, but they stress (correctly in our view), that when applying a particular theory to sports organisations consideration must be given to the type and industry context of the sport in question, because the sports environment is so diverse. The reality of this diversity militates against the development of an over arching theory of sport governance.

However, it is interesting and important to consider whether there are identifiable models of governance that do seem to have greater prevalence and utility within sports domains. Hoye and Cuskelly (2007) and Hoye et al. (2009) outlined three generic models which they believe can be applied to non-profit sports organisations. The three generic models are discussed below and are then considered in relation to the findings of our study that looked at how governance issues impact upon the organisation of bowls, hockey and swimming in Australia to indicate whether one or more of these models do seem to have more traction in Australian sport. The study itself focused on governance: sustainability linkages with a particular emphasis on the capacities of the sport to generate revenue. Nevertheless, the interviews produced a substantial amount of information not only about the specifics of how these three sports are organised in Australia, but also evaluation by the respondents about how the governance of their sport has been evolving. So, the interviews provide interesting primary data to help discern whether there may be a trend developing towards particular generic models of governance in Australian sport.

Generic Governance Models and Non-Profit Sports Organisations

Hoye and Cuskelly (2007) suggest that there are three key issues running through the literature on governance models. The first is the debate over the merits of non-profit organisations adopting the corporate model of governance and the differences between corporate and non-profit systems of governance. The second is the discussion of the differences between three types of non-profit governance (detailed and described shortly). The third issue is concern about the application of governance models designed for larger non-profit organisations with paid staff to the vast array of voluntary sport associations that operate entirely with voluntary labour. One paper can only do so much and our focus is on the first two issues.

Hoye et al. (2009) divided the literature on organisational governance into two broad areas. The first is corporate governance that deals with the governance of profit-seeking companies and corporations that focus on protecting and enhancing shareholder value. The second is non-profit governance that is concerned with the governance of voluntary-based organisations that seek to provide a community service or facilitate the involvement of individuals in social, artistic or sporting activities. Hoye et al. (2009) emphasised the distinct characteristics of non-profit organisations, arguing that they demand a governance framework different to that of the corporate firm, because they exist for different reasons, and generally involve a greater number of stakeholders in their decision making structures and processes.

In addition, Hoye et al. (2009) followed through more specifically with the three generic types of non-profit governance models of Hoye and Cuskelly (2007) which can be applied to non-profit sports organisations. The three models, all relate to organisations governed by boards that employ a paid executive and staff rather than those with a collective and informal structure. According to Houle (1997), the models are more relevant to these organisations because boards that carry out the 'hands on' work of the local clubs are usually so strongly influenced by special circumstances that few generalizations can be made about their general nature. The key features of the three models are summarised briefly below.

Traditional Model

The traditional model (TM) outlined by Houle (1960, 1997) is based on five elements:

1. The human potential of the board which ensures systematic recruitment and on-going board member development.
2. The work of the board is structured by a set of by-laws and clearly defined policies, with minutes of the board and committees reported.
3. The roles of and relationships between the board, the executive and staff are well-defined to enable clear decision making.
4. The operation of the board should occur within a positive group culture, and be based on an annual work plan, regular meetings with agendas and on-going evaluation of the board.
5. The board has a focus on maintaining external relationships through formal and informal links with the community.

For purposes of later exposition, we simplify these five elements to: systematic board recruitment, clearly defined policies, well-defined roles, board operations procedures, and formal and informal external links.

In a review of Houle's model, Fletcher (1999, p. 436) suggested that 'The work is done by the staff, the administration by management, and policy-making by the board; in this traditional model, the board is truly in charge of the organisation'.

The TM is the most widely used among non-profit sports organisations (Hoye et al. 2009) which separated the tasks of paid staff and volunteers, with volunteer board members being accountable for the organisation. Two leading researchers in non-profit governance criticised the model for the idealistic view that the board has ultimate responsibility (Heimovics and Herman 1990) and the simplistic notion that the board sets policy and the staff do the work (Herman and Heimovics 1990). The latter, following a study of Kansas City public charities, argued that this does not reflect the reality of the range of working relationships which exist in most non-profit organisations, nor the prominence of the executive or CEO in providing leadership.

Policy Governance Model

The policy governance model (PGM) outlined by Carver (1997) in relation to leadership in (US) non-profit and public organisations has five elements for an effective governing board:

1. The board must determine the mission and strategic direction of the organisation, focusing on desired outcomes, rather than concentrating on the means to achieve them.
2. The board must set executive limitations or constraints for work practices and the means that staff employ to achieve the board's mission.
3. The board must establish clear board and executive roles and relationships.
4. The board must ensure that governance processes are clearly defined in areas such as board membership, reporting of activities of the board and staff, and ensure the board focuses on policies rather than specific issues.
5. The board must develop clear performance measures related to strategic outcomes, rather than just ensuring conformance to various procedures and practices.

As above, for purposes of clearer later exposition, we simplify these five elements to: strategic direction, executive work practices, clear board and executive roles, clearly defined governance processes, and clear performance measures.

Fletcher (1999, p. 437) noted that Carver's model has been criticised for its 'idealised view of the board, operating above the messiness of the board–executive relationship as it really exists in non-profit organizations'. There is also criticism that the model does not address the board's role in fundraising and managing external relationships, whilst subordinating the CEO to the board and expecting the board alone to set the parameters.

Executive Led Model

In contrast to the other two models, the executive led model (ELM) sees the executive as being central to the success of non-profit organisations. Drucker (1990) in discussing nonprofit governance in the USA argued that ultimate responsibility for performance (including governance) should rest with the executive. Herman and Heimovics (1990) found in their study of Kansas City public charities that most boards depended almost exclusively on their executive for information and looked to them to provide leadership. Hoye and Cuskelly (2003) found this to be the case for seven (unidentified) Victorian SSOs. Block (1998) argued that because the executive is working in an organization much more than the average board member, they have better access to information and therefore must also 'be at the core of leadership and decision-making activities'.

Thus, in our view, we categorise the three key elements of the ELM as:

1. The executive has better access to information than the board.
2. The executive must be at the core of leadership and decision-making activities.
3. The executive should be ultimately responsible for performance, including governance.

As with the earlier two models, for purposes of clearer later exposition, we simplify these three elements to the executive having: better information, a leadership role, and responsibility for performance.

Background, Scope and Methodology of Research Study

The ASC and Monash University's Faculty of Business and Economics undertook a study to investigate the relationship between a sporting organisation's governance, and management mechanisms, structures and processes, and its ability to raise revenue from all relevant sources.

The study focussed on the sports of bowls, hockey and swimming and sought to analyse a wide range of actual and potential revenue streams available to NSOs and SSOs of those sports. A total of 30 semi-structured interviews were conducted with representatives of NSOs, some SSOs and local clubs, (four) corporations involved in the sponsorship of sport, national and state government sporting authorities and (four) media representatives. The majority of interviews and weight of enquiries were directed to representatives of NSOs and SSOs. Questions were distributed to respondents to complete in advance of the interviews, with responses supplemented by follow-up interviews.

From these interviews, the study sought to identify *variable factors* relevant to fundraising (such as management competency, knowledge, research, contacts, etc.), that is, those factors that might vary from organisation to organisation but are amenable to improvement, and the *invariable factors* (such as the scope, rules and popularity of the sport, its television appeal or government policies), that is, those factors affecting a sport's ability to raise funds but which are not amenable, or are less amenable, to improvement through management intervention.

Research Study Findings on Governance

This section summarises the results of the study in general, especially from the perspective of governance. The interviews showed that the factors less amenable to governance influence and therefore invariable are television coverage, the size of the sport and sporting organisation, legislation and government policy, influence of international federations, influence of representative bodies, and economic conditions. The most important determinants of the ability to secure television coverage were a *large supporter base* (as opposed to number of members), in other words, a high level of *popularity and support* within the general public, the *nature* of the sport, and the sport's *ability to televise well*. Respondents acknowledged that although it is something of a circular argument, these factors in turn were enhanced by live and free-to-air television coverage. Indeed, of the three sports, only swimming satisfied these factors in a significant fashion and, consequently, had rights to such coverage.

Variable factors that emerged from the interviews as being more amenable to governance influence were: success of the sport/team, membership, a strategic approach, a national approach, management competence, the role of the board, relationships between sport and sponsor, reliability in dealings, reputation of the sport, ownership of intellectual property and promotion of the sport.

At the national level, respondents from all three sports recognised the importance of success, with swimming and hockey emphasising success of the national team as the focal point of fundraising and promotional success. At the state and local level, on-field success was seen as more important in its own right but was also recognised as having flow-on effects to membership, gate receipts, concessions and sponsorship, and in attracting players. These views are not surprising and are supported in academic analyses of the importance of competitive success to the economic well-being of a sport (Geldard and Sinclair 2002; Hansen and Gauthier 1992; Neale et al. 2004; Shilbury et al. 2003).

All respondents perceived membership of the organisation as an indicator of success and it was something that could be stimulated by good governance practices such as good club management, providing quality coaching, good competition, a sound reputation and competent volunteers. In turn these would provide opportunities for revenue-raising, especially through access to members for certain sponsors, better prospects for merchandising and greater gate receipts.

All respondents emphasised the critical nature of strategic planning and a strategic approach to marketing and fundraising given the long lead-times of corporate marketing budgets and the time necessary to develop sponsorship proposals. Part of an improved strategic approach in sporting organisations is having coherence nationally and a number of respondents stressed that, in some sports, lack of unity is a major problem with the states competing amongst themselves and with the national body for sponsorship, whilst *most national sponsors will not support a sport where there was likely to be friction between state associations, because 'segmentation fractures the market potential'*. For some of the respondents, the *lack* of a national approach in matters such as the development of a national brand or name, ownership of intellectual property, television rights and rights to national events and championships were important factors hindering fundraising. In some instances, constitutional changes might be required among the various associations at different levels representing the sport and sometimes this could be problematic to achieve.

All respondents perceived management competence as essential to sustainability of a sport extending beyond marketing and fundraising to the operational aspects of the sport. Similarly, respondents saw the competency of boards as essential to good governance and fundraising but were realistic about how much *best practice governance* might be achieved in certain contexts. Several respondents commented that in smaller sports without professional staff the involvement of board members in management activity would, of necessity, be greater. Many smaller organisations cannot afford the luxury of a separation of powers and responsibilities.

Sponsors and sports administrators both recognised that a sport having a good reputation and the capacity for positive promotion were viewed as crucial for success. Sponsors also placed a premium on ownership of intellectual property and it was seen as a distinct advantage for a sport to be able to control access to and exploit its logos, colours, name and brand nationally, without conflict. This gave more value to its property, as well as greater flexibility in exploiting opportunities for cross promotion and leveraging.

In summary, the interviews revealed the key governance indicators that most affect sustainability are: identification, consultation and participation of stakeholders; access to and timely disclosure of information; fair and ethical decision-making, corporate social responsibility and codes of conduct; principal board responsibilities; competency/experience and skills of directors; and that board and management roles be distinguished and specified.

Three Models of Sports Governance—Do Any Apply?

In this section, we analyse the responses of key personnel from bowls, hockey and swimming to see which (if any) of the three models of sports governance discussed earlier, appear to have most traction—not only between different sports, but also within each sport in terms of national, state and local (club) levels.

Traditional Model (TM)

As discussed earlier the five core elements of the TM are: systematic board recruitment, clearly defined policies, well-defined roles, board operations procedures and formal and informal external links.

Bowls The national organisation of Bowls Australia (BA) is unified, as are states except NSW and Victoria, which still have separate men's and women's bodies. In respect of the first element of the TM (systematic board recruitment), it is clear that at the national level the operation of the board could be better, a feature identified by both the CEO and the President. The CEO stressed that board members have worked their way up through the state organizations and may not have accumulated specific board skills. Moreover, all are elderly because of the time it takes to 'earn one's place as it were'. So a major challenge for BA has been how to get a younger and more diverse board. The President was more optimistic about the quality of the board, emphasizing that the board includes two independent members, out of a possible three, selected after a review of board skills with both having business experience. The bowling directors have all worked their way through the system, first at club level and then the states. This is because members of the national board are elected through the state councils and must come up through the ranks, so the sport as an NSO must live with who is elected.

The reason for the particular makeup of the board was, according to the President, that the states are autonomous and would not tolerate interference by the national body. Affiliation with the national body requires the states to observe the rules of the game etc. which come down from the world body. There are a number of national committees (on umpiring and coaching) with the policy set nationally in agreement with the states, but delivered by the state associations. The national body can deliver the sport nationally, provided there are no conflicts from the states. But, there are occasional conflicts when states get conflicting sponsorships and there is no mechanism for resolving them except negotiation. There are opportunities for more events, but TV coverage will be important and this will depend on the nature of the event. The smaller states do not want to change to a more commercial approach because they would get eliminated too quickly. Also, the world body makes it difficult to change the match play format that is a major impediment to fund-raising.

A stark contrast between governance at the national level and at the state level is provided by one SSO CEO describing its Board as being responsible for the day-to-day running of bowls, but not strategic planning, risk management or financial performance. Another example of differences of governance at different levels is that one SSO does not allow for the appointment of independent directors, even though only some of the existing board members had business experience. However, looking to the future, a strategic and business plan was being developed.

Hockey Hockey is not unlike bowls in terms of the first element of the TM (systematic board recruitment). Board members are not elected as state representatives and, theoretically, could all come from the same state. One NSO official felt that the board was heavily Sydney-centered. Board members do not have to have any special qualifications, except for the Finance Director, who must have accounting qualifications. The elected members can appoint two additional members with special expertise. There were no additional members at the time though one former appointed member was on the board in their own right.

HA commenced in January 2001 following the amalgamation of the Australian Hockey Association and the Australian Women's Hockey Association. However, the constitution was based on the requirements of the amalgamation of men's and women's associations and did not incorporate any new governance elements, and there have been only minor amendments since. The philosophy was to find the right mix between youth and experience and to put more emphasis on succession planning, a classic element of the TM. The younger members are less experienced and often do not have the commitment of some of the older members. There has been an attempt to get a better skill mix, whilst still having a broad hockey background and maintaining touch with the grass roots of the sport (element five—formal and informal external links). The board is usually well served with business and legal expertise, but marketing and media expertise has been problematic in the past. There is an attempt to convince the states that members, who essentially come from the states, should be selected on the basis of skills rather than state interests or personalities.

Regarding element five (formal and informal external links), the hockey's board experience is clearly consistent with the TM. A major difficulty has been the irregular nature of securing sponsorships. At one SSO, there are minimal formal policies governing decision making. There is a strategic plan that is kept under review by the board in discussion with the members, but not in any formalised way. The only formal reporting mechanism is through the AGM.

Whilst hockey is publicly accepted as a very successful Olympic sport, one of the major impediments to attracting corporate support is the inability to sell the sport as a whole. HA cannot deliver the whole sport because of state influence. There is no national database, states compete among themselves and with HA for sponsorship, and it is very hard to get agreement on national programming. Constitutional reform would help break down state influence and is needed, although HA believed this was a difficult task to achieve.

In summary, both bowls and hockey went through constitutional change associated with the national amalgamation of the men's and women's bodies, but the progression towards the PGM can only be described as modest as evidenced by general unease about the nature of board makeup in the respective sports.

Swimming Whilst many of the elements of the TM still exist in bowls and hockey, swimming has progressed beyond the TM to embrace many elements integral to the PGM. There is little evidence of the TM remaining at the national level of swimming, but there is at the state level. One SSO has a strategic plan, but acknowledges that it is produced ad hoc in order to comply with government funding requirements. Moreover, plans are rarely followed through. Reporting to members is done through the monthly meetings and the AGM. In summary, the activities of the swimming SSOs are operational rather than strategic in nature.

Policy Governance Model (PGM)

As discussed earlier, the five elements of the PGM are: strategic direction, executive work practices, clear board and executive roles, clearly defined governance processes and clear performance measures.

Bowls In bowls, the board sets the strategic direction (element one) for the sport in the following way. The Council is composed of the members, that is, the state associations that own the national body that elects the board. The Council is consulted on the strategic direction of BA on the theory, that is how the wider membership makes itself heard to the national body. The constitution sets out the role of the board of BA which operates on behalf of the members throughout Australia and is responsible for major national issues, develops and implements major strategic directions, manages international responsibilities, recommends independent directors and appoints committees and sub-committees.

A new strategic plan came into operation in 2005. It identified four key imperatives, namely Leadership and Management, to foster national development; Promote and Grow Bowls, by refreshing the image and brand of bowls to increase its contemporary appeal; High Performance, to promote a high performance culture; and Commercial Developments (which includes all fundraising) by generating new revenues to provide resources to reinvest in the development, promotion and growth of bowls.

In respect to element three of the PGM (clear board and executive roles), in accordance with the constitution, the board appoints the CEO who, in turn, appoints all staff. Board members do not have executive roles. There is a clear separation of board and management and with this working well; attempts are being made to extend this model to the state associations.

In relation to part of element four of the PGM (clearly defined governance processes), respondents admitted that communication within the sport in the past was not as good as it might have been. However, it has improved greatly in recent times and now the CEO sends regular reports to state bodies. The mission and values of BA are clearly enunciated and these, the constitution and all policies are included on the website. At each meeting, the board is required to assess the progress being made in achieving the agreed strategic imperatives.

Every six months there is a general review of performance (element five—clear performance measures). The main reporting mechanism for the members is the Annual Report, which goes to the states and, in theory, is then passed down to the grass roots, though this is ad hoc. BA is increasingly using its website to reduce reliance on the state associations and facilitate communication with the grass roots.

In summary, the board tries to govern well by taking a strategic approach, while management takes an operational approach. This division of responsibilities is clearly laid down in the constitution and policy guidelines. The governance of BA has clearly moved towards the PGM, but still exhibits substantial elements of the TM.

Hockey The responses of both the President and the CEO suggest that hockey has embraced many elements of the PGM. In relation to the first element (strategic direction), the strategic plan drives the activities of the organisation. It is a rolling four-year plan reviewed at the February meeting of the Board each year. A lot of time was spent in developing it, including workshops with Council. The Council members are invited to comment and make suggestions, before the Board approves it.

There is a clear separation between the board and the executive and the fact that board members are spread around the country gives a physical and management separation (element three—clear board and executive roles). In respect to element four (governance processes), the staff prepares operational plans for key areas. Management reports directly to the board, relating matters to the strategic plan. Objectives are prepared for each Board meeting. In addition, there is a Board report produced after each meeting as a communication tool to members. There is a range of policies, including member protection, selection, anti-doping etc. which are set out on the website. The annual report to Council on the performance of the organisation addresses the strategic goals (element five—clear performance measures). It goes to the states, as the members of HA, and is a public document.

In summary, the board undertakes strategic planning, sets policies and controls the finances. The board holds regular reviews of its operations, which reflect on its success but which can be quite critical of both the board and its capacity as well as on management. The CEO and the sport are assessed against the strategic plan and its performance indicators.

Despite this, there is some dissonance at board level because each state operates separately, except for those functions given to HA by the constitution. Each state runs their own competitions, clubs and state teams. This means it is difficult to get a full national approach to the sport, which inhibits promotional opportunities. For example, HA could not offer national insurance because there was no national database. The states also undertake their own fund raising and promotions that can occasionally create conflict, since each state has their own sponsor for their national league team. Consequently the national body cannot deliver the sport nationally in a marketing sense as each state goes its own way. There are even some clubs that are not affiliated with the national body.

So, whilst hockey has embraced many elements of the PGM, the respondents suggest that there are still significant aspects of the TM in hockey. Since Board members are not all professionals and are less familiar with practices that divide responsibility there is a tendency to concentrate on operational issues, making it harder to maintain a strategic whole of sport concentration. The views of the hockey respondents supported the proposition (Hoye et al. 2009) that the TM—which separates the tasks of paid staff and volunteers, with volunteer board members being accountable for the organisation—as being the most widely used among non-profit sports organisations. There was no support for the view of those who have criticised the TM for the idealistic view that the board has ultimate responsibility (Heimovics and Herman 1990), nor the simplistic notion that the board sets policy and the staff do the work (Herman and Heimovics 1990).

Swimming At the national level, the governance of swimming is the most aligned to the PGM, and the responses from the President and the CEO were much more in concert than in the other two sports.

The Swimming Australia (SA) constitution came into effect in 2002, following an extensive governance review. This was a much more detailed document than the previous constitution, and clearly lays out the role of members, board and management (element three—clear board and executive roles). A full range of policies (element four—governance processes) that govern decision making and sets out roles and responsibilities was introduced including a code of ethics, a members' protection policy, privacy policy, rules relating to selection, events and facilities, and position statements for committees and directors.

The States exist in their own right but, as members, elect the board of SA. However, the election of the board is not on a state basis, with the result that there has been a preponderance of eastern seaboard members. The states have their own councils, composed of their member clubs and run their own individual competitions or programs by delegation from SA.

The board sets national policy and produces a strategic plan for the whole sport that identified the key strategic issues (element one—strategic direction) and set key performance indicators (element five—clear performance measures). The four priority areas in the strategic plan are:

1. High performance;
2. Sport performance (building the club base and strengthening the sport);
3. Business development (includes enhancing the brand to leverage commercial opportunities, improving the effectiveness of marketing, provide better commercial outcomes, event management and develop effective relationships with government); and
4. People development (strengthen the network of volunteers, coaches, administrators etc.).

Board meetings are structured round the plan and this has helped to maintain direction and made board meetings much more effective. The annual report is also linked closely to the strategic plan so reporting is based on measurement of performance against the performance indicators.

There are clear board and executive roles (element three). This includes an operational plan for its own staff. For example, the board appoints the CEO but the CEO is not a member of the board. The constitution defines their role, which is to run the organisation and report to the board. The constitution allows the board to delegate its powers.

There are also well-defined governance processes (element four). In the previous constitution, board members represented states and, as board members, had a separate vote in board elections, which meant very little turnover in board members. Previous boards had been composed of swimmers with various levels of success. Now, along with encouraging more candidates with business experience to stand for election (some still with swimming backgrounds), the board has the ability to appoint members with particular skills, resulting in a much more competent board. Many board members now have tertiary qualifications, with a number being CEOs of large corporations. All have experience in business or government which gives them experience of strategic planning and business operations, as well as high level commercial contacts in some cases.

In summary, in relation to criticism of the PGM model (Fletcher 1999, p. 437) for its 'idealised view of the board, operating above the messiness of the board–executive relationship as it really exists in non-profit organizations', we found no responses to support what might be called a 'messy' board–executive relationship. The criticism that the PGM does not address the board's role in fundraising and managing external relationships are not valid in the sense that we found that boards in general did perform this key role. On the criticism that in the PGM the CEO is subordinate to the board, we would have to agree this is the case in the technical sense under the respective constitutions, but in none of the sports was the CEO treated as a 'subordinate', nor was the board alone expected to set the parameters.

Executive led model (ELM)

As discussed earlier the three elements of the ELM are that the executive has: better information, a leadership role, and responsibility for performance. However, there is little in the responses that would suggest that the ELM is the centrepiece of sports governance in Australia.

In bowls, there are just a few traces of the ELM at work. At the NSO level, whilst the board sees its job as essentially promoting the sport and reviewing its direction as per the PGM model, the CEO carries out the strategic planning, although the plan was discussed at a number of workshops and by the board. The plan has Key Performance Indicators (KPIs) and the board reviews one aspect of the plan at each meeting, as per element five of the PGM.

In another example, in one bowls SSO, the previous CEO had been in office for many years, and the new CEO pressed for the respective board to commit to a strategic plan. The presence of an incumbent CEO for a long period of time had the potential for elements of the ELM model to surface, but this now appears to be the exception rather than the rule. The agitation of the new CEO could easily be misinterpreted as the CEO exerting a leadership role—element two of the ELM. So, the interviews did not reveal evidence of the ELM having much influence in hockey or swimming and its influence in bowls seems very limited.

In summarising which of these three governance models apply, at the national level, there is a consensus among the three sports that the PGM is probably the best suited for achieving sustainability goals, but the differences in structural characteristics between the different sports appear to have made it difficult for some sports to adopt all elements of the PGM. Swimming has moved noticeably towards the PGM, but the NSOs of both bowls and hockey have retained some elements of the TM, for example, in the makeup of their respective boards. There is some frustration with the makeup of the board in both sports, in the sense that they would like members with more specific skills. However, the Presidents seemed to be on the whole less concerned than the CEOs which might reflect a level of board tension between the desire for inclusiveness by the Presidents and the need for more specific market-oriented skills in the view of the CEOs.

As we move to the SSOs, the influence of the PGM becomes less and less leaving the TM more prominent at this level, whilst at the local (club) level the TM still dominates. So, to summarise the discussion below, in all three sports although elements of the ELM may be present (executive having more information, providing a leadership role and being responsible for performance), the TM and PGM have more influence and the levels of integration of governance structures within the individual sports seem to be crucial in deciding whether the TM or PGM holds more sway.

Conclusion

The interviews revealed the key governance indicators that most affect sustainability are: identification, consultation and participation of stakeholders; access to and timely disclosure of information; fair and ethical decision-making, corporate social responsibility and codes of conduct; principal board responsibilities; competency/experience and skills of directors; and that board and management roles be distinguished and specified.

Based on the information gathered from the interviews, we conclude that: (1) sport does not seem to be a 'special case' in terms of governance in comparison to the broader business sector (including not-for-profit), and (2) there does seem to be some indication that generic models of governance do seem to have more influence in Australian non-profit sports organisations.

In all three sports considered, at the NSO level there has been a partial move away from the TM towards the PGM and this is most pronounced in swimming. These changes mirror the broader changes in governance in the corporate and non-profit sectors. At the SSO and the club level, the TM is more dominant. Indeed at the local level the responses are consistent with the views of (Houle 1997), that the models are more relevant to those organisations governed by boards which employ a paid executive and staff, rather than those with a collective and informal structure.

However, there is little evidence of the ELM having much traction, even at the NSO level. Whilst it may be that the executive has more information, provides a leadership role and is responsible for performance, in all three sports, it is the board that is always ultimately responsible for the strategic direction and performance of the sport.

At the NSO level in particular, both bowls and hockey are a mixture of the TM and the PGM. Swimming at the NSO level has clearly moved towards the PGM. The new constitution of SA allows the board considerable latitude, as it is flexible, but spells out clearly the roles of the board and management. The national board makes policy and this filters down to the clubs.

So what drove swimming to move towards the PGM? All of these sports fall into a kind of cluster. None of the three sports has a weekly or even monthly significant free-to-air presence (despite some major swimming meets being televised in the course of a year), yet all are large participatory sports. It would appear from NSO interview responses that the desire for more television coverage was a prime motivating force from within swimming that led to the adoption of the PGM. SA is now a company limited by guarantee, having changed from an incorporated association in 2004. The change came about as a result of negotiating a contract for TV rights. It was necessary to lift the standard of event management and it needed full control over all aspects of the presentation, including promotions. For example, event managers therefore now act for SA, according to SA requirements such as having sponsors' logos on official uniforms. SA has complete control over national championships, qualification events for Olympic and Commonwealth Games, invitational international meets, grand prix and world cup events in Australia. The states run their own championships and age events on their own without SA involvement, but these are not televised under the national arrangement.

Then, why have both bowls and hockey been slower at the NSO level than swimming to make the full transition from the TM to the PGM? A major inhibiting factor for hockey is that HA cannot deliver the whole sport because of state influence. Whilst hockey is publicly accepted as a very successful Olympic sport, as discussed earlier, HA acknowledges that hockey is a difficult sport to televise, with the state-based nature of the sport and the inability to offer a national product nominated as major factors holding back the sport. In the view of HA, constitutional reform would help to break down state influence and is needed, although the difficulties associated with this should not be under estimated. One SSO respondent seemed resigned to the belief that hockey was a specialised sport with rules that are hard for non-players to understand, difficult and expensive to televise, and therefore unlikely ever to have a major following.

Both bowls and hockey first had to amalgamate their men's and women's bodies (which occurred in 2002 in the case of bowls and 2001 in the case of hockey). This was no doubt a cause for board tension and would have needed to be widely accepted before the next step of granting greater power to their respective NSOs relative to the SSOs under a swimming-like PGM. This dilemma of whether to sacrifice degrees of autonomy at lower levels in return for the prospect of greater commercial or market-oriented success, especially in terms of telegenic appeal, is we suspect likely to be prevalent in other sports in Australia and overseas. As sporting organisations strive to meet their sustainability objectives in increasingly competitive sport/

leisure environments these tensions and dilemmas will probably become sharper. It would seem that the more a sport pursues a market-oriented commercial strategy the more likely it is that its governance structures will tend towards a PGM.

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Part III
Human Capital and Labor Issues

Does Educational Background Affect Performance and Second Careers of Athletes? Empirical Analysis of Japanese Professional Baseball Players

Takashi Saito

Abstract This chapter analyzes whether players' educational background affect their salary, performance, and second career using Japanese professional baseball player. First, the results obtained from an estimation of a Mincer-type annual salary function showed that the coefficients of educational background and school record are significant and positive, even when other factors were controlled. Second, the results of our probit or OLS (ordinary least squares) show that players who graduate or drop out of the university have higher probability of success as player than high school graduates after controlling for their ability. Last, it is found that players who graduate or drop out of the university tend to be coaches of professional baseball team after retiring.

Introduction

In many countries, an educational background with a university degree is a passport to employment at good companies, at high wages, and with promotion prospects. In particular, Japanese society is a "school-record society" in which even, given the same educational background and year of university graduation, people who graduate from prestigious universities receive more benefits. In contrast, in the world of professional sports, could educational background or school record be a condition for success as a player? Or is it a world in which physical abilities are definitely all-important, with educational background and school records relegated to irrelevance? Does educational background or a school record affect the probability that players become leaders of professional sports after retirement? Alternatively, do past achievements as a player come first; does educational background or school record mean little for ascension to leadership? This chapter presents an investigation of how educational background and school record affect the performance as a player and his second career, using the data of players of professional baseball, which has the longest history and the highest popularity in the world of professional sports in Japan.

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Many high school graduates among the current players who achieved a high level of performance in Japanese professional baseball and afterward are playing an active part in the Major Leagues. The most notable examples are Ichiro Suzuki (New York Yankees), who has made 4000 combined hits in Japan and the USA, and Yu Darvish (Texas Rangers), who won the American League title for most strikeouts in the 2013 season. Furthermore, among retired players, Hideo Nomo[1], who produced good results mainly for the Los Angeles Dodgers, and Hideki Matsui[2], who made a spectacular showing for the New York Yankees, are both high school graduates with no experience in higher education. Furthermore, regarding Japanese professional baseball, Masahiro Tanaka[3], the key player of the 2013 Champion Rakuten Eagles who achieved a professional baseball record for 24 consecutive victories during that season, is a high school graduate. Presenting a contrast are players such as Yuki Saito, who was Tanaka's rival in high school baseball. He became the winning pitcher after having defeated Tanaka's team in the 2006 National High School Baseball Championship. Saito went on to a prestigious university in Japan, Waseda University, and played an active part in university baseball. Although later joining the Nippon-Ham Fighters and becoming a professional baseball player, he suffered from injuries and made a poor showing. Of course, numerous excellent players have graduated from universities, but many players, who are setting historical records and producing good results in the Major League Baseball (USA), are high school graduates with no university experience.

The number of players who join a professional team after having gone to university has now reached nearly half of all new players, which suggests that benefits of going to a university exist just as they do in other professions. Moreover, few universities produce many great professional baseball players, perhaps because of the influence of the school record in addition to educational background. Furthermore, the vast majority of leaders of professional baseball, particularly managers, are those who graduated from a university[4]. Moreover, they tend to come from several particular universities. That is to say, something like *old-boy networks* have formed in the world of Japanese professional baseball. Therefore, it can be inferred that people who have graduated from prestigious universities have some advantage in becoming leaders of baseball.

Then, how does one's educational background and school record affect performance as a professional baseball player? Can it be measured after factors other than educational background and school record are excluded? Furthermore, how

[1] Nomo played in amateur baseball for 2 years after graduating from high school, and joined a professional baseball team. He participated in the 1988 Seoul Olympic Games as an amateur baseball player, where Japan won a silver medal. Nomo won the Rookie of the Year award and recorded the most strikeouts (twice) in the US Major Leagues.

[2] Matsui won the World Series MVP in 2009

[3] Tanaka finished the 2013 season with an undefeated record. The 24 wins are the most wins in 2013, and the most wins with no loss is the first in the Japanese professional baseball history. In addition, he won the titles for best ERA and the first win rate.

[4] We use "graduate" regardless of whether the player won a bachelor degree or he dropped out university because of lack of the information in many cases.

does educational background and school record affect the probability of becoming a leader after retirement, even after factors such as the record of performance as a player are excluded? We clarify these points through empirical analyses explained in this chapter.

The remaining structure of this chapter is as follows. First, we examine the educational background and school record for professional baseball players and leaders in a theoretical manner. Then, we assess data related to the educational background structure of professional baseball players. After that, we analyze the determining factors of annual salary, and investigate the influence of educational background and school record on annual salary. We then examine whether educational background and school record affect success as a player. In the penultimate section, we assess whether university graduates have an advantage over high school graduates in terms of becoming leaders in professional baseball, even after various aspects, including a record-of-performance as a player, other than educational background are considered, in addition to whether people graduated from prestigious universities have some advantage or not. Conclusions round out the chapter.

Educational Background of Players and Leaders of Professional Baseball

In the world of professional baseball, where talent and real ability appear to be important, if educational background and school record have some meaning, what is the reason for it? As a clue to consideration of that question, one can consider how athletes make decisions about whether to attend university or not. There is an expected earnings path going pro out of high school compared to the expected earnings path going to college first and then continuing onto a pro career. The main differences, of course, are: (1) the training is different through the collegiate experience, and (2) the additional cost and benefit of the non-sport educational component occur with the collegiate experience only.

Focusing first on the training difference, when attending a prestigious university, they will join and practice with the baseball team of the university, and will build their skills by competing in the games of university baseball leagues. However, it is impossible for them to concentrate on baseball because they must also devote their energy to their studies, such as attending lectures. If they are eligible to become professional baseball players at the time of high school graduation, not studying at a university can provide a better environment to improve their baseball skills because they will be able to concentrate on baseball and will be taught by first-class players and coaches.

Turning to the second difference, one benefit of going to university is a higher wage, generally, in the event that athletic pursuits come up short. According to the Organization for Economic Cooperation and Development (OECD 2013), for men aged 25–64 years in Japan, the wages for workers who graduated from university are 39 % higher, on average, than those of workers who graduated from high school

(2007 data). Compared to the average of 62 % in OECD countries (2011 data), the wage differential is small. However, if the differential is greater than the costs associated with going to university, then going to university is worth it. Furthermore, the OECD (2011) estimates that, for men aged 25–64 years in Japan, the unemployment rate for high school graduate workers is 6.4 %, whereas that for university graduate workers is 3.1 %, which is considerably low.

On the cost side, there are direct expenses related to university study, such as tuition fees, books and material fees, and commuting expenses. In Japan, the percentage of private spending on higher education is 65.6 %, which is much higher than the 31.6 % of all OECD countries. Furthermore, the annual expenses per student for higher education are US$ 16,015, which is higher than the OECD average of US$ 13,528. Based on these results, the costs of university attendance are said to be higher than those of OECD countries (both are data of 2010). In terms of the costs, for people who play an active part in high school baseball, the possibility exists that tuition, which accounts for a large part of the costs, can be waived. This reduces the costs of attending university and increases the *net* benefits, but it would not be a substantial amount compared to the high salaries that they could earn after achieving success. In addition, the opportunity costs must be considered. In other words, because people cannot work full-time for 4 years while studying at a university, the costs must include the wages of the 4 years that people would have gained if they had a job after graduating from high school (future earnings).

Furthermore, the retirement age is early in the world of sports, including professional baseball, for which physical abilities are important. Differing from other professionals, it only rarely happens that people continue to work up to 60 years on the active list. Meanwhile, the age at which people display their ability is also early. Therefore, for players who know they are talented while still young, it might be rational that they become a professional player immediately after high school graduation, not going to university, and earn salaries by producing good results for many years. However, high school graduate players are often employed not because they are valued for their immediate ability to contribute to a team; their potential is evaluated. In such a case, they will spend several years at the farm and take training after joining a team. Their annual salaries are also much lower than those of players in the first team[5].

To sum these up, from the perspective of cost–benefit analysis, there seems to be no reason to go to university if they already have the prospect of being accepted as a professional at the time of high school graduation. However, not even talented players are always successful; injury and other obstacles arise. In addition, even if they have succeeded as professionals, it is important to secure various alternatives in life

[5] The lowest annual salary guaranteed to first-team players is 15 million Yen, while farm players get 4.4 million Yen. While first-team annual salaries rise according to performance, even if farm players do well they are unlikely to be paid over 10 million Yen. The exception is the case of players who were picked in earlier rounds of a draft. They sometimes earn 15 million Yen in the first year at the farm but if they are unable to make the first team within a few years, their annual salaries will drop. When farm players are promoted to the first team in the middle of a season, their first-team annual salary is pro-rated by the day.

after retirement. Particularly, in the case of getting a job in a profession that is not directly related to the sports after having finished their sports career, there are some cases in which the explanations of generally well-known human capital theory and signalling theory are applicable, just as they are to people other than athletes. For such a reason, players who seem to have reached the level of professionals at the time of high school graduation often go to a university instead.

Regarding life after retiring as a baseball player, the preferred career is to become a leader of a professional baseball, such as a manager or a coach. In this case, the university graduate qualification is not necessarily required. Rather, it is extremely important to have achieved excellent performance in one's competitive career to become a leader. In professional baseball, star players often suddenly become a first-team manager with almost no experience of being a leader such as a coach or a farm manager. The reason for that might be because business comes first. More value is placed on popularity than one's actual ability as a leader. However, if a person lacks the ability to be a leader, then the risk exists that the team's performance will decline because of their poor command. Even if a popular manager heads a team, except for some teams with numerous enthusiastic fans, not many spectators come to see games played by a weak team. Another reason might be that players who receive coaching are more likely to be willing to accept advice from managers or coaches who have achieved excellent performance as a competitive player.

However, the leadership ability does not always correspond to the ability as a player. In addition to giving players sound advice related to techniques and conditions, coaches serve a role as a middle manager that stands between a manager and players. Managers must win through a pennant race making full use of the given fighting power. If they are able to participate in a postseason tournament, the task of avoiding a quick playoff exit is added to their work. The main jobs for them are the preparation of strategies and tactics and human resource management. In Japan, teams most often did not have a general manager. The manager himself organized his team for a long time. A few teams have introduced a general manager. Both jobs are similar to managerial positions in general professions. Therefore, becoming a leader is regarded to be easily influenced by one's educational background and school record compared to achieving satisfactory results as a player.

The empirical work to date concerns only differential playing/earnings outcomes from the alternative choices of pro out of high school versus college. There is no work on the transition to coaching. First, there are empirical studies of US Major League Baseball data by Olbrecht (2007), Winfree and Molitor (2007), and Olbrecht and Bloom (2009). Using a sample of free agents, the former showed that players who graduated from university sign contracts with higher annual salaries. The second estimates the expected lifetime earnings of drafted players who enter professional baseball immediately after high school and who go to college, respectively. The results suggest that players drafted in the early rounds will maximize their lifetime earnings by entering professional baseball while players drafted in the lower rounds will maximize it by going to college. The last report describes that no significant difference was found between university graduates and high school graduates in terms of annual salary, using a sample from which pitchers had been excluded.

Higuchi (1993), who used data of Japanese professional baseball, made a simple comparison between the annual salaries of university graduates and those of high school graduates, showing that the former was 1.5 times higher than the latter. However, considering the variance in those results, the difference was not significant. The results described above revealed that the wage differentials between the educational backgrounds disappear when the results and the record of performance are considered. In addition, the data for Japan suggest that university graduates are more likely to achieve higher results and better performance than high school graduates.

Educational Background Structure of Professional Baseball Players and Coaches

Next, we scrutinize the educational background structure of Japanese professional baseball players. Before that, the educational background structure of general workers must be confirmed for comparison. According to OECD (2013), 44 % of people aged 25–64 years in Japan completed some level of higher education, which is higher than the average of 31 % in OECD countries (2011 data). The rate of attending some college courses was 52 % in 2011, which was below the OECD country average of 60 %.

The educational background structure of professional baseball players shows that, as of the 2011 season, 718 players on the active list had joined a professional baseball team via the draft. Of those, 352 people, who account for 49.2 %, were university graduates. Careful attention must be devoted to interpretation of the figures because, along with dropouts, they include many people in their 20s and 30s who are in the generation with a considerably higher university-attendance rate, which resulted from using data of current players. Nonetheless, it is apparent that the ratio of university graduates among professional baseball players is almost equal to that of general workers. When retired players are included, of 3168 players who joined a team by being picked in the drafts between 1965 and 2010, 34.4 % are university graduates. As described above, the educational background structure of professional baseball players was almost identical to that of general workers. The discussion presented in the previous section argued that when people had the actual ability to be accepted as a professional baseball player, the benefits of going to the university were slight. Still, many people go to universities. The reason might be that few players have reached the professional level by the time of high school graduation.

Next, the universities from which professional baseball players graduated are as shown in Table 1. Hosei University holds the first place followed by Waseda University. The third is Komazawa University. This should not be surprising. As name brand universities in the baseball world, the Tokyo Big Six (The University of Tokyo, Waseda University, Keio University, Meiji University, Rikkyo University, and Hosei University) can be described as holding first place. The origin is a competitive game first held between Waseda University and Keio University in 1903.

Table 1 Colleges rankings of NPB players

Ranking	Name of university	Number of players produced
1	Hosei University	78
2	Waseda University	62
3	Komazawa University	57
4	Meiji University	47
5	Kinki University	46
6	Asia University	45
7	Chuo University	44
8	Tohoku Fukushi University	40
8	Toyo University	40
10	Tokai University	39
11	Aoyama Gakuin University	35
12	Nihon University	34
13	Senshu University	28
14	Ritsumeikan University	21
15	Keio University	20
15	Rikkyo University	20

Table 2 Colleges rankings of NPB managers

Ranking	Name of university	Number of players produced
1	Meiji University	26
2	Waseda University	25
3	Keio University	21
4	Hosei University	17
5	Rikkyo University	9
6	Komazawa University	5
7	Chuo University	4
8	Senshu University	3
8	Nihon University	3
8	Kansai University	3
8	Ritsumeikan University	3

In 1925, six universities joined to form a league with matches having the longest history in Japan. In addition, these universities are known as prestigious universities with a high degree of difficulty for admission. The Tokyo Big Six has produced a total of 231 players, accounting for 21.1 % of all university graduate players, which demonstrates the influence of the school record.

Regarding leaders, first we inspect the data related to managers. In the history of professional baseball, for which pennant races began in 1936, 208 experienced people worked as a manager (including an interim manager). Of those, except for 198 people, who were educated in schools abroad such as foreigners, 132 were university graduates accounting for 67 %. Previous professional baseball managers graduated from universities as shown in Table 2. It is apparent that many managers have come from the Tokyo Big Six, except The University of Tokyo, and

Table 3 Colleges rankings of NPB coaches

Ranking	Name of university	Number of players produced
1	Hosei University	26
2	Waseda University	19
3	Chuo University	17
3	Komazawa University	17
5	Meiji University	15
6	Toyo University	11
7	Tokai University	10
8	Asia University	8
9	Aoyama Gakuin University	7
10	Senshu University	6
11	Keio University	5
11	Rikkyo University	5
11	Nihon University	5
11	Kokushikan University	5

particularly from the following three universities: Meiji University (26), Waseda University (25), and Keio University (21), but followed by Hosei University (17) and Rikkyo University (9). There were 98 managers who graduated from the Tokyo Big Six, accounting for an overwhelming majority with 74 % of the university graduate managers.

Then, we examined the data of coaches. There were 493 people who joined a team by being picked during the drafts of 1965–2010 who became coaches after retirement, of whom 206 (41.2 %) were university graduates. The ratio is lower than that of managers. The data of universities from which they graduated are presented in Table 3. Hosei University is the first, followed by Waseda University. Third are Chuo University and Komazawa University, which are, as described above, similar to the universities from which players graduated. The 71 people who graduated from the Tokyo Big Six accounted for approximately one-third. Results show that the ratio occupied by people who graduated from the Tokyo Big Six among manag ers and coaches was higher than that for professional baseball players. Therefore, it appears that leaders are more likely to be affected by a school record than players.

Influence of Educational Background and School Record on Annual Salary

How do educational background and school record affect one's economic outcome and performance as a player? We first examine the influence on annual salary and turn to performance in the next section. If the educational background has caused annual salary differentials, it suggests that the advantages of going to a university are great. We use the annual salary data of 2008 and 2013 for the analysis here.

As the estimated equation, we employ a Mincer-type wage function, which is used to examine how education affects wages in labor economics (Mincer 1974);

the logarithmic value of the annual salary is used as the dependent variable. Fort (1992) estimated a similar salary function using the MLB data. Even though he did not investigate the effects of education on salary, he improved the specification of the salary function of professional baseball players. We use age, years of experience in professional baseball, and college dummy as major explanatory variables. In addition, the previous year's results and dummies for the team to which they belong are used as factors affecting annual salary. The index of the results differs between pitchers and fielders. For pitchers, appearance, wins, saves, inning pitch, and earned run average (ERA) are used. For fielders, games played, home runs, runs batted in (RBI), and batting average are used. After dividing the sample into pitchers and fielders, we conduct our estimation. Furthermore, to investigate the school-record effects, we divide universities into groups and make dummy variables for each. Although there are many ways to group universities, here we divide them into the following six groups[6] only in relation to baseball: (1) Tokyo Big 6 Baseball League (BIG6), (2) Tohto University Baseball League (TOHTO), (3) Tokyo Metropolitan Area University Baseball League (SBBL), (4) Kansai 6 University Baseball League (KAN6), (5) Kansai Big 6 Baseball League (KBIG6), and (6) Other universities (OTHERUNIV).

The descriptive statistics of the data used are as shown in Tables 4 and 5. The results of the estimation are as presented in Table 6. The dummy for university graduation was significant and positive for all cases. Compared to high school graduates, the annual salaries for university graduates are about 25 % higher for fielders and about 20 % higher for pitchers. Examining universities by group, fielders who graduated from BIG6, TOHTO, SBBL, and KBIG6 earn significantly (about 28 %) higher annual salaries than high school graduates. Furthermore, people who graduated from OTHERUNIV earn significantly (about 20 %) higher annual salaries. Pitchers who graduated from BIG6, TOHTO, and SBBL earn significantly (20–37 %) higher annual salaries than high school graduates. In addition, OTHERUNIV had a significant and positive coefficient in the panel data. We obtained these outcomes after having controlled the results. The outcomes differ from those of a study by Higuchi (1993), who used the same Japanese professional baseball data. However, Higuchi

[6] Universities belonging to each group are as follows: (1) The University of Tokyo, Waseda University, Keio University, Meiji University, Hosei University, and Rikkyo University; (2) Toyo University, Aoyama Gakuin University, Asia University, Chuo University, Komazawa University, Nihon University, Kokugakuin University, Tokyo University of Agriculture, Kokushikan University, Rissho University, Takushoku University, Senshu University, Taisho University, Gakushuin University, Juntendo University, Sophia University, Seikei University, Shibaura Institute of Technology, Hitotsubashi University, Tokyo City University, and Tokyo Institute of Technology; (3) Tokai University, Teikyo University, Nippon Sport Science University, Daito Bunka University, University of Tsukuba, Meisei University, Josai University, Ashikaga Institute of Technology, University of Creation—Art, Music & Social Work (Sozo Gakuen University), Tokyo Keizai University, Dokkyo University, Musashi University, Meiji Gakuin University, J. F. Oberlin University, Tamagawa University, and Seijo University; (4) Kobe Gakuin University, Ryukoku University, Kyoto Sangyo University, Osaka Gakuin University, Osaka University of Economics, and Osaka University of Commerce; (5) Kansai University, Kwansei Gakuin University, Kyoto University, Kinki University, Doshisha University, and Ritsumeikan University.

Table 4 Variable means and standard deviations (salary functions, pitcher)

	2008						2013					
	Full sample		No college		College		Full sample*		No college		College	
Variable	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Salary	4724.101	6421.214	4516.165	5523.398	4895.440	7093.687	4819.362	6945.718	5575.734	8598.939	4204.104	5185.299
Age	28.526	4.503	28.252	5.289	28.752	3.741	23.749	4.715	27.651	5.512	29.642	3.740
Tenure	7.092	4.475	8.534	5.201	5.904	3.354	7.490	4.423	8.367	5.102	6.776	3.649
UNIV	0.548	0.499	–	–	–	–	0.551	0.498	–	–	–	–
BIG6	0.083	0.277	–	–	0.152	0.360	0.086	0.282	–	–	0.157	0.365
TOHTO	0.162	0.370	–	–	0.296	0.458	0.152	0.360	–	–	0.276	0.449
SBBL	0.035	0.184	–	–	0.064	0.246	0.025	0.156	–	–	0.045	0.208
KAN6	0.026	0.160	–	–	0.048	0.215	0.016	0.128	–	–	0.030	0.171
KBIG6	0.057	0.232	–	–	0.104	0.306	0.045	0.208	–	–	0.082	0.276
OTHERUNIV	0.184	0.389	–	–	0.336	0.474	0.226	0.419	–	–	0.410	0.494
Amatetur baseball	0.386	0.488	0.398	0.492	0.376	0.486	0.350	0.478	0.294	0.458	0.396	0.491
Transefer	0.057	0.232	0.078	0.269	0.040	0.197	0.066	0.249	0.073	0.262	0.060	0.238
Games	23.228	18.305	21.107	16.369	24.976	19.652	21.486	19.047	21.165	18.729	21.746	19.368
Wins	3.132	3.741	3.155	4.184	3.112	3.349	2.663	3.577	3.037	4.057	2.358	3.115
Saves	1.246	6.022	0.738	4.792	1.664	6.864	1.198	5.127	1.284	5.469	1.127	4.850
Innings	55.129	53.072	54.605	57.396	55.560	49.457	50.684	51.718	54.429	55.885	47.637	48.061
Earned run average	5.173	6.261	5.412	6.350	4.976	6.205	3.866	3.027	3.733	2.963	3.973	3.086
Hawks	0.088	0.284	0.087	0.284	0.088	0.284	0.078	0.269	0.092	0.290	0.067	0.251
Fighters	0.079	0.270	0.087	0.284	0.072	0.260	0.078	0.269	0.046	0.210	0.104	0.307
Lions	0.088	0.284	0.097	0.298	0.080	0.272	0.082	0.275	0.073	0.262	0.090	0.287
Braves	0.083	0.277	0.068	0.253	0.096	0.296	0.095	0.293	0.101	0.303	0.090	0.287
Eagles	0.083	0.277	0.097	0.298	0.072	0.260	0.086	0.282	0.073	0.262	0.097	0.297
Mariens	0.057	0.232	0.078	0.269	0.040	0.197	0.086	0.282	0.073	0.262	0.097	0.297
Dragons	0.088	0.284	0.078	0.269	0.096	0.296	0.091	0.288	0.083	0.277	0.097	0.297
Swallows	0.079	0.270	0.049	0.216	0.104	0.306	0.074	0.262	0.101	0.303	0.052	0.223
Giants	0.088	0.284	0.078	0.269	0.096	0.296	0.074	0.262	0.083	0.277	0.067	0.251
Tigers	0.088	0.284	0.087	0.284	0.088	0.284	0.082	0.275	0.064	0.246	0.097	0.297
Carp	0.083	0.277	0.097	0.298	0.072	0.260	0.082	0.275	0.110	0.314	0.060	0.238
Baysters	0.096	0.296	0.097	0.298	0.096	0.296	0.091	0.288	0.101	0.303	0.082	0.276
Number of observations	228	–	103	–	125	–	243	–	109	–	134	–

Table 5 Variable means and standard deviations (salary functions, nonpitcher)

	2008						2013					
	Full sample		No college		College		Full sample		No college		College	
Variable	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Salary	4989.425	7531.421	4571.185	6633.690	5437.540	8391.471	4457.164	6403.224	3800.537	4820.254	5279.328	7899.743
Age	29.437	4.457	28.956	4.831	29.952	3.972	29.444	5.134	28.638	5.525	30.454	4.416
Tenure	8.847	4.706	10.237	4.939	7.357	3.949	9.205	5.049	10.181	5.284	7.983	4.468
UNIV	0.065	0.247	0.067	0.250	0.063	0.245	0.049	0.215	0.047	0.212	0.050	0.220
BIG6	0.483	0.501	–	–	–	–	0.444	0.498	–	–	–	–
TOHTO	0.084	0.278	–	–	0.175	0.381	0.056	0.230	–	–	0.126	0.333
SBBL	0.169	0.375	–	–	0.349	0.479	0.153	0.361	–	–	0.345	0.477
KAN6	0.034	0.183	–	–	0.071	0.259	0.041	0.199	–	–	0.092	0.291
KBIG6	0.015	0.123	–	–	0.032	0.176	0.011	0.105	–	–	0.025	0.157
OTHER UNIV	0.050	0.218	–	–	0.103	0.305	0.045	0.207	–	–	0.101	0.302
amatetur baseball	0.130	0.337	–	–	0.270	0.446	0.138	0.346	–	–	0.311	0.465
Transefer	0.218	0.414	0.163	0.371	0.278	0.450	0.179	0.384	0.134	0.342	0.235	0.426
Games	63.805	48.676	61.378	48.377	66.405	49.053	62.922	44.397	61.181	44.044	65.101	44.926
Home runs	3.958	7.196	3.578	7.019	4.365	7.388	2.172	4.013	2.020	4.044	2.361	3.982
Runs batted in	19.291	25.195	18.896	25.332	19.714	25.142	14.597	18.602	13.671	17.911	15.756	19.446
Batting average	215.571	88.876	212.289	88.865	219.087	89.108	213.642	79.771	211.054	82.842	216.882	75.973
Hawks	0.088	0.284	0.104	0.306	0.071	0.259	0.075	0.263	0.094	0.293	0.050	0.220
Fighters	0.073	0.260	0.081	0.275	0.063	0.245	0.086	0.281	0.094	0.293	0.076	0.266
Lions	0.100	0.300	0.126	0.333	0.071	0.259	0.090	0.286	0.114	0.319	0.059	0.236
Braves	0.084	0.278	0.059	0.237	0.111	0.316	0.086	0.281	0.067	0.251	0.109	0.313
Eagles	0.088	0.284	0.089	0.286	0.087	0.283	0.078	0.269	0.060	0.239	0.101	0.302
Mariens	0.073	0.260	0.089	0.286	0.056	0.230	0.075	0.263	0.060	0.239	0.092	0.291
Dragons	0.088	0.284	0.104	0.306	0.071	0.259	0.090	0.286	0.107	0.311	0.067	0.251
Swallows	0.077	0.267	0.059	0.237	0.095	0.295	0.082	0.275	0.081	0.273	0.084	0.279
Giants	0.073	0.260	0.059	0.237	0.087	0.283	0.082	0.275	0.067	0.251	0.101	0.302
Tigers	0.088	0.284	0.052	0.223	0.127	0.334	0.090	0.286	0.081	0.273	0.101	0.302
Carp	0.084	0.278	0.074	0.263	0.095	0.295	0.090	0.286	0.087	0.283	0.092	0.291
Baysters	0.084	0.278	0.104	0.306	0.063	0.245	0.078	0.269	0.87	0.283	0.067	0.251
Number of observations	261	–	135	–	126	–	268	–	149	–	119	–

Table 6 Salary functions

	Nonpitcher				Pitcher			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Pooled-OLS		Random effect		Pooled-OLS		Random effect	
Age/10	0.226 (1.037)	0.231 (1.056)	0.226 (1.128)	0.231 (1.145)	0.366* (1.871)	0.346* (1.751)	0.366* (1.870)	0.346* (1.760)
Tenure/10	0.549** (2.563)	0.544** (2.518)	0.549*** (2.718)	0.544*** (2.670)	0.443** (2.142)	0.450** (2.158)	0.443** (2.185)	0.450** (2.213)
UNIV	0.255*** (2.664)	– –	0.255*** (2.833)	– –	0.191** (1.968)	– –	0.191** (2.013)	– –
BIG6	– –	0.280** (2.559)	– –	0.280** (2.540)	– –	0.258** (2.143)	– –	0.258** (2.130)
TOHTO	– –	0.277** (2.558)	– –	0.277*** (2.790)	– –	0.200* (1.900)	– –	0.200* (1.869)
SBBL	– –	0.287** (2.150)	– –	0.287** (2.128)	– –	0.372** (2.208)	– –	0.372** (2.328)
KAN6	– –	0.236 (1.100)	– –	0.236 (1.282)	– –	0.0364 (0.266)	– –	0.0364 (0.203)
KBIG6	– –	0.270*** (2.605)	– –	0.270** (2.222)	– –	0.107 (0.817)	– –	0.107 (0.780)
OTHERUNIV	– –	0.202** (1.966)	– –	0.202** (1.988)	– –	0.175 (1.640)	– –	0.175* (1.701)
Amatetur baseball	0.167 (1.269)	0.165 (1.241)	0.167 (1.477)	0.165 (1.443)	0.196* (1.771)	0.198* (1.776)	0.196* (1.862)	0.198* (1.875)
UNIV* amatetur baseball	−0.189 (−1.628)	−0.191 (−1.625)	−0.189* (−1.801)	−0.191* (−1.801)	−0.247** (−2.454)	−0.245** (−2.420)	−0.247** (−2.447)	−0.245** (−2.423)
Transfer	0.155 (1.585)	0.156 (1.575)	0.155* (1.873)	0.156* (1.872)	0.0558 (0.500)	0.0540 (0.484)	0.0558 (0.573)	0.0540 (0.553)
Games/100	0.777*** (9.957)	0.778*** (9.951)	0.777*** (9.870)	0.778*** (9.820)	0.908*** (6.270)	0.928*** (6.425)	0.908*** (6.007)	0.928*** (6.120)

Table 6 (continued)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Homeruns/10	−0.249**	−0.249**	−0.249***	−0.249***	–	–	–	–
	(−2.493)	(−2.480)	(−3.155)	(−3.147)	–	–	–	–
Runs batted in/10	0.237***	0.236***	0.237***	0.236***	–	–	–	–
	(7.106)	(7.019)	(8.448)	(8.372)	–	–	–	–
Batting average	0.509**	0.503**	0.509*	0.503*	–	–	–	–
	(2.486)	(2.451)	(1.889)	(1.856)	–	–	–	–
Wins/10	–	–	–	–	0.573***	0.574***	0.573***	0.574***
	–	–	–	–	(3.865)	(3.808)	(3.546)	(3.545)
Saves/10	–	–	–	–	0.377***	0.380***	0.377***	0.380***
	–	–	–	–	(8.457)	(8.250)	(8.404)	(8.386)
Innings/100	–	–	–	–	0.751***	0.750***	0.751***	0.750***
	–	–	–	–	(6.915)	(6.834)	(6.463)	(6.437)
Earned run average/100	–	–	–	–	−0.509*	−0.489	−0.509	−0.489
	–	–	–	–	(−1.653)	(−1.563)	(−1.041)	(−0.996)
Team dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	5.850***	5.835***	5.850***	5.835***	5.837***	5.874***	5.837***	5.874***
	(14.65)	(14.57)	(15.81)	(15.68)	(16.28)	(16.18)	(15.94)	(15.95)
Observations	529	529	529	529	471	471	471	471
R-squared	0.835	0.835	–	–	0.776	0.778	–	–
Number of id	–	–	396	396	–	–	361	361

Robust t-statistics in parentheses
OLS ordinary least squares
***$p<0.01$; **$p<0.05$; *$p<0.1$

used data of 1981, 1985, and 1991, which are older than the data we used for these analyses. Therefore, the possibility exists that the evaluation of educational background in the professional baseball world has changed during the last 30 years or so[7].

In terms of other variables, we obtained predictable results. Age is only positive and significant in the pitcher case, but the variable for years of experience in professional baseball is positive and significant. All indexes similarly showed that the better the results people achieve, the higher the annual salaries they earn. Although there are some indexes that are not significant, the result did not contradict to our intuition.

Effects of Educational Background and School Record on Performance

Next, we examine how educational background and school record affect the probability of being successful as a player. We use the data of 927 fielders and 949 pitchers who played at least one game for the first team. They were selected from players who were picked in drafts conducted from 1965, the year when the draft system was established, through 2010, who actually joined a team, and who had retired by the 2010 season. Therefore, we do not use the data of players who joined a team outside of the draft and who were still on the active list after 2011. We also do not process the data of training draft players this time because they are still few. With regard to the results of players, we use only the records of games of the first teams in the seasons between 1965 and 2010.

What should be regarded as "success" is a difficult question, but here we use the following two definitions from the study of Tachibanaki and Saito (2012). The first is the definition of "successful players" originally in Izumi (2008): for pitchers, "success" is at least one of pitching in 350 games, 100 wins, 100 saves, or 1000 strikeouts; for fielders, "success" is at least one of playing in 1000 games, 1000 hits, 100 home runs, or 100 steals. Those who won at least one of the following titles are also regarded as successful players: MVP, Top Nine, Rookie of the Year, Golden Glove Award (Diamond Glove prize), League leader in winsBest ERA, Most Strike Outs, Best Winning Rate, Best Pitcher, Best Relief, Best Middle Relief, Sawamura Prize, Most Holds, Leading Hitter, Home-run Leader, RBI Leader, Most Steals, and Highest OBA. This considerably restricts the definition of "success" and narrows

[7] We did a simple F-test to examine the difference of coefficients on university dummy and university league dummies using all sample. We estimate (1), (2), (5), and (6) adding dummy of year2013, year2013*univ dummy (for (1), (5)) or dummy of year 2013, year2013*university league1, …, year2013*university league6 (for (2), (6)) For pitcher case, the F-value of the former is 0.50 (p-value 0.606), the latter is 0.96 (p-value 0.457). For the nonpitcher case, the F-value of the former is 0.41(p-value 0.662), the latter is 0.23 (p-value 0.977). We could not reject the null hypothesis that there is no difference of coefficients on education dummies between 2008 and 2013.

down the people who qualify as successful. For that reason, we also use the logarithmic value of the number of games in the first team as a moderate index.

We employ these success indexes as the dependent variables of the estimated equation. The main explanatory variable is the dummy for university graduation, of which the primary purpose is to confirm the sign of its coefficient. Using the dummy variable for university groups again, we also verify the effect of school record. The ability of players at the time of joining a team is important as a factor affecting both the educational background and the success indexes, but it is difficult to measure it directly. Therefore, the following are used as proxy variables for the ability index: draft position, Koshien experience (played in the Japanese high school baseball championship), amateur baseball experience, the cross term of the dummy for university graduation and amateur baseball experience, and age. As the quality of a draft depends on the year, and as the system changes sometimes, we also control the year in which they were picked. In addition, the training and the appointment methods differ from team to team, which can affect the success indexes. Consequently, the dummy variable for the appointing team is also included in the explanatory variables. As before, the model is run separately on hitters and pitchers. As the first index is a binary variable, we run a probit estimation. For the second index, we apply OLS (ordinary least squares) estimation, regarding it as a continuous variable.

Tachibanaki and Saito (2012) performed a similar estimation. Their study included players who did not play on the first team and used the full sample of fielders and pitchers. The dummies for university graduate and university group yielded significant and positive results in most cases. This time, we make estimation by separating pitchers from fielders and by limiting the data to players who played in the first team games.

The descriptive statistics of the data that were used and the estimation results are shown respectively in Tables 7 and 8. First, in terms of the probability of becoming a successful player, which is the first definition; results show that university graduate fielders had an approximately 17 % higher probability than high school graduate fielders. Even after other factors were controlled, the success probabilities are significantly different. However, no significant difference was found in the number of games played by the first teams. The educational background dummy was not significant for pitchers.

The results obtained from grouping universities are as follows. Compared to high school graduate players, the probability of becoming a successful player as a fielder was increased about 19 % in BIG6 and about 35 % in TOHTO. The number of games played increased by 70 % in TOHTO. For pitchers, no influence was found on the probability of becoming a successful player, but the numbers of games played were higher by about 54 % in TOHTO and 72 % in SBBL. As, we did not find significant results for other university groups, one can infer that the three groups have a very high probability of producing successful players and players who play a

Table 7 Variable means and standard deviations (success functions)

	Non-pitcher		Pitcher	
Variable	Mean	Std. Dev.	Mean	Std. Dev.
Success	0.236	0.425	0.184	0.388
Games played major team (GPMT)	496.101	570.835	135.108	154.045
Age	20.668	2.619	20.756	2.620
UNIV	0.368	0.482	0.318	0.466
BIG6	0.122	0.327	0.053	0.224
TOHTO	0.128	0.335	0.102	0.303
SBBL	0.020	0.142	0.033	0.178
KAN6	0.012	0.108	0.014	0.116
KBIG6	0.026	0.159	0.035	0.183
OTHERUNIV	0.059	0.236	0.083	0.276
Amatetur baseball	0.325	0.469	0.409	0.492
Koshien(high school baseball championship)	0.481	0.500	0.353	0.478
Draft 1st round	0.119	0.324	0.275	0.447
Draft 2nd round	0.172	0.377	0.188	0.391
Draft 3rd round	0.191	0.393	0.145	0.353
Draft 4th round	0.168	0.374	0.132	0.338
Draft 5th round	0.129	0.336	0.102	0.303
Draft 6th round	0.221	0.415	0.152	0.359
Hawks	0.078	0.268	0.077	0.267
Fighters	0.077	0.266	0.090	0.286
Lions	0.087	0.283	0.072	0.258
Braves	0.079	0.269	0.090	0.286
Eagles	0.093	0.290	0.081	0.273
Mariens	0.079	0.269	0.083	0.276
Dragons	0.095	0.293	0.098	0.297
Swallows	0.081	0.273	0.090	0.286
Giants	0.088	0.284	0.075	0.263
Tigers	0.080	0.271	0.073	0.260
Carp	0.092	0.289	0.079	0.270
Baysters	0.072	0.259	0.094	0.292
Draft year	1981.765	10.927	1984.457	11.272
Number of observations	927	–	949	–

number of games. That suggests that educational background and school record are important factors for becoming successful professional players[8].

We also confirm the results of control variables. After having played amateur baseball, the probability of becoming a successful player rises significantly for fielders. The number of games played increases significantly for pitchers. However, the cross term of dummies for amateur baseball experience and university graduate is significantly negative for the success probability for fielders. People who played in the Koshien had a higher probability of becoming successful players rather than

[8] However, the possibility exists that a sample selection problem might have occurred because the data are limited to players who played on the first team.

Table 8 Success functions

	Non-pitcher				Pitcher			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Success	Log GPMT	Success	Log GPMT	Success	Log GPMT	Success	Log GPMT
	Probit	OLS	Probit	OLS	Probit	OLS	Probit	OLS
UNIV	0.173**	0.410	–	–	0.050	0.342	–	–
	(2.149)	(1.367)	–	–	(0.785)	(1.445)	–	–
BIG6	–	–	0.189**	0.520	–	–	−0.002	0.285
	–	–	(2.004)	(1.635)	–	–	(−0.020)	(0.933)
TOHTO	–		0.347***	0.698**	–	–	0.134*	0.538**
	–	–	(3.465)	(2.060)	–	–	(1.653)	(2.004)
SBBL	–	–	−0.0410	0.650	–	–	0.102	0.716**
	–	–	−0.264)	(1.546)	–	–	(0.978)	(2.220)
KAN6	–	–	–	−0.188	–	–	0.179	0.706
	–	–		(−0.265)	–	–	(1.133)	(1.423)
KBIG6	–	–	0.149	0.425	–	–	0.046	0.364
	–	–	(1.124)	(1.049)	–	–	(0.430)	(1.115)
OTHER UNIV	–	–	0.028	−0.213	–	–	−0.060	−0.096
	–	–	(0.254)	(−0.575)	–	–	(−0.861)	(−0.336)
Amatetur baseball	0.167*	0.195	0.182**	0.186	0.0825	0.668***	0.0933	0.687***
	(1.890)	(0.543)	(2.072)	(0.510)	(1.366)	(2.898)	(1.565)	(3.009)
UNIV*amatetur baseball	−0.119*	−0.284	−0.141**	−0.387	0.0263	−0.191	0.0224	−0.200
	(−1.736)	(−0.897)	(2.104)	(−1.210)	(0.393)	(−0.804)	(0.337)	(−0.839)
Draft 2nd round	−0.0815*	−0.661***	−0.0752	−0.630***	−0.102***	−0.418**	−0.102***	−0.420**
	(−1.668)	(−3.479)	(−1.513)	(−3.365)	(−3.203)	(−2.521)	(−3.217)	(−2.489)
Draft 3rd round	−0.146***	−0.837***	−0.144***	−0.814***	−0.128***	−0.435**	−0.128***	−0.426**
	(−3.116)	(−4.270)	(−3.039)	(−4.173)	(−3.736)	(−2.447)	(−3.765)	(−2.371)
Draft 4th round	−0.178***	−1.095***	−0.177***	−1.037***	−0.163***	−0.820***	−0.162***	−0.816***
	(−3.776)	(−5.210)	(−3.707)	(−4.919)	(−4.805)	(−4.165)	(−4.886)	(−4.152)

Table 8 (continued)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Draft 5th round	−0.160***	−1.261***	−0.156***	−1.193***	−0.155***	−0.564***	−0.153***	−0.559***
	(−3.257)	(−5.601)	(−3.060)	(−5.273)	(−4.292)	(−2.686)	(−4.275)	(−2.692)
Draft 6th round	−0.218***	−1.690***	−0.209***	−1.623***	−0.175***	−0.975***	−0.170***	−0.957***
	(−4.841)	(−8.378)	(−4.533)	(−7.978)	(−5.021)	(−4.966)	(−4.794)	(−4.819)
Age/10	−0.313	−0.546	−0.342	0.542	−0.068	0.617	−0.086	0.573
	(−1.877)	(0.861)	(−2.075)	(0.842)	(−0.574)	(1.435)	(−0.729)	(1.334)
Koshien	0.075**	0.400***	0.073**	0.359***	0.030	0.244**	0.035	0.241**
	(2.448)	(3.250)	(2.345)	(2.911)	(1.013)	(2.043)	(1.211)	(2.012)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Team dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	–	4.290***	–	4.240***	–	2.451***	–	2.539***
	–	(−3.532)	–	(−3.438)	–	(2.687)	–	(2.789)
Observations	840	927	831	927	839	949	839	949
R-squared	–	0.216	–	0.224	–	0.207	–	0.214
Log pseudo likelihood	−434.3	–	−424.6	–	−374.9	–	−371.1	–
Pseudo R2	0.0989	–	0.114	–	0.127	–	0.136	–

Robust z-statistics in parentheses (column 1, 3, 5, 7), Robust t-statistics in parentheses (column 2, 4, 6, 8) ***p<0.01; **p<0.05; *p<0.1

those who did not in the case of fielders. The number of games played increased both for fielders and pitchers. The draft position strongly influenced both the probability of becoming a successful player and the number of games played. In comparison to the first round draft picks, the success probabilities of the second round and lower rounds draft picks significantly decreased for both fielders and pitchers. The draft position was successful for predicting future success as a professional player.

Based on the analysis presented above, we infer that university graduates have a higher probability of being successful at professional baseball than the high school graduates. That is an unexpected result because an image exists that mostly very successful players are high school graduates with no college experience. It could be another unexpected result that the number of games played on the first team is likely to be higher for university graduates than for high school graduates who are able to join a team at a younger age. Among university graduates, people who graduated from universities belonging to BIG6, TOHTO, and SBBL have a higher probability of playing an active part than graduates from other universities. Of course, these universities are more successful at gathering excellent players than other universities. Still it is interesting that not only educational background but also school record is a factor affecting the success of professional baseball players. Actual ability is not everything in the world of baseball; it is influenced by educational background and school record to some extent.

Second Career After Retirement and Educational Background and School Record

Next, we investigate the characteristics of people who become leaders of professional baseball such as managers and coaches. More specifically, we show through a probit estimation, which factors determine the probabilities of: (1) becoming a first-team manager and (2) becoming a farm manager or either a first-team or a farm coach.

What we are most interested in is the effect of educational background (i.e., whether or not they graduated from university) and the effect of school record (i.e., from which university they graduated). Of course, whether one is able to become a manager or a coach does not depend entirely on educational background. The priority is the degree of success as a player on the active list. Even when not successful in their playing days because of injuries, players who were much anticipated at the time of joining a team, might be more likely to become a leader because their talent and popularity are valued. Richness of life experience, including baseball experience, might be necessary for a leader. We seek to verify whether the effects of educational background and school record remain or not, even after various factors that influence the probability of becoming a manager or a coach are controlled.

Table 9 Variable means and standard deviations (second career functions)

Variable	Mean	Std. Dev.
Manager	0.016	0.126
Coach	0.204	0.403
Success	0.160	0.367
Age	20.373	2.598
Tenure	5.687	5.567
UNIV	0.301	0.459
BIG6	0.071	0.258
TOHTO	0.096	0.294
SBBL	0.024	0.152
KAN6	0.014	0.116
KBIG6	0.025	0.155
OTHERUNIV	0.072	0.259
Amatetur baseball	0.321	0.467
Koshien (high school baseball championship)	0.379	0.485
Draft 1st round	0.158	0.365
Draft 2nd round	0.154	0.361
Draft 3rd round	0.153	0.360
Draft 4th round	0.152	0.359
Draft 5th round	0.136	0.343
Draft 6th round	0.243	0.429
Draft year 1970	0.129	0.336
Draft year l975	0.105	0.307
Draft year l980	0.127	0.333
Draft year l985	0.139	0.346
Pitcher	0.392	0.488
Number of observations	2421	–

We use the data reported by Tachibanaki and Saito (2012). Of those who were selected during the drafts after 1965 and who joined a team, 2421 players who retired by 2011 are subjects to be analyzed. The number of those who became managers is 39, and a total of 492 people became farm managers, or either a first-team or a farm coach. There was only a 1.6% chance that players became managers after retirement, but there was a 20% chance that they were able to become coaches.

The explanatory variables used for the estimation are as follows. First, to measure the effects of educational background and school record, we use information related to whether they are university graduates or not, and from which university group they graduated. We use the same six university groups used for the analysis explained above. However, as no manager in the data graduated from either the KAN6 or OTHERUNIV groups, when calculating the probability of becoming a manager, we bring them together with the group of non-university graduates. For the degree of success as a player, which might strongly influence the probability of becoming a manager or a coach, we employ the same success index used for the analysis presented above and years of playing for the first team. These are the main explanatory factors, but we also examine other factors discussed above—the player's draft position, Koshien experience, amateur baseball experience, and age at the

Table 10 Second career functions

	(1)	(2)	(3)	(4)
	Manager probit	Coach probit	Manager probit	Coach probit
UNIV	4.72e–05* (1.775)	0.0805** (2.494)	– –	– –
BIG6	– –	– –	0.000268*** (2.705)	0.149*** (3.333)
TOHTO	– –	– –	9.12e–05** (2.247)	0.107** (2.485)
SBBL	– –	– –	0.000163* (1.677)	0.124** (2.128)
KAN6	– –	– –	– –	0.0646 (0.940)
KBIG6	– –	– –	0.000186** (2.178)	−0.0246 (−0.516)
OTHER UNIV	– –	– –	– –	0.0627 (1.453)
Amatetur Baseball	3.03e–06 (0.257)	0.0410 (1.260)	5.27e–06 (0.704)	0.0437 (1.347)
UNIV*Amatetur Baseball	−2.14e–06 (−0.228)	−0.0348 (−1.282)	−2.35e–06 (−0.475)	−0.0399 (−1.496)
Success	6.67e–05*** (2.785)	0.0854*** (3.730)	4.11e–05*** (2.674)	0.0842*** (3.665)
Tenure	3.41e–06*** (4.691)	0.0233*** (14.36)	2.31e–06*** (4.596)	0.0232*** (14.27)
Pitcher	−1.19e–05** (−2.416)	−0.0961*** (−7.050)	−7.06e–06** (−2.111)	−0.0940*** (−6.891)
Draft 2nd round	−6.49e–06 (−1.642)	−0.00454 (−0.213)	−3.92e–06 (−1.446)	−0.00309 (−0.145)
Draft 3rd round	−6.66e–06* (−1.688)	0.00774 (0.331)	−4.02e–06 (−1.441)	0.00962 (0.412)
Draft 4th round	−6.02e–06 (−1.201)	0.00771 (0.319)	−3.20e–06 (−0.839)	0.0113 (0.463)
Draft 5th round	−6.61e–06 (−1.303)	−0.00174 (−0.0707)	−4.22e–06 (−1211)	0.00346 (0.139)
Draft 6th round	−1.12e–05** (−1.967)	0.00120 (0.0515)	−6.70e–06* (−1.738)	0.00322 (0.137)
Age/10	1.69e–06 (0.0867)	0.105* (1.798)	−4.70e–06 (−0.422)	0.0958 (1.638)
Koshien	−3.06e–06	0.0140	−2.77e–06	0.0124
	(−0.689)	(1.013)	(−0.928)	(0.889)
Year Dummies	Yes	Yes	Yes	Yes
Team Dummies	Yes	Yes	Yes	Yes
Observations	2421	2421	2421	2421
Log pseudo likelihood	−107.0	−752.0	−105.2	−747.0
Pseudo R2	0.464	0.385	0.473	0.390

Robust z-statistics in parentheses ***p<0.01, **p<0.05, *p<0.1

draft. Additionally, we add the first joining baseball team as a player and the year at draft as control variables of draft system and team policy. Finally, considering that the meaning of the success indexes differs between pitchers and fielders, we employ the dummy for the pitcher as an explanatory variable.

The descriptive statistics of the data used and the estimated results are as presented respectively in Tables 9 and 10. The dummy for university graduates has a significant positive effect on becoming a manager or a coach. The probability of becoming a coach is about 8 % higher, but the probability of becoming a manager increases only slightly. Next, we look at the effect of school record. The probability of becoming a manager is significantly higher in all of BIG6, TOHTO, SBBL, and KBIG6, but the range of increase is small. The probability of becoming a coach increases 15 % in BIG6, 11 % in TOHTO, and 12 % in SBBL. These are the results obtained after the performance on playing days, which we will describe below, is considered. Therefore, it is suggested that educational background and school record are important to become a leader.

Next, we examine the results of the degree of success as a player, which is regarded as the most important factor to be a manager or a coach. Although the probability of both becoming a manager anda coach increases significantly, the increase of the former remains small. The latter rises about 8 %. This is almost equal to the dummy for university graduate. It is lower than the dummy for university graduate from a particular university group. The years of playing for the first team also significantly raise both, the probability of becoming a manager and that of becoming a coach. For those players who were pitchers as players, the probability of becoming a manager and that of becoming a coach decrease slightly.

We inspect other control variables as well. We found almost no significant results for draft position. With regard to the age of joining a professional team, the higher it is, the higher the probability of becoming a coach. The experience before joining a professional team can be beneficial to teach younger players. The experience of playing at Koshien has no significant influence. The influence of the rest of the experience variables was small in comparison to the variables of educational background and school record.

It might be readily apparent from these results that being a graduate of BIG6 presents a huge advantage in becoming a sports leader. The university groups following it are TOHTO and SBBL, and other universities, including KBIG6, are almost identical as non-university graduates. As seen earlier, looking back over the history, the vast majority of managers had graduated from BIG6. Consequently, it is no wonder that we obtained such results. It can be interpreted that they are evaluated because they have acquired the abilities necessary for work other than sports, especially for the work of management, at leading universities. Among them, the effect of personal connections is imagined to be great, in particular. BIG6 remains the most influential source of supply of leading players. Many players wish to join a team where a senior graduate of their university serves as a manager. It might be true that managers choose not only players but also their coaches with junior graduates of their respective universities. Furthermore, the thoughts of owners or GMs, who designate managers and further parent companies, might influence the personnel affairs related to managers. Particularly, the owners are often executives of large corporations, and the executives similarly conduct the team governance by the parent company. They also graduated from prestigious universities in many cases.

Conclusions

In this chapter, we described an empirical analysis performed to assess how educational background and school record affect one's performance as a professional baseball player. We also empirically analyzed whether educational background and school record influence the probability of becoming a leader after retirement, even after some factors such as the performance as a player are excluded.

Results obtained from an estimation of a Mincer-type annual salary function showed that the coefficients of educational background and school record are significant and positive, even when other factors were controlled. We defined the success as a player by the total number of games played, a record of total wins and losses, and with or without winning titles. Then a probit estimation was conducted to ascertain factors related to the probability of success. Results revealed that, in the case of fielders, educational background and school record had a significant positive influence on the probability of being successful. The OLS estimation, which treated the number of games played as the dependent variable, indicated that the school record had a significant positive influence on both fielders and pitchers. Having performed a probit estimation of the probability of becoming a leader, results show that educational background and school record had a significant positive influence on both the manager and coach.

As described above, the results of the empirical analysis conducted for this study demonstrated that educational background and school record affect the professional baseball labour market. Therefore, it can be inferred that, in general terms, the labour market of professional baseball is influenced not only by the actual ability or talent but also by university education to a certain extent. Of course, people who are already at a high level as a professional baseball player at the time of high school graduation will obtain better results when immediately joining a team instead of going to college, just as star players did in the past. However, for average players, going to a university presents a higher probability of being successful as a professional baseball player, or pursuing an advantageous second career, such as becoming a manager or a coach. When not being successful as a player, they must choose other occupations for their life after retirement. For that reason, they are likely to work in the general labour market. Therefore, educational background and the school record make it easier to find a job, earn a high salary, and get rapid promotion, which abundant empirical studies in labour economics have demonstrated. Consequently, attending a university is recommended in many cases when one aims at becoming a professional baseball player.

The remaining problems related to the study presented in this chapter are as follows. The endogeneity of the dummies for educational background and school record are not fully controlled in all estimated equations. In addition, the problem remains of sample selection because some estimated equations exclude players who did not join a professional team or finished their entire career with a farm team. Furthermore, there might be more sophisticated indexes in terms of the performance indexes in the annual salary function, the functions of the probability of success, and the performance indexes in the second career function. Future studies will estimate a more detailed model that can resolve those problems.

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Does Versatility Matter in Match-Play Sports?

Evidence from Sumo Wrestling

Sang-Hyop Lee and Sumner La Croix

Abstract In match-play sports, the best players seem to be both versatile and unpredictable in their use of techniques during play. Our analysis extends empirical work on player versatility and unpredictability to the Japanese sport of sumo wrestling. While earlier studies of tennis serves and football penalty kicks were motivated by game-theoretic analysis of choices made by players to start a match, our study is motivated by labor market theories that tie the success of workers to their portfolio of skills and its application to particular situations. We analyze panel data on tournament records of top sumo wrestlers participating in Japan's grand sumo tournaments over the 1995–2004 time period to test whether players with better physical attributes and a balanced, unpredictable portfolio of winning techniques are more likely to win matches. Our econometric results show that better physical attributes, a diverse portfolio of techniques to finish a match, and unpredictable use of techniques are all associated with more wins per tournament.

In match-play sports, the best players seem to be both versatile and unpredictable in their use of techniques during play. Even a casual fan of tennis watching a late-round match in the US Open can see that the best female and male players are about as comfortable making a winning shot with their forehand as their backhand. It's also easy for a fan to see some tennis players, known for blasting forehands and backhands, play several games when they use drop shots. Sometimes the player's strategy seems to be a best response to the opponent's choices within the play of a particular point or game but other times it seems to be done just to keep the opponent off guard for the rest of the match. So are versatility and unpredictability associated with wins in match play sports?

Previous empirical work on player versatility and unpredictability has been motivated by game-theoretic analysis of the strategies available to a tennis player serving to start a point or a football player taking a penalty kick (Walker and

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Wooders 2001; Walker et al. 2011; Chiaporri et al. 2003; Palacious-Huerta 2003).[1] All of these studies concluded that these players used *minimax* strategies involving versatile and unpredictable play.[2]

Our analysis extends empirical work on player versatility and volatility to the Japanese sport of sumo wrestling. One advantage of analyzing player choices in sumo is that it is a very simple game; two wrestlers face each other just once, with a match winner declared as soon as one wrestler hits the ground or steps outside the sumo ring. While earlier studies of tennis serves and football penalty kicks were motivated by game-theoretic analysis of choices made by players to start a match, our study is motivated by labor market theories that tie the success of workers to their portfolio of skills and its application to particular situations. We analyze panel data on the tournament records of top sumo wrestlers participating in Japan's grand sumo tournaments over the 1995–2004 time period to test whether players with better physical attributes and a balanced, unpredictable portfolio of winning techniques are more likely to win matches. Our econometric results show that better physical attributes, a diverse portfolio of techniques to finish a game, and an unpredictable use of techniques are all associated with more wins per tournament.

Brief Introduction to Sumo

Sumo is Japan's national sport. It is an ancient game that has changed little over the centuries. After engaging in ritualistic ceremonies, two wrestlers (*rikishi*) face each other in a crouching position in the middle of the *dohyō*, a ring (14.9 ft in diameter) built on straw rice bales with a surface of clay and sand. The first wrestler to step outside of the ring or touch the ground with any part of his body but the soles of his feet loses the match. Once this happens, a referee (*gyoji*) ends the match and indicates who the winner is. The referee's decision can be disputed and overruled by five judges (*shimpan*) who sit ringside. Usually a match lasts less than 30 seconds but can occasionally run for several minutes.

Japan is the only country with professional sumo wrestling. The Japan Sumo Association (*Nihon Sumō Kyōkai*—JSA) regulates the sport and organizes tournaments. All sumo wrestlers are affiliated with one of 40–50 "stables" (*heya*), where they live and train together.[3] Since 1992, the JSA has imposed official and unofficial limits on the number of foreign professional wrestlers, with each stable limited to

[1] A penalty kick is essentially a single-play, match-play game inside the overall football game, as it matches one offensive player, the kicker, against one defensive player, the goalie, for a single play.

[2] In a two-person zero-sum game (such as a tennis point or a penalty kick in soccer or a sumo match), a minimax strategy is a mixed strategy in which each player acts to minimize the maximum payoff to the other player. Put another way, it involves the unpredictable use of multiple strategies.

[3] The JSA provides a guide to all *heya* at http://www.sumo.or.jp/en/sumo_data/sumo_beya/list. Accessed October 1, 2013.

one foreign wrestler since 2010. The JSA organizes wrestlers into six divisions, with the best wrestlers in the *Makuuchi* division (42 maximum), the next best in the *Juryo* division (28 maximum), and so on. Within the *Makuuchi* division, 21 wrestlers are assigned to an "East" Group and 21 to a "West" Group. There is an ascending hierarchy of wrestlers, from *Maegashira* to *Komusubi*, *Sekiwake*, *Ozeki*, and the grand champion, *Yokozuna*.

Competition takes place in six grand tournaments (*honbasho*), which are held in Tokyo in January, May, and September; in Osaka in March; in Nagoya in July; and in Fukuoka in November. During the 15-day tournament, wrestlers in the *Makuuchi* and *Juryo* divisions wrestle once every day, while those in lower divisions take part in just seven matches. Wrestlers face each other only once per tournament, and those in the West Group are always matched with wrestlers in the East Group.[4] At the start of the tournament, the JSA matches the lower ranked with the higher ranked players. As the tournament progresses, higher performing players are matched against each other to ensure the emergence of a tournament champion who has played the other top-performing wrestlers in the tournament.

After a tournament, JSA officials use the results to consider promoting high-performing wrestlers to a higher rank within their division or to a higher division. Wrestlers in the top two divisions who fail to achieve at least eight wins in a grand tournament face demotion to a lower division. The demotion rule has led to periodic scandals in the sport, as wrestlers with a 7–7 record have frequently transacted with their opponents to have them throw the 15th match, thereby avoiding a demotion. Duggan and Levitt (2002) analyzed data from the 1989–2000 period covering 32,000 matches involving 281 wrestlers in the top ranks and found convincing statistical evidence of match rigging involving wrestlers with 7–7 records on the final day of grand tournaments. A March 2011 police investigation of gambling by sumo wrestlers also produced convincing evidence of match rigging. The JSA subsequently expelled 23 wrestlers and initiated a number of reforms to clean up the sport (Hori and Iwamoto 2012).

Skills, Success, and Sumo

Wins in sumo derive from chance and each wrestler's physical attributes and portfolio of sumo techniques.[5] If wrestlers had identical human capital, same bodies and same skills, then chance would determine the outcome of matches and tournaments. While such matches might be viewed as technically proficient, they might also become a little monotonous, even a little boring to the fan sitting in the 30th row of

[4] This rule ensures that wrestles from the same stable only compete against each other in a playoff to decide the tournament champion.

[5] Training for match play usually involves coaches, trainers, and training facilities. In sumo, the stable organizes the training and provides the additional facilities. Player motivation also determines number of wins in a tournament; we leave analysis of this factor for future research.

the sumo stadium who watches a parade of virtually identical athletes using similar techniques and strategies throughout a tournament. In fact, some of the fan interest in sumo and much of the strategy in a sumo match derives from the heterogeneity of the two wrestlers, each of whom exceeds the other on one or more human capital dimensions. Watching how a small agile wrestler with a great portfolio of techniques confronts a less agile but otherwise physically perfect wrestler or how a wrestler prolific in pushing techniques confronts a wrestler prolific in pulling techniques adds variety and interest to the sport. Taken to an extreme, heterogeneity is also likely to be less interesting to fans. If one wrestler has a strong absolute advantage over the others, then his starting move is his ending move, matches are short and uncompetitive, he quickly becomes a *yokozuna,* and many fans find little drama or interest in his matches.

The interesting case for both fans and econometricians is when two wrestlers start their match with a moderate degree of heterogeneity. Each might be slightly better in using some techniques and each have some more desirable physical attributes than his opponent. Given the simple structure of the game of sumo, one encounter and no accumulation of points within the match, we follow Walker et al. (2011) and assume that each wrestler chooses to play a minimax strategy as he opens play. We proceed tentatively by making the simplifying assumption that all sumo games ultimately proceed as either one-stage or two-stage games. Sumo is a one-stage game when a technique used by one player to start the match immediately catches the opposing wrestler off guard and that technique then becomes the officially declared winning technique.

What if opening parries do not produce an immediate advantage and the match proceeds further? Explicitly modeling play within a tennis point or a sumo bout has not been done to our knowledge so we proceed by simply assuming that a forced or unforced error by one player opens the door to an opportunity for the second wrestler to finish the match. If the player has a balanced portfolio of techniques available to him, he will have the appropriate technique available in his portfolio to finish the match.[6] If not, the other player's response will end the match in his favor. The situation is analogous to two tennis players who have evenly rallied back and forth within a point, until a forced or unforced error by one player leaves the other player with a "shot" opportunity to win the point, for example, to pass the player down the line. For a good player with a balanced portfolio of shots, it will not matter if the shot opportunity is to the player's backhand or forehand. When a good sumo player faces an analogous event, our expectation is that he will choose the appropriate technique from his portfolio and finish the match. Thus, among good sumo players, we expect to see versatility revealed in their use of winning techniques. Players who cannot execute commonly used basic techniques well, that is, they can push well but they cannot pull well, are less likely to finish the other player off when that technique is needed to end the match and they will win less often.

[6] In a tennis match, there are always some situations in which one particular shot, when well executed, is the potentially winning shot, and another will not suffice. An overhead smash of a lightly hit ball just over the player's head is one such example.

The JSA facilitates study of winning techniques in sumo because it records and publicizes the winning technique in each match. There are 80 official winning techniques. Only a few are observed regularly, and these are clearly and broadly defined as either pushing or pulling by JSA wrestling rules. The top two techniques, one of which belongs to pulling and the other to pushing, account for about half of total winning techniques, while the next four techniques account for about 20% of the total. Following the JSA's official definition and categorization, this paper classifies all winning techniques into two groups, either pushing (*hanare* category) or pulling (*kumi* category).

As we describe in more detail below, wrestlers tend to use pushing and pulling as the winning techniques about equally. There is, however, sizable variation in the use of techniques among wrestlers, with some winning predominately by pushing and others by pulling. Their use of techniques also tends to change from tournament to tournament and over the course of their careers. This is because the competitive nature of the sumo world requires that wrestlers constantly train, learn new techniques, and become more proficient with ones they already know. This poses a big challenge for their opponents: What kind of techniques and strategies might they expect in the next match? To have the best chance of winning the match, an opponent needs updated information regarding the other wrestler's skills and his recent history in using these skills. Once this information is acquired comes a critical decision: How to translate the past information into beliefs about a wrestler's probable use of techniques and strategies in the next match?

Belief learning models developed in both the labor economics and behavioral game theory literatures have considered this problem in other contexts. In one class of models, interaction of dispersed initial beliefs and adaptive dynamics explains convergence in the pattern of player behavior over time. A popular model is weighted "fictitious play" (Cheung and Friedman 1997; Fudenberg and Levine 1998). In fictitious play, players keep track of the relative frequency with which another player has played each strategy in the past. These relative frequencies are then translated into beliefs about what the other players will do in the upcoming period. In the labor economics literature, Gibbons and Waldman (1999) and Gibbons et al. (2005) developed models of learning dynamics specifically for updating beliefs in a labor market. We apply a variant of their analysis to our problem and use it to motivate an econometric framework for analyzing wrestler's decision-making and performance.

Assume there are N players in a tournament and that each player should play a single match against all other players in a tournament.[7] Player i's winning ratio, P_{ijt}, at tournament t depends on the composition of opponents j. Player i has strength in a certain skill, θ_i, either pushing (θ_S) or pulling (θ_L). Neither skill can be directly observed. If player i plays against a group of opponents j at tournament t, L_{ijt}, the logistic transformation of the winning ratio is given by a linear model:

[7] In a sumo tournament, one player plays a second player only once, but not all players play each other due to the separation of players into East and West Groups and the large number of players (70) in the two top divisions.

$$L_{ijt} = \ln\left(\frac{P_{ijt}}{1-P_{ijt}}\right) = x_{it}\beta + z_i + c_{jt} + \gamma(\theta_{it} + \varepsilon_{ijt}) \tag{1}$$

where x is a vector of player i's characteristics, z_i is the time-invariant unobserved portion of player i's ability which is equally valued amongst all players, c_{jt} measures the skill and composition of opponents j in tournament t, γ measures the return to player i's effective strength in certain techniques, and ε_{ijt} is a random error which is normally distributed.

We construct two specific variables for our purposes of analyzing sumo wrestlers' use of winning techniques. The first is a measure of belief in a wrestler's versatility in both techniques at time t, *Spread*. It is the difference between the individual's revealed use of a certain winning technique, $\overline{\phi}_{it}$, and the mean of winning techniques used by all players, $\overline{\phi}_t$, with $\overline{\phi}_t = \frac{1}{N}\sum_{i=1}^{N}\phi_{it}$. The values are calculated using information on the average frequency of winning with a technique, and an individual player's frequency of winning with the technique. *Spread* is high for a player who has a strong tendency to use a specific skill (either pushing or pulling) to win and low for a player without this tendency. If $\overline{\phi}_t = 0.5$, that is, if pushing and pulling are evenly used, then *Spread* is zero for a player who uses techniques evenly, and one for a player who specializes in only one skill. In our econometric analysis, we test whether *Spread* is negatively related to the probability of player i achieving a winning record in a tournament t.

The second measure is a common sample variance measure, $v_{it}^2 = \frac{1}{T-1}\sum_{k=1}^{T}(\phi_{itk} - \overline{\phi}_{it})^2$, where $\overline{\phi}_{it} = \frac{1}{T}\sum_{t=1}^{T-1}\phi_{it}$ and T is the time window used to measure the variance of winning techniques for each player. Being a squared quantity, v_{it}^2, the change in the degree of strength in a certain skill will be high when there is a big change in the combination of skills (pushing to pulling, and vice versa) used by a wrestler across tournaments. This measure, *Volatility*, is the degree of unpredictability of a wrestler's use of a certain technique to win the match. The obvious choice of T is 2; that is, the effect of unpredictability at time t depends only on how the player deviates from the last tournament ($v_{it}^2 = \frac{1}{2}(\phi_{it} - \phi_{it-1})^2$).[8] A longer history of the variance of skill use could also affect wrestler beliefs and probability of winning matches. Thus, we experiment with measures of *Volatility* that use $T=3$, 4, and 5.

Estimating Eq. (1) using ordinary least squares (OLS) yields biased estimates for x_{it}, *Spread*, and *Volatility* as the time-invariant player-specific effects (z_i) and the time-varying opponents-specific effects (c_{jt}) may be correlated with those variables. Use of fixed effects (FE) eliminates time-invariant player-specific effects, and

[8] Since $v_{it}^2 = [\phi_{it} - \frac{(\phi_{it} + \phi_{it-1})}{2}]^2 + [\phi_{it-1} - \frac{(\phi_{it} + \phi_{it-1})}{2}]^2$.

yields unbiased estimates if there is no change in the composition of opponents over time and no change in use of skills by their opponents ($c_{jt} = c_{jt-1}$). However, if these factors do change, then estimated coefficients from FE regressions will be biased. We leave this issue for future research.

Data and Variables

The data set consists of information on all sumo matches played by wrestlers in the top two divisions in the six official grand tournaments held each year between 1995 and 2004. It contains information on 25,156 matches played between 106 wrestlers. The average player appeared in 36 tournaments and played 478 matches over the 10-year period. Our econometric analysis uses the player's winning percentage in each tournament as the unit of analysis, and the data set contains 3,728 player-tournament observations. After dropping those wrestlers who have only short stints—less than 100 matches—in the top ranks, the final number of player-tournament observations falls to 3,012.

One interesting feature of sumo wrestling is that at the end of each match, a winning technique is determined by the judges and announced to the match's spectators.[9] Sumo wrestling rules clearly define more than 80 winning techniques.[10] The Japan Sumo Association also maintains a website with updated information on each player's winning techniques (*kamarite*) in recent tournaments.[11] We merge this information on winning (losing) techniques of each winner (loser) in each bout with the information on each player's profile provided by the Japan Sumo Association. Thus, the merged data set contains information on tournament results and information about wrestlers, including their history of winning techniques, date of birth, place of birth, date of debut, experience in sumo, tenure in rank, ethnicity, and body mass index (BMI). It is an unbalanced panel because some wrestlers either start or end their careers during our sample period.

We consider several control variables that may affect wrestler success. Physical condition is an important determinant of success for any athlete, and weight is particularly important for sumo wrestlers. Because there are no weight classes in sumo wrestling, an important part of a player's training regime is to add weight. However, too much weight may decrease an individual's agility and could result in diminished performance. Height is also an important determinant of performance in sumo because it enhances the overall stature of players. However, taller players are at a disadvantage in sumo wrestling because they have a high center of mass (balance point). This is why a wide and crouching stance is the chosen position

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[9] It would also be useful to know which techniques each wrestler used to start the match and which techniques were used during the match but the JSA does not collect this information.

[10] See http://en.wikipedia.org/wiki/Kimarite. Accessed October 1, 2013.

[11] These are summarized in a pie chart on each player's JSA web page. For an example, see http://www.sumo.or.jp/en/sumo_data/rikishi/profile?id=2769. Accessed March 28, 2014.

before clashing with an opponent because a sumo wrestler makes himself as stable as possible with this stance. To control for these nonlinear relationships between height and weight, our regressions include a widely used summary statistic for weight and height, the BMI—defined as the ratio of weight (kilograms) to height squared (meters)—and BMI squared (BMI^2).[12]

Variables indicating years of experience (*Experience*) and years of tenure (*Tenure*) are also included as controls. *Experience* is calculated as the year in which the sumo tournament was played minus the year when the wrestler debuted. *Tenure* is the number of years of experience in the same rank. These variables, particularly *Tenure*, are possibly endogenous, but in our econometric analysis we treat them as exogenous.

Three dummy variables indicating the wrestler's country of origin are included in the model. A player's ethnicity may be related to his tournament performance if it serves as a proxy for player-specific heterogeneity. For example, the small statures of Mongolian players require them to resort to a wide variety of sudden moves and skills. The same is true for a few players from Hawaii whose stature ranks as amongst the largest in the pool of sumo players.[13] Being foreign born may also imply superior abilities, as the small group of foreign players may be the result of a selection process that allows only the best foreign players to participate in Japan's elite sumo tournaments. Amongst Japanese wrestlers, those originating from some regions could have an advantage based on tradition, culture, or regional support for sumo. Including dummy variables for players originating from Mongolia, Hawaii, and Tokyo allows us to partly control for this heterogeneity.

A dummy variable indicating that a wrestler could not finish all 15 bouts in a tournament is included in all regressions. Injury is the primary reason for a wrestler to withdraw, but wrestlers who had accumulated losses in eight matches were also more likely to leave a tournament. This is because wrestlers with more than eight losses already face demotion to a lower rank at the end of the tournament and have less incentive to play additional matches (Duggan and Levitt 2002; Dietl et al. 2010).

Results

Descriptive and Nonparametric Analysis

Table 1 presents descriptive statistics on sumo wrestlers' characteristics. Average height is 184 cm and weight is 155 kg. The minimum weight is 98 kg and the

[12] Our data set, which was provided by the Japan Sumo Association, contains a single measure of weight for each player. It is unknown when the weight was measured. Information on a player's weight for each tournament would be preferable, as player weight can vary over the course of a career. Since players tend to gain weight more rapidly early in their career, some of this change may be captured by the experience variable. Injury can also affect a player's success. Unfortunately our data set does not contain a measure of player injuries.

[13] The average height, weight, and BMI for Hawaiian players are 193 cm, 229 kg, and 61.5, respectively, while those for Mongolian players are 185 cm, 143 kg, and 41.6, respectively.

Table 1 Descriptive statistics for 106 sumo wrestlers, 1995–2004

Variables	Mean	SD
Height (cm)	184.14	5.45
Weight (kg)	155.51	24.36
Body mass index–BMI (weight/height^2)	45.79	6.34
Age at debut	18.50	3.20
Years of experience	9.62	5.13
Years of tenure	4.56	4.07
Hawaii origin	0.04	–
Mongolia origin	0.04	–
Tokyo origin	0.05	–
Number of matches	505.97	188.42
Number of matches won	257.26	105.99
Number of matches lost	248.71	100.37
Number of matches won by pushing	126.98	91.26
Number of matches lost by pushing	122.58	65.20
Percent of wins by pushing	0.48	0.24
Volatility (10^{-2})	0.01	0.82
Spread	0.38	0.37
Number of tournaments	36.00	12.60
Played less than 15 matches in a tournament	0.10	–

maximum is 275 kg. The average age at debut is 18.5 years, and average experience is 9.6 years. One wrestler debuted at age 15 and retired at age 42, recording the youngest age at debut and highest years of experience. About 4% of wrestlers were from Hawaii, 4% from Mongolia and other regions such as Russia, and 5% from the Tokyo area. In 10% of tournaments, at least one wrestler failed to complete all 15 bouts (307 dropouts in 3012 tournaments). Unreported regression results show that the hazard of a wrestler giving up on a tournament increased as it moved toward conclusion.

Wrestlers use both pushing and pulling techniques quite evenly in tournaments. Pulling accounts for about 52% of winning techniques and pushing for 48%. A binomial probability test cannot reject the hypothesis that the percentage of winning by pushing (or pulling) equals one half. There is, however, surprising variation amongst individual wrestlers in their use of these two techniques. For example, in one wrestler's 328 wins (out of 729 bouts), pushing is recorded as the winning technique 98% of the time. In another wrestler's 195 wins (out of 401 bouts), pushing is recorded as the winning technique only 7% of the time.

Figure 1 presents a kernel density distribution of player wins in matches with pushing listed as the winning technique.[14] A sign rank test strongly rejects the null hypothesis that there is no difference amongst individuals in their winning techniques.[15]

[14] Players who win by pushing often lose to an opponent who uses pushing as his winning technique. The correlation coefficients for each tournament are all positive, averaging 0.31.

[15] The z-value of the Wilcoxon sign-rank test is -10.29, which is statistically significant at the 1% level.

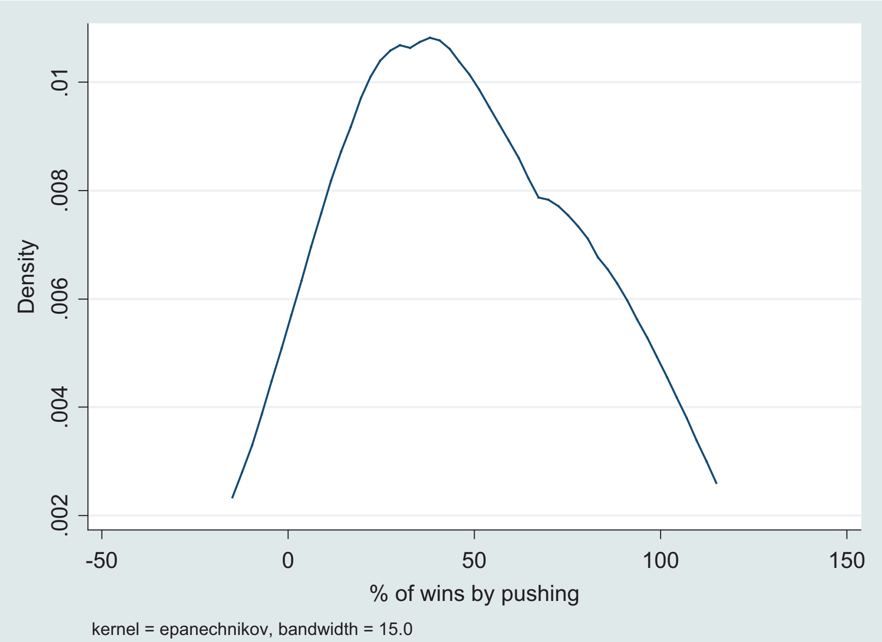

Fig. 1 Kernel density distribution of wins by pushing

Consider Fig. 2 which presents scatterplots and Lowess smoothed curves for the percent of wins achieved with the pushing technique for four selected wrestlers over 40+ tournaments. Figure 2a shows a wrestler whose use of winning techniques is quite volatile, displaying a wide dispersion of plots over time. Note that the percentage of wins achieved by pushing in tournament never exceeded 50 %, suggesting that he was a typical pulling wrestler. Figure 2b presents a wrestler who has a relatively low volatility around the Lowess smoothed curve and initially wins mostly by pulling. During his first 20 tournaments he shows a tendency to exhibit more versatility in choice of winning techniques but then, later in his career, he progressively uses pushing skills to win the match. Figure 2c portrays a wrestler with more volatility who exhibits a tendency over 12 tournaments toward pulling, followed by another period with a large swing toward pushing.[16]

Finally, Fig. 2d shows an extreme case, a wrestler with a winning technique of pushing in nearly every match that he won. Several other wrestlers also display the same pattern. None of these wrestlers are among the sport's top wrestlers, and

[16] Thus, for these players, strength in a certain skill might be conditionally dependent over time. The insight these wrestlers provide is that the process of skill use may exhibit serial correlation in the process or the persistence of volatility (*volatility clustering*), in which there are periods that display a wide swing for an extended time period. That is, for any given t, the random shocks of belief on strength in skills are conditionally independent but not identically distributed across players.

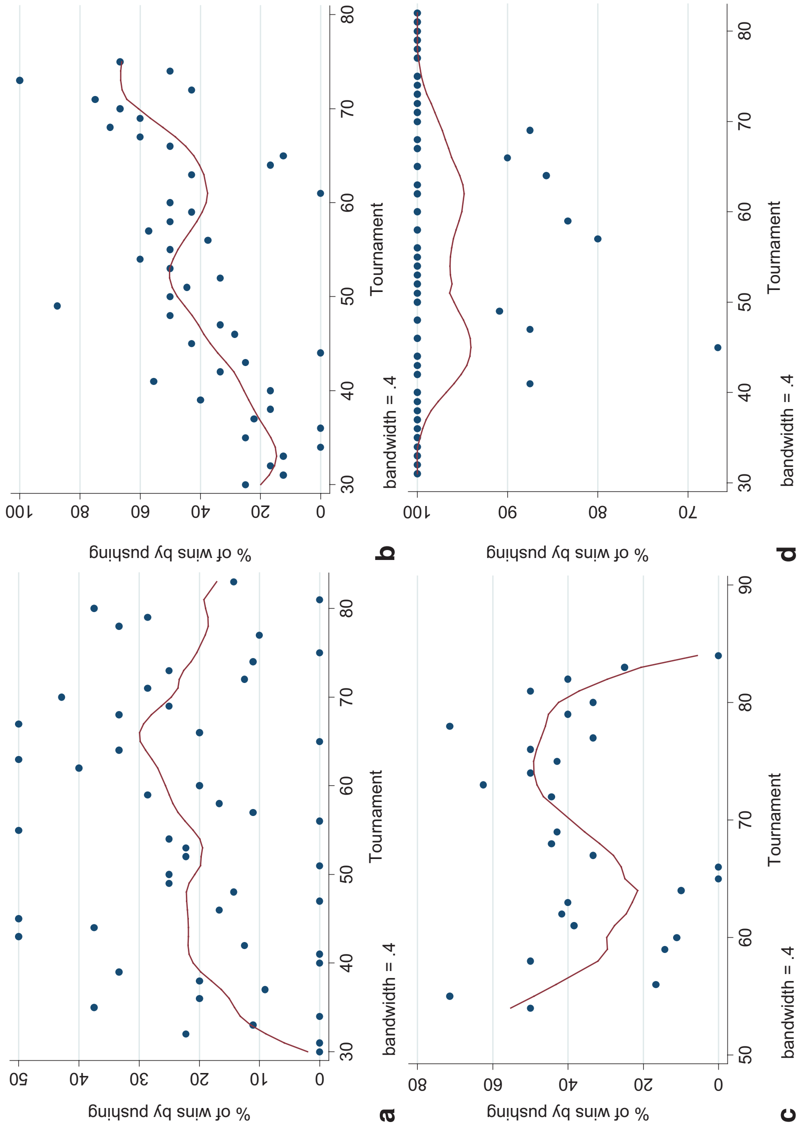

Fig. 2 **a** Percentage of wins by pushing (Wrestler A). **b** Percentage of wins by pushing (Wrestler B). **c** Percentage of wins by pushing (Wrestler C). **d** Percentage of wins by pushing (Wrestler D)

Table 2 Random effects and fixed effects estimates of $\ln\left(\frac{P_{ijt}}{1-P_{ijt}}\right)$, 1995–2004

	Random effects		Fixed effects	
BMI	0.081***	0.097***		
	(0.029)	(0.029)		
BMI^2	−0.001***	−0.001***		
	(0.000)	(0.000)		
Experience	−0.031***	−0.032***	0.008	−0.118
	(0.008)	(0.008)	(0.046)	(0.352)
Tenure	0.018*	0.027***	−0.037	−0.037
	(0.010)	(0.010)	(0.047)	(0.047)
Hawaii	0.724***	0.713***		
	(0.183)	(0.176)		
Mongolia	0.105	0.143		
	(0.147)	(0.142)		
Tokyo	0.279**	0.288***		
	(0.123)	(0.118)		
Fewer than 15 matches	−0.197***	−0.197***	−0.201***	−0.205***
	(0.049)	(0.049)	(0.049)	(0.050)
Volatility	3.044*	2.762*	3.003*	2.913*
	(1.609)	(1.621)	(1.648)	(1.660)
Spread	−0.366***	−0.367***	−0.374***	−0.373***
	(0.037)	(0.037)	(0.038)	(0.038)
Year controls	No	Yes	No	Yes
R^2	0.116	0.121	–	–
Hausman test *p*-value				
Volatility			0.836	0.444
Spread			0.793	0.852
Number of observations	3012	3012	3012	3012

Volatility is measured only with respect to the previous tournament, i.e., $T=2$

*, **, and *** denotes statistical significance at 10%, 5%, and 1%, respectively

although they clearly have considerable skills in pushing, it appears as if they lack the portfolio of techniques required to win more consistently in the competitive world of sumo.

Regression Results

Our regression framework relates wrestler performance to their physical characteristics, their background, and their use of a balanced and volatile portfolio of sumo skills. Table 2 presents estimated coefficients from the random effects (RE) and fixed effects (FE) models. The dependent variable is a logistic transformation of a wrestler's winning ratio in each tournament.[17] Estimation is undertaken with and without year controls and using $T=2$ for *Volatility*. Including year controls leaves the signs of estimates unchanged but increases the magnitude of most estimates, with the notable exception of the *Volatility* estimates.

Estimated coefficients for most variables in the RE model are statistically significant, with the exception of the dummy for Mongolian origin. Those with high BMI are more likely to win matches, but the negative estimated coefficient on BMI^2 indicates diminishing returns to BMI. However, it should be interpreted with caution, as our data set contains a single measure of weight for each player, and player weight can change over the course of a career. The estimated coefficient on *Experience* is statistically significant and negative, suggesting that more experience leads to less tournament success. This may indicate an aging effect rather than skill accumulation; youth is often an advantage in physical contact sports. On the other hand, the estimated coefficient on *Tenure* is positive and statistically significant. However, the results for *Experience* and *Tenure* should also be interpreted with caution. In practice, duration in the same rank is determined by a player's winning rate, meaning that the tenure variable is endogenous. Wrestlers from Hawaii and Tokyo areas also tend to perform better. The estimated coefficient on the binary variable indicating drop-outs during a tournament is negative, as expected, and statistically significant.

Turning to our main results, the estimated coefficient on *Spread* is negative and statistically significant at the 1 % level under RE estimation, suggesting that the balance in winning techniques increases success of sumo wrestlers. Likewise, the estimated coefficient on *Volatility* is positive and statistically significant at the 10 % level, implying that winning games unpredictably increases wrestler wins. FE estimates for *Volatility* and *Spread* are quite similar to RE estimates in terms of both statistical significance and magnitude. Hausman tests cannot reject the null hypothesis that RE and FE estimates for *Volatility* and *Spread* are equal. We note that both *Experience* and *Tenure* lose their significance under FE estimation, suggesting that unobserved wrestler heterogeneity might be correlated with these two variables.

An important issue is whether our results are sensitive to the choice of time window (T) in the construction of the *Volatility* variable. To address this, we estimate the model using different time windows, assuming that all past events contribute equally to *Volatility*. Table 3 shows results for $T=3$, 4, 5, and 6. The results show that the estimated coefficients for *Volatility* are still statically significant for $T=4$ and 5 for RE estimates and marginally insignificant (12 % level) for FE estimates using the same time windows. *Volatility* is, however, never statistically significant when $T=3$ and when T=6. The general pattern of results points to the wrestlers not looking back more than five tournaments when they construct their beliefs regarding the impact of volatile choices of techniques on their probability of winning a match.

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[17] Substituting losing rates for winning rates would produce identical estimated coefficients with opposite signs.

Table 3 Random effects and fixed effects estimates of $\ln\left(\frac{P_{ijt}}{1-P_{ijt}}\right)$, 1995–2004: Time windows from three to six tournaments to measure volatility

A. Random effects estimates	$T=3$	$T=4$	$T=5$	$T=6$
Volatility	0.881	5.412*	5.920*	0.882
	(1.920)	(3.140)	(3.569)	(3.077)
Spread	−0.369***	−0.374***	−0.365***	−0.364***
	(0.037)	(0.038)	(0.037)	(0.040)
R^2	0.122	0.124	0.128	0.130
No. of observations	2917	2814	2714	2613
B. Fixed effects estimates	$T=3$	$T=4$	$T=5$	$T=6$
Volatility	0.669	5.170	5.694	0.315
	(1.978)	(3.254)	(3.730)	(3.202)
Spread	−0.375***	−0.381***	−0.371***	−0.370***
	(0.039)	(0.039)	(0.040)	(0.041)
No. of observations	2917	2814	2714	2613

All regressions include year dummies
*, **, and *** denote statistical significance at 10 %, 5 %, and 1 %, respectively

To check the robustness of results, we estimate the regression model by adding interaction terms between BMI and *Experience*, with BMI^2 not included. These (unreported) results are interesting because the interaction term is negative and statistically significant at the 1 % level, suggesting the effect of BMI decreases with age or experience. This change in specification has, however, little effect on other estimated coefficients.

In addition, we construct different measures of *Volatility* and *Spread* using different methods, namely using the top two most frequently used winning techniques or choosing the most and least frequently used winning techniques of each individual out of the top six most frequently used techniques in the population. We also estimated the model using a restricted sample in which only the first 3 years of tournament records for each player were included in the sample. Again, use of these alternative measures or a restricted sample leaves our main results with respect to *Spread* and *Volatility* qualitatively unchanged.

None of our regression specifications address potential endogeneity problems stemming from changes in the group of opponents over time or changes in opponents' use of techniques over time. This is left for future research.

Conclusion

Wrestler heterogeneity matters in sumo. Most sumo wrestlers do not have a perfect set of physical attributes and are more proficient in some sumo techniques than others. We used data from the Japan Sumo Association's six annual grand tournaments over a 10-year period to examine whether wrestlers with relatively balanced set of skills were more likely to be able to take advantage of opportunities in the course of play to finish off their opponent. Our results provide first evidence that an unpredictable use of a balanced set of winning techniques pays, yielding more wins for a wrestler. Ergo, versatility matters in sumo, and unpredictability matters too. Earlier studies of tennis and soccer showed that the best players used versatility and unpredictability in initiating their tennis serves and penalty kicks. Our study extends these results to decisions made by wrestlers to end a match. They point to the possibility that versatility and unpredictability may well be important in all phases of match play sports.

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What Are the Long-term Effects of Extracurricular Sports Activities for Children and Adolescents? Evidence from Japan Using a Nationwide Sample of Twins

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Abstract Our research examines the causal relationship between children's experiences in sports and their subsequent outcomes later on in life. Using the sample of Japanese twins that the authors collected through web-monitoring survey, we will look at the difference in children's sports experiences at school between twin pairs. Our main research task is to examine, after controlling for the innate ability and family environments where the children were growing up, whether sports can help your life better.

Introduction

This study aims to answer the causal question of whether investment in sports and athletics matter for adulthood outcomes. In doing so, there is a thorny selection bias problem to overcome. Many parents of school-aged children want their children to participate in sports and athletic activities because they believe these activities help their children in developing better mental and physical health, which will benefit them later in life. According to a survey conducted by Kataoka (2009), over 72 % of school-aged children in Japan are regularly engaged in a wide variety of sports as extracurricular activities. More specifically, evidence that parents are enthusiastic about their children's athletic experiences can be found in the official statistics from a longitudinal survey of Japanese babies born in the twenty-first century[1]. Figure 1

[1] This survey was conducted by the Ministry of Health, Labour and Welfare, Japan, between 2001 and 2010. This survey targeted all 53,575 newborn babies in Japan born between January 10 and

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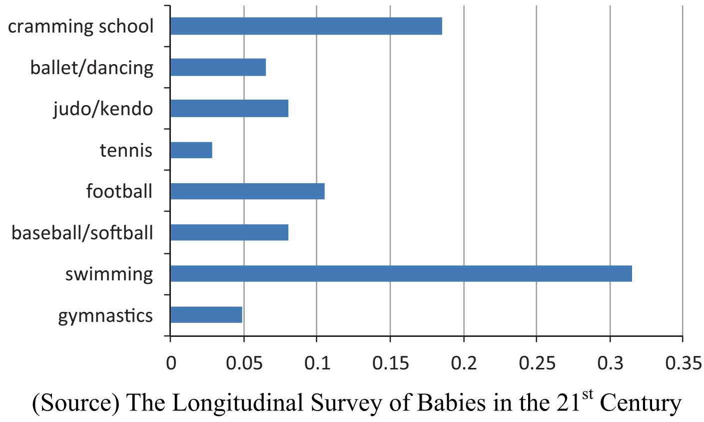

Fig. 1 Sport experiences of early childhood relative to attendance to cramming school (age of 7 through 10). (Source: The Longitudinal Survey of Babies in the 21st Century)

graphically illustrates the percentages of early elementary school children (aged between 7 and 10 years) who are currently engaged in extracurricular sports activities, outside of formal education. Swimming is a very popular activity, as well as football and baseball.

Surprisingly, the percentage of children in this age group who take swimming lessons is much larger than of those who attend cramming schools[2] for supplemental study. Because the entrance examinations at any educational level are very competitive in Japan, many parents send their children to cramming schools even at a very young age. However, data presented in Fig. 1 suggest that parents not only nurture academic achievement for their children, but also their sport experiences.

Why do so many parents choose swimming lessons for their children? Parents may believe that sport experiences help their children to develop both mentally and physically. In some cases, parents may consider this a form of investment and expect long-term returns, thus influencing the child's adult outcomes. There is a general perception that people with experiences related to athletics and sports have better social skills (manners), physical vitality, and patience. This in turn would help them gain admission into more selective schools and, consequently, enter the most prestigious companies. There is also anecdotal evidence that varsity athletes and sports scholars have a competitive advantage in Japan's job market. Students and their parents could, therefore, perceive their investment of time and money in sporting activities as more than a means of self-fulfillment and enjoyment; rather, it is perceived as an investment that may bring measurable future returns, such as school admissions or good job opportunities. However, while

January 17, and between July 10 and July 17, 2001. The respondents were primary caregivers, mostly parents. This data was the mean value between the wave 7 through wave 10 (G1 through G4 students) at the time of the survey.

[2] Cramming schools in general are the private educational service which provides the training courses to pass the entrance examinations of high schools or universities.

much is known about the observed relationship between athletic experiences and adulthood outcomes, little is known about how children who have participated in extracurricular sports activities during their early years have benefitted in terms of further education or labor market outcomes compared with those who did not participate.

Confounding variables make this a more difficult question to answer. For example, an observed difference in sport experiences among children may merely reflect differences in the extent to which parents can afford their children's participation or the degree of parental enthusiasm for a particular extracurricular activity, either academics or sports. Selection bias arises when part of the children's sport experiences can be explained by unobserved parental characteristics, such as parental expenditure patterns or parental motivations toward their children's education. For example, if famous athletes are known to excel in sports that their parents were involved in, then one can argue that parents tend to expose their children to sports they had been involved with themselves. If so, unobserved parental heterogeneity is associated with children's athletic experiences and their outcomes in later life.

One can also argue that opposing motivations exist. For example, if a child is prone to illness, the parents may want to encourage them into athletic activities to enhance their physical strength. If a child is academically underachieving, the parents may want to encourage them to excel at sports. Moreover, it is also possible to make an entirely different argument that the presence or absence of early athletic experience is simply an expression of the parents' socioeconomic standing, cultural capital, etc. In other words, one cannot always determine a priori the existence of either a negative or positive selection. Kataoka (2009) reviewed empirical evidence from an internet survey by the Benesse Educational Research and Development Institute that compiled responses to questions about extracurricular activities from approximately 15,000 Japanese children aged between 3 and 17 years. The analysis revealed that parents' cultural capital is inherited by their children through sports, arts, and other activities. In sum, rigorous measurement of the effects of children's sport experiences on their life outcomes is difficult owing to data and methodological limitations, particularly the unobserved parental characteristics possibly associated with decisions to provide their children with athletic experiences and the children's outcomes later in life. It is often difficult to isolate the effects of such unobservable factors from those of children's sport experiences.

A similar discrepancy arose in the evaluation of the "veteran effect" on employment rates. Given that US employers preferred hiring veterans for their physical abilities and social skills (e.g., good manners), Angrist and Krueger (1994) attempted to answer the causal question of whether veterans have higher earning potential and experience lower unemployment rates than their nonveteran counterparts. However, it was also highly possible that people with higher earning potential were more likely to have been recruited into military forces. In fact, these authors claimed that after controlling for selection bias with a set of instrumental variables, the difference between earnings of veterans and nonveterans is negligible.

Relevant Literature

Almost all of the available previous literature regarding the effect of extracurricular sports activities on K-12 students' academic achievements and future incomes focus on high school level extracurricular sports activities in the USA[3].

Many correlational studies show that participation in high school sports activities in the USA is positively associated with motivations for study, academic achievement, and future earnings. Rehberg and Schafer (1969) found that participation in interscholastic athletic activities is positively associated with college expectations for male students. Spreitzer and Pugh (1973), Hanks (1979), Ewing (1998), Barron et al. (2000), Broh (2002), and Guest and Schneider (2003) showed similar positive associations between high school extracurricular sports activities, in general, including both male and female students. Covay and Carbonaro (2010) found that extracurricular sports activities are positively associated with the development of both cognitive and noncognitive skills. On the other hand, other researchers have suggested a negative correlation between participation in athletics and academic achievement (Coleman 1961).

As discussed in the previous section, this study anticipates a nonrandom selection of children into different sport experiences. If a selection of unobserved characteristics is present, the conventional ordinary least squares (OLS) estimates with a cross-sectional dataset may be subject to omitted variable bias, thus yielding inconsistent estimates of the effect of the children's sport experiences on future outcomes.

Few studies have analyzed the causal relationship between extracurricular sports activities and academic and other outcomes, such as future earnings. Anderson (2001), Eide and Ronan (2001), Lipscomb (2005), Stevenson (2010), and Cabane and Clark (2013) investigated the effect of high school (and middle school) extracurricular sports activities on academic achievement and labor market outcomes in the USA, moderating for the selection bias in these activities. Anderson (2001) analyzed how high school athletics affects educational and labor market outcomes by using several instruments, such as peer involvement in sports, to control for the endogeneity of participation and found a significant positive effect for athletic participation on educational outcomes only for white students.

Applying height as an instrument for participation, Eide and Ronan (2001) found that extracurricular sports participation has a negative effect on the educational attainment of white male students, a positive effect on the educational attainment and earnings of black male students, and a positive effect on the educational attainment of white female students. They also found no effect of extracurricular sports activities on the educational attainment or earnings for Hispanic male students or black and Hispanic female students. Lipscomb (2005) used a fixed effects approach to estimate the effect of high school extracurricular activities on academic achievement. He found athletic participation increased math and science test scores by

[3] For further studies on this topic related to college students see McCormick and Tinsley 1987; Long and Caudill 1991.

2 %; moreover, involvement in either clubs (nonsports) or sports activities increased Bachelor's degree attainment expectations by 5 %.

Stevenson (2010) looked into the effect of extracurricular high school sports on college attendance and labor force participation rates for females. She applied the variations in the level of boys' athletic participation across all states before the implementation of a new policy that encouraged female athletic participation. The author found that a 10 % increase in state-level female sports participation increased female college attendance by 1 % point and female labor force participation by 1–2 %.

Cabane and Clark (2013) analyzed the effect of sports participation at middle and high school on labor market outcomes. They applied school fixed effects, various control variables, and within-sibling estimation. They found that experiencing team sports at school has a positive effect on having managerial responsibilities and the freedom to make important decisions are larger than the ones of individual sports, while the effect of individual sport on these labor market outcomes is larger than the one of team sports for girls. In contrast, the authors suggested that the results on other labor market outcomes such as job satisfaction and earnings are more mixed.

Nevertheless, causation is best established using randomized or quasi-experiments, which are rarely conducted in Japan. The main objective of this study is to assess whether children's sport experiences have causal effects on their subsequent adulthood outcomes. More specifically, are there any significantly beneficial returns to sport experiences after controlling for unobserved parental characteristics? To answer this specific question, this study employed the twin-fixed effects model using the unique twin data collected through a web-based survey in Japan. Using samples of identical twins enabled us to reduce the possibility of omitted variable bias from unobserved parental heterogeneity that might influence the incentives for investing in their children's sports activities.

To some extent, twin studies are regarded as natural experimental studies[4] because identical twins (monozygotic twins; hereafter, MZ twins) are produced when by chance in the same pregnancy, a single zygote divides and results in two separate embryos. Because the two children share the same DNA profile, they can be considered as genetically identical. Hence, we hypothesize that one twin is the counterfactual of the other, hence possessing the same physical abilities but different athletic experiences. In addition to genetic endowments, they share the same family and neighborhood environments. This study attempts to compare the difference in sport experiences between twins and control for the common unobserved family endowments. Because physical abilities and strengths may be largely determined by genetic material, it is very important to measure the pure effect of "experiences" separated from "inheritance."

Another advantage of using a sample of twins is the ability to compare MZ twins with nonidentical twins (dizygotic twins; hereafter, DZ twins). Because DZ twins are produced when two eggs are fertilized to form two embryos in the uterus

[4] The pioneering research in this field of study was Ashenfeller and Krueger (1994) and subsequent works, such as Ashenfeller and Rouse (1998) and Rouse (1999). See Nakamuro and Inui (2012) for the case of Japan.

at the same time, DZ twins are not genetically identical. Rather, they are simply regarded as siblings that have the same age (i.e., not genetically identical). Hence, by comparing MZ and DZ twins, we can measure the extent of the effect of family backgrounds separated from genetic determinants in the estimated returns to investments in sports activities.

However, there is a major drawback to this dataset for the purpose of this analysis: young children of the same age are often engaged in the same activities. To assure the good performance of the twin-fixed effects model, within-twin variation in sports experience between twin pairs would need to be substantial. According to our calculations from the survey, only less than 10 % of these twin pairs were engaged in different sports activities, e.g., one of the twin pair took swimming lessons while the other took piano lessons.

Empirical Models

To estimate the effect of athletic experiences, we employ the production function of education, which is conventionally used in the literature to explore input–output relationships (e.g., Hanushek 1994). In this study, the key education input of interest is sport experiences during early school years, and outcome is measured by a wide variety of adulthood outcomes in subsequent life. The specification of the educational production function varies among studies; however, most studies share the features described by the following equation. Consider the following education production function outlined for individual *i* from family *j*:

$$T_{ij} = A_j + X_{ij}\alpha + S_{ij}\beta + e_{ij} \tag{1}$$

If we estimate Eq. (1) using conventional OLS, the results may be affected by the problem of omitted variable bias, such as unobserved differences in native abilities and family backgrounds, making the OLS estimates biased and inconsistent. To deal with this potential bias, the twins setting is applied to the above education production function, where T_{ij} is student achievement measured for twin i ($i=1,2$) in family j and $\boldsymbol{X}_{ij}$ is a vector of individual characteristics that varies over time. The key independent variables of interest $\boldsymbol{S}_{ij}$ represent a vector of inputs, such as whether one is engaged in certain sports. A_j is unobserved family endowments, including family environments and genetic makeup common within twins and constant over time. e_{ij} is a random disturbance with mean zero and constant variance. The mathematical expression is then rewritten for twins as follows:

$$T_{1j} = A_j + X_{1j}\alpha + S_{1j}\beta + e_{1j} \tag{2}$$

$$T_{2j} = A_j + X_{2j}\alpha + S_{2j}\beta + e_{2j} \tag{3}$$

We subtracted Eqs. (2) and (3) to eliminate the unobserved family endowments shared within twin-pairs (A_j) and obtained within-fixed effects estimates of β, while holding other factors constant.

Data

The data used for our empirical analysis were collected through a web-based survey in Japan between the months of February and March, 2012. The survey was conducted through Rakuten Research, an affiliate of Rakuten and a major Internet shopping site (similar to Amazon or eBay) that monitors over 2.2 million people. To analyze the effect of education on earnings, our sample targeted twins who are non-students between the ages of 20 and 60 years. Through this web-based survey, one of twins is asked to report for both themself and their twin sibling (for more information on the survey design, see Nakamuro and Inui 2012; Nakamuro et al. 2013).

After filling the questionnaire, the surveyed were given cash-equivalent "points" that could be spent shopping on Rakuten. Furthermore, we carefully developed the following data collection strategy to exclude "fake" twins (i.e., individuals posing as twins in order to collect these points). We did not inform respondents that the purpose of our survey was to collect data from twins. We began the questionnaire with five questions on family and siblings that were not related to twin status, and the sixth question was whether or not the respondent was a twin: respondent who answered "No" to this question were automatically excluded from the sample. The survey sample yielded 23 twin pairs, with each member included in this survey.

Web-monitoring surveys, which have been making huge strides in Japan, necessarily entail sampling bias (Couper 2000). However, these surveys tend to draw on highly educated individuals who are computer-savvy and affluent enough to afford various forms of computing equipment. Nevertheless, when random sampling is nearly impossible, web-based survey are extremely helpful for drawing data from twins who are over 16 years of age because of the lack of information on maiden names in the current resident registration system.

Fortunately, the web-based survey enabled us to obtain data from a large nationwide sample, whereas previous studies captured only limited demographic segments, making it difficult to represent and generalize the country's entire twin population. Another advantage of the web-based survey, such as the one used for this study, is that there is no concern regarding data attrition, whereas previous literature dealt with a large number of missing values for key variables (e.g., earnings) through imputation (e.g., Miller et al. 1995).

Via the web-based study, we collected 2360 complete pairs of twins (4720 individuals) comprising 1371 MZ twin pairs (2742 individuals), 882 DZ twin pairs (1764 individuals), and 107 twin pairs (214 individuals) who did not know whether they were monozygotic or dizygotic. To the best of our knowledge, this is the first and the largest national database of twins compiled in Japan, and it conveys a wide range of socioeconomic information. It is also worth mentioning that the proportion of MZ twins in our sample is consistent with an existing representative sample of twins in previous literature (e.g., Li et al. 2011). The questionnaires were designed with reference to the Princeton Twins Survey, which is one of the most famous twins surveys conducted by researchers of Princeton University, the Employment Status Survey (Ministry of Internal Affairs and Communications in Japan), and the Longitudinal Survey of Babies in the twenty-first century (Ministry of Health, Labour, and Welfare). The survey dataset included sport experiences at each level of education, academic achievement, annual earnings, occupation type, employment status, firm size, weight, height, smoking status, and so forth.

In addition, several original questions were added to the questionnaire. One of these items was the name and department of the educational institutions from which the respondent and their twin sibling graduated. This enabled us to match the name of institutions with information on a series of deviation values, with mean 50 and standard deviation 10; this standard deviation is called *hensachi* in Japanese and is a commonly used indicator of admission selectivity or relative admission competitiveness for each educational institution in Japan. A larger deviation value is interpreted as indicating a more selective or competitive institution. We had two sets of information retrieved from Kawai-juku and Kan-juku, the largest cramming schools in Japan. While Kawai-juku is geared for high school students preparing for college/university entrance examinations, Kan-juku is geared for junior high school students. The dataset collected from Kawai-juku was the 2011 edition of *Kawai-juku's Ranking of Deviation Values*, which is released annually on the company website (see http://www.keinet.ne.jp/rank/index.html). The other data on deviation values collected from the Kan-juku website was the 2011 edition of *Kan-juku's Deviation Values in Junior High and High School Nationwide*, which has been released annually since 2004. A further response item added to the questionnaire was a subjective, self- and twin-sibling evaluation of academic achievement at the age of 15 years, ranging from 4 (upper class-rank) to 0 (lower class-rank).

Variables and Summary Statistics

The survey responses were first coded according to the key independent variable of interest, i.e., sport experiences during childhood and adolescence. Respondents were asked to recall and describe the sport experiences of both themselves and their twin sibling during their school years. If they were continuously involved for at least three consecutive months during this period, respondents were presented with closed response options to select these activities: gymnastics, swimming, baseball/softball, football, tennis, judo/kendo/other martial arts, and ballet/western dancing/Japanese dancing. This information was coded as a dummy variable: 1 if any of the sports were chosen and 0 if otherwise. Three variables were constructed to represent sport experiences during elementary, middle, and high school.

The descriptive statistics summarized in Table 1 illustrate that 43.6, 25.9, and 19.5 % of respondents were engaged in at least one sport at elementary, middle, and

Table 1 Descriptive statistics. (Source: Authors' calculations)

	All		MZ twins		DZ twins	
	Mean	STDV	Mean	STDV	Mean	STDV
Sport experiences						
Elementary school	0.44	0.50	0.43	0.50	0.44	0.50
Middle school	0.26	0.44	0.27	0.44	0.24	0.43
High school	0.20	0.40	0.20	0.40	0.18	0.39
Academic achievements						
Subjective evaluation at the age of 15	2.57	1.10	2.60	1.08	2.54	1.12
Deviation value at the time of entry to high school	54.12	11.23	54.41	11.39	53.66	10.92
Deviation value at the time of entry to 4 year college	51.61	9.67	51.79	9.64	51.32	9.67
Labor market outcomes						
Annual earnings	5.96	0.74	5.98	0.74	5.95	0.75
Firm size	7.25	3.47	7.33	3.46	7.22	3.49
The probability of taking sales position	0.11	0.31	0.10	0.30	0.11	0.32
Employment status (1 = full-time)	0.57	0.49	0.59	0.49	0.55	0.50
Health outcome						
BMI	21.62	3.07	21.68	2.99	21.56	3.20
The probability of smoking	0.23	0.42	0.23	0.42	0.22	0.41

high school, respectively. The number of children fully engaged in athletic activities decreased with advancing school levels, which may be attributed to more time being devoted to other activities, mainly studying. Soccer and baseball are the most popular sports, whereas engagement in other sports is very widely dispersed. There is a strong correlation between a child's athletic experiences and his/her parental education and living standards at age 15[5]. This is consistent with the findings of Kataoka (2009).

The correlation of the athletic experiences between different levels of education is quite weak. It is plausible that children started a certain sport when they were in elementary school and continued it through high school. However, our data indicate participation and choice of sports activities changed over time. For example, some respondents played basketball in elementary school but did not participate in any sports activities from middle school onward. Others played tennis in middle school and switched to volleyball in high school. Majority of respondents did not have continuous involvement in sports, which justifies the inclusion of the three dummy variables in Eqs. (2) and (3) to look at the effect of sports activities with the different school levels.

[5] The correlations for elementary school, middle school, and high school are 0.11, 0.18, and 0.10 with 5 % statistical significance, respectively.

The adulthood outcomes were established by first measuring academic achievement at the time of entry to high school and college. One cannot always predict the direction of impact that sport experiences will have on this outcome; however, the more time children spend on sports, the less time they have available to study, which could have a negative impact on academic achievement. On the other hand, participation in sports may increase physical vitality and concentration and have a positive impact on academic achievement.

Three dependent variables were created to measure academic achievement at different school levels. The first variable was subjective evaluation of academic achievement at the age of 15, ranging from 4 (upper class rank) and 0 (lower class rank). Because this variable is self-reported, it may be subject to significant error. Therefore, a second variable was constructed to measure the ranking of the high school that each twin pair attended. As explained in the previous section, official deviation values were obtained to enable ranking the specific schools from which the respondents and their twin sibling graduated. This variable was used as a proxy for academic achievement while attending high school or college. The descriptive statistics calculate that the average age of a respondent (and his/her twin sibling) in our sample is 39 years, with 15 years of schooling. The average self-reported academic achievement was 2.57 at age 15 and the average high school deviation value was 54.12. Ninety-eight percent of respondents attended high school, but only 49 % of them went on to a 4-year college, with an average deviation value of 51.61. There was no significant difference in average academic achievement between the cohorts of MZ and DZ twins within the sample.

Second, to measure labor market outcomes, four dependent variables were created. The first variable was defined as the natural logarithm of annual wages before tax earned during the fiscal year of 2009 (April 2009 to March 2010)[6]. The response category in the original questionnaire ranged from 1 (no income or less than 0.5 million JPY) to 16 (more than 15 million JPY). We set the minimum (1 = no income or less than 0.5 million JPY) to 0 and the maximum (16 = more than 15 million JPY) to 15 million JPY. Then, we took the median value for categories between 2 (0.5 million to 0.99 million JPY) and 15 (10 million to 14.99 million JPY). The second variable is firm size. In Japan, because remuneration is strongly correlated to firm size, the latter is used as an indicator of "success" in the labor market. The response category in the original questionnaire ranged from 11(more than 1000, or the public sector) to 1 (1 including yourself). The third variable measured employment status. The dummy variable was coded as 1 if the respondent (or the respondent's twin sibling) is a full-time worker and 0 if otherwise, including housewife (or househusband), student, unemployed, or part-time worker. The fourth variable measured the type of occupation. In Japan, it is generally believed that varsity athletes and sports scholars are more likely to be employed in sales positions. This is perhaps due to these positions requiring social skills (e.g., politeness), physical strength,

[6] This survey asked about earnings during the fiscal year of 2009, instead of 2010, because earnings during the fiscal year of 2010 could have been affected by the Great East Japan Earthquake that occurred on March 11th, 2011.

and personal contacts, which are attributes that employers may seek when hiring people for sale positions. The dummy variable is coded as 1 if the respondent (and the respondent's twin sibling) takes a sales position and 0 if otherwise. Descriptive statistics calculate that the average annual earnings of 3.99 million JPY in this survey is very close to the national average (4.12 million JPY) among all employees in Japan in 2010 (National Tax Agency). Average firm size is 7.25 (50–99 employees) and 57 % of respondents worked full-time, with 11 % in sales positions. For labor market outcomes, there is no significant difference between MZ and DZ twins.

Finally, we also measured health status, which is a vital component of an individual's human capital. The question is whether childhood sport experiences reduce the risk of adulthood obesity and the probability of smoking. Obesity is defined as Body Mass Index (BMI), calculated as weight in kilograms divided by height in meters squared. Smoking is defined as a dummy variable: 1 if the respondent (or the respondent's twin sibling) is currently smoking and 0 if otherwise. The descriptive statistics show an average BMI of 21.62, while 23 % of respondents are currently smoking.

One concern with result reliability is the substantial error potential that is inherent in subjective, self-reported data. In this survey, responses were gathered based on retrospective activity (sport experiences) and subsequent outcomes reported by only one of the twin pairs, instead of both. It is important to note that the sample contained 23 twin pairs, each member of which was included in this survey. When the responses were checked, the responses reported by each of the twin pair were quite accurate, with correlation between self-reported and cross-reported sport experiences at 89.3 %. Not only the sport experiences but also other outcomes show over 90 % correlation within the twin-pair responses. In addition, the twin-pair responses were tested for significant differences between responses of the respondent and their twin sibling; for example, were respondents prone to inflate their reported earnings or education beyond those of their twin siblings? According to the results of two sample t-tests for difference of means, there is no difference between them. As a further robustness check, a respondent dummy was included in all specifications; however, this proved statistically insignificant.

Although majority of twins in our sample attended high schools in the mid-1990s, access to high school/college ranking data from the earlier was quite limited. To confirm whether assumption made regarding the deviation values were valid, deviation values from 2004 (the oldest data available), and 2010 were compared. A correlation of 91.2 % allows the assumption that school ranking characteristics were stable over these years.

Empirical Results

Our empirical analysis begins with the effect of childhood sport experiences on academic achievement. As explained, three different outcomes of academic achievement were constructed: subjective evaluation of academic achievement at the age of 15, the deviation value of the high school that a respondent (and respondent's twin sibling) attended, and the deviation value of the college that a respondent (and respondent's twin sibling) attended. The coefficients, estimated by the twin-fixed effects model, are reported in Table 2, along with the heteroskedasticity robust standard errors. Table 2 presents the results for the entire sample, ones restricted with MZ twins, and ones restricted with DZ twins. The twin-fixed effect estimates with MZ twins must be more accurate than the estimates with the entire sample or with DZ twins because the MZ estimates enable us to control for both family characteristics and genetic endowments while the DZ estimates control only for family characteristics. The difference in genetic endowments between DZ twins may confound the impact of sport experiences, as well as individual characteristics, on student achievement.

Table 2 presents the coefficients of sport experiences at each level of education. These coefficients are statistically insignificant across all specifications, indicating that the effect of sport experiences at every level of education on academic achievement is indistinguishable from zero. One noteworthy finding is that the coefficients of sport experiences at elementary and middle school levels are positive, while the coefficients of sport experiences in high school are negative across all models. This suggests that sport experiences have a positive impact until one graduates from middle school, after which the effect becomes negative. As suggested in the literature, the more time spent studying, in or out of class, the higher the academic achievement for high school students (e.g., Gilby et al. 1993; Murphy and Gates 2011). Because the amount of time available for sport experiences after school is, in general, shorter for high school students than for compulsory students, an increase in sports time may be more directly associated with decreased study time. Taken as a whole, the overall evidence from this analysis suggests that sport experiences at any level of education do not enhance academic achievement.

Table 3 shows the empirical results with four labor market outcomes as dependent variables: the logarithm form of annual income, firm size, occupation (1 = sales position), and employment status (1 = full time). Looking at the effect of sport experiences on annual income, there is no significant association across models, while other covariates, such as years of schooling, gender, marital status, years of tenure, and working hours are statistically significant, and with expected signs. At the same time, there is no evidence of a significant effect of sport experiences on respondents' future occupations or firm size. The conclusion drawn from these empirical results is that mental and physical strength developed from early sport experiences, do not affect the screening or evaluation process of firms. As is the case with academic achievement, the coefficients of sport experiences at elementary and middle schools are positive, while those at the high school level turn negative. It can be interpreted that the effect of sport experiences at high school on labor market outcomes are apparently different from those experiences at middle or primary school.

However, the striking results shown in Table 3 are that early sport experiences increase the likelihood of becoming a full-time worker. Both the results drawn from the sample restricted with MZ and DZ twins and the coefficients of sport experiences at primary and middle schools are statistically significant at a 1% level.

Table 2 Empirical results drawn from twin-fixed effects model (Dependent variables: academic achievements). (Source: Author's calculations)

	All			MZ Twins			DZ Twins		
	Subjective evaluation at the age of 15	Deviation value at high school entry	Deviation value at 4-year college entry	Subjective evaluation at the age of 15	Deviation value at high school entry	Deviation value at 4-year college entry	Subjective evaluation at the age of 15	Deviation value at high school entry	Deviation value at 4-year college entry
Elementary school	0.174	0.742	0.777	0.250	1.504	0.653	0.082	0.657	3.684
	(0.129)	(1.159)	(1.516)	(0.161)	(2.199)	(1.407)	(0.193)	(1.096)	(2.363)
	0.021	0.657	0.512	0.107	0.443	0.655	0.209	2.430	1.816
Middle school	(0.154)	(1.408)	(1.743)	(0.136)	(1.951)	(1.841)	(0.285)	(1.533)	(3.779)
			−0.325			−0.962			−1.971
High school			(1.483)			(1.637)			(2.249)
	2.490***	54.347***	51.755***	2.512***	55.020***	51.940***	2.472***	53.618***	49.742***
Constant	(0.064)	(0.451)	(0.887)	(0.085)	(0.821)	(0.830)	(0.093)	(0.490)	(1.034)
Number of observation	2954	2291	1183	1761	1356	727	1097	875	429

Standard errors in parentheses reflect heteroskedasticity robust standard errors and clustering at the family level. ***, **, and * represent 0.1, 1, and 5% significance level, respectively

Table 3 Empirical results drawn from twin-fixed effects model (Dependent variables: labor market outcomes). (Source: Author's calculations)

	All				MZ twins				DZ twins			
	Income	Firm size	Sales	Full time	Income	Firm size	Sales	Full time	Income	Firm size	Sales	Full time
Elementary school	0.033	0.078	0.053	0.138**	0.059	0.339	0.109	0.111**	0.010	−0.279	−0.016	0.150***
	(0.018)	(0.400)	(0.096)	(0.053)	(0.080)	(0.183)	(0.166)	(0.055)	(0.076)	(0.675)	(0.048)	(0.047)
Middle school	0.025	0.394	0.034	0.064***	0.017	−0.388	0.005	0.018***	0.041	−0.496	0.084	0.094***
	(0.061)	(0.440)	(0.083)	(0.011)	(0.071)	(0.377)	(0.108)	(0.002)	(0.140)	(1.265)	(0.109)	(0.016)
High school	−0.002	−0.379	−0.077	0.03	−0.031	−0.66	−0.104	0.183*	−0.042	−0.066	0.042	−0.158
	(0.061)	(0.501)	(0.117)	(0.071)	(0.055)	(0.676)	(0.195)	(0.090)	(0.139)	(0.967)	(0.064)	(0.109)
Education (in years)	0.055***		−0.021	0.020*	0.049***		−0.002	0.011	0.062*		−0.039	0.021
	(0.013)		(0.013)	(0.009)	(0.012)		(0.015)	(0.012)	(0.027)		(0.021)	(0.013)
Gender (male=1)	0.287***	0.124	0.017	0.311***		−0.126			0.315***	0.345**	0.042	0.307***
	(0.063)	(0.096)	(0.055)	(0.040)		(0.136)			(0.066)	(0.124)	(0.056)	(0.041)
Married (yes=1)	−0.047		−0.041	−0.068*	−0.034		−0.003	−0.088*	−0.074		−0.07	−0.033
	(0.034)		(0.036)	(0.031)	(0.041)		(0.059)	(0.042)	(0.057)		(0.039)	(0.048)
Tenure (in years)	0.018***				0.019***				0.019***			
	(0.002)				(0.003)				(0.004)			
Hours (in a day)	0.086***				0.086***				0.078***			
	(0.009)				(0.011)				(0.016)			
Constant	4.033***	5.621***			4.288***	9.322***			4.040***	2.469		
	(0.210)	(1.393)			(0.218)	(2.007)			(0.392)	(1.754)		
Number of observation	2329	1988	1360	3066	1420	1217	848	1810	833	706	462	1138

Standard errors in parentheses reflect heteroskedasticity robust standard errors and clustering at the family level. ***, **, and * represent 0.1, 1, and 5% significance level, respectively

Table 4 Empirical results drawn from twin-fixed effects model (Dependent variables: health outcomes). (Source: Author's calculations)

	All		MZ twins		DZ twins	
	BMI	Smoking	BMI	Smoking	BMI	Smoking
Elementary school	−0.930**	−0.097	−0.332	−0.026	−1.553**	−0.161
	(0.452)	(0.060)	(0.372)	(0.086)	(0.599)	(0.083)
	−0.325***	−0.094	−0.333	−0.098	−0.866**	−0.092
Middle school	(0.084)	(0.078)	(0.343)	(0.099)	(0.280)	(0.127)
	−0.006	−0.136	−0.140	−0.093	−0.028	−0.198
High school	(0.442)	(0.079)	(0.372)	(0.114)	(0.885)	(0.112)
	21.416***	0.179***	21.531***	0.245***	21.229***	0.143***
Constant	(0.228)	(0.027)	(0.138)	(0.036)	(0.395)	(0.041)
Number of observation	2278	3066	1362	1810	822	1140

Standard errors in parentheses reflect heteroskedasticity robust standard errors and clustering at the family level. ***, **, and * represent 0.1, 1, and 5 % significance level, respectively

Surprisingly, the magnitude is larger for sport experiences at primary school compared with middle school. This result is also consistent with Currie and Almond (2011)'s conclusion, based on a comprehensive review that child (and parent) characteristics measured at school entry have a large long-term impact on adulthood outcomes. However, one may question why early childhood experiences affect one's likelihood of gaining full-time future employment, but not affect productivity. Looking at the coefficients of annual earnings, the results from the sample restricted with MZ twins indicate the coefficient of sport experiences at primary school is statistically significant at a 10 % level. Although the evidence is weak, there may be a positive effect of early childhood sport experiences on both future employment status and productivity.

Finally, Table 4 shows the empirical results with health outcomes as dependent variables. The coefficients of sport experiences on smoking habits are negative, but statistically insignificant. On the other hand, the effect of sport experiences at primary and middle schools on adulthood obesity is negative and statistically significant if the sample is restricted with DZ twins, unlike the case of MZ twins. Because DZ twins are not genetically identical (unlike MZ twins), the difference in these results between MZ and DZ twins indicates that even if family environments are the same, different genetic makeups can confound the impact of sport experiences, as well as individual characteristics, on adulthood obesity. Therefore, sport experiences are important for health, but these effects are moderated by different genetic makeups; therefore, genetic makeup can be interpreted as a determinant of obesity, although we should be cautious in interpreting these results given the small sample size of the dataset used in this study.

Conclusion

Parents and schools have paid significant attention to extracurricular (or out-of-school) sports activities for their children and students in Japan. However, little is known about the impact these sports activities have on longer-term educational and labor market outcomes. This study attempts to explore these relationships.

This study analyzed a sample of twin data, applying a fixed effects approach to account for the endogeneity of participation in sports activities. Analyses of these data demonstrate no statistically significant positive effects of sport experiences on academic achievement across all school levels. Coefficients of sport experiences at elementary and middle schools are positive, whereas those on sport experiences at high school are negative across all models. It is likely that sport experiences have a positive impact until one graduates from middle school, turning negative after that. Conclusions drawn from previous research suggest that the more time spent studying, the higher the academic achievement for high school students.

On observing the effect of sport experiences on annual income, firm size, and occupation, it is evident that there is no significant effect of sport experiences across all school levels. However, early sport experiences raise the likelihood of becoming a full-time worker as an adult. Future studies can question why early childhood sport experiences affect one's likelihood of being in full-time future employment while not affecting productivity.

The results also indicate that the effects of sport experiences on smoking habits are negative, but statistically insignificant. On the other hand, the effect of sport experiences at primary and middle schools on adulthood obesity is negative and statistically significant if the sample is restricted to DZ twins, unlike the case of MZ twins; however, the restricted sample size compromises the significance of these results.

Further study is warranted to find out exactly how early sport experiences affect one's likelihood of future full-time employment, but not productivity, and to explore the effect of sport experiences on adulthood obesity, lifestyle choices, and health status. Additional research is also needed to identify any specific effects from exposure to different activities and formats (i.e., physical education at school, school-sponsored extracurricular sports activities, out-of-school sports activities), and the effect of sports activities on different cohorts, such as different income groups, to better inform the design of school and social sports activities and programs in the future.

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Sweated Labour, Literally Speaking: The Case of Australian Jockeys

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Abstract This chapter provides an examination of the income, employment status and employment conditions of jockeys and offers a number of policy recommendations to overcome various problems they experience. Jockeys receive average incomes lower than the Australian full-time workforce and those of other leading Australian sports, and receive a low percentage of the income they generate. They have been employed as independent contractors. An examination of their employment reveals they should be regarded as employees and would receive the same entitlements available to the workforce as a whole, under Australian law. Their working life is dominated by the constant use of "wasting" to reduce and maintain their weight that has detrimental physical and psychological effects.

Introduction

"Sweating" is a term associated with the industrialisation and urbanisation that occurred in the nineteenth century to describe the low pay and harsh working conditions of workers. They were subject to strict control by others and worked long hours in dangerous environments as they struggled to eke out an existence for themselves and their families. This nineteenth century depiction of the lot (or little) of

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Sweatshop: a workshop, or the like, employing workers at low wages during overlong hours, under unsanitary or otherwise unfavourable conditions—The Macquarie Dictionary (*The Macquarie Dictionary*, Macquarie Library, Sydney, 1981, p. 1744).

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workers can be applied to the employment conditions of jockeys in contemporary Australia. The majority of jockeys receive relative low rates of pay, are subject to the control of principal racing authorities and the ever-present risk of injuries, even death, in plying their trade. In an attempt to attract rides they subject themselves to a regime of limited intake of food and drink, and spend virtually every day of their careers sweating, literally speaking, in saunas and employing physical exercise and other means to keep their weight down. Sweating and the denial of food and drink are also linked to sleep deprivation, social isolation and physical and psychological harm.

This chapter provides an account of the wages and employment conditions of jockeys.[1] It will begin with information on their income benchmarked against the Australian workforce, other leading Australian sports and jockeys overseas. This is followed by an examination of the employment status of jockeys, whether they are employees or independent contractors, and of their broader employment conditions. As the discussion unfolds, a number of policy recommendations are offered to address various problems identified.

Jockey Income

In 2007, it was estimated that the Australian racing industry contributed over $ 5 billion to the Australian economy with 65,500 employees directly employed, and an additional 67,300 employed in support industries.[2] In the *2011 Australian Racing Fact Book,* the then Australian Racing Board Chairman, Mr. R. G. Bentley repeats the $ 5 figure as the industry's contribution to Australia's gross domestic product.[3] It seems reasonable to surmise that the racing industry's contribution has grown since 2007.

Other than for Table 1, I have been unable to obtain additional information concerning changes in the size and impact of the industry on the Australian economy. Table One 1 provides a summary of the principal racing authorities'[4] income for the period 2006/2007–2011/2012. Principal racing authorities are the bodies responsible for the operation of racing within respective states and territories. Their respective "powers" are based on legislation enacted by such governments; for example,

[1] For a brief historical examination of horse racing in Australia see O'Hara (1994).

[2] *Economic Impact of Australian Racing*, IER Report, South Melbourne, August 2007, pp. 9–10.

[3] 2011 Australian Racing Fact Book: A Guide To The Racing Industry In Australia, p. 4.

[4] Their respective websites are Racing New South Wales, www.racingnsw.com.au; Australian Capital Territory, http://www.thoroughbredpark.com.au; Racing Victoria, http://www.racingvictoria.net.au; Queensland Racing, http://www.racingqueensland.com.au; Tasmania Racing, http://www.tasracing.com.au; Thoroughbred Racing South Australia, http://www.theracessa.com.au/thoroughbredracingsa; Racing and Wagering Western Australia, http://www.rwwa.com.au; and Northern Territory Racing, http://www.trnt.org.au.

Table 1 Principal racing authorities' income 2006/2007–2011/2012. (Source: Principal Racing Authority annual reports)

Year	Income
2006/2007	$ 746,239,655
2007/2008	$ 804,638,825
2008/2009	$ 882,726,302
2009/2010	$ 960,601,635
2010/2011	$ 987,447,102
2011/2012	$ 1,228,283,768
Total	$ 5,609,937,287

Table 2 Full time adult average annual earnings and change from previous year May 2007–2012. (Source: Australian Bureau of Statistics, Cat. No. 6302.0, Average Weekly Earnings, Australia)

	Annual income[a]	Percentage change from previous year
May 2007	$ 58,984	4.0%
May 2008	$ 61,521	4.2%
May 2009	$ 64,662	5.2%
May 2010	$ 67,865	5.5%
May 2011	$ 70,673	4.4%
May 2012	$ 73,648	4.1%

[a]Annual income has been derived by multiplying weekly income by 52

the *Thoroughbred Racing Act, 1966* (NSW).[5] Such income is only a (n important) portion of the total income generated by the racing industry. In this period, annual levels of income have increased from $ 746 million to $ 1.228 billion, an increase of almost 65%. If we take the period from 2007/2008 as being equivalent of the starting point of the $ 5 billion estimate above, the increase is 52%. If we were to apply this same increase to the racing industry as a whole (which would rest on the heroic assumption that its various elements have grown together at the same pace), the industry, in 2011/2012, would have generated approximately $ 7.6 billion.

Before examining the income of jockeys it might be useful to present data on Australian wide earnings and those of athletes in leading Australian domestic sports. Table 2 presents information on full time adult average annual earnings and changes from the previous year, from May 2007–2012, as reported by the Australian Bureau of Statistics. This measure includes income from bonuses and performance-based payment schemes, which are relevant to the way in which jockeys are paid. In May 2007, average annual earnings for a full-time adult workforce were slightly less than $ 59,000. By May 2012, this figure had increased to $ 73,648; an increase of 24.86%. The average annual percentage increase has been approximately 4.8%.

Table 3 provides information on minimum and average incomes and players' share of income in Australia's five leading sports, Australian Rules Football (AFL),

[5] Section 13(1)(b) of *Thoroughbred Racing Act, 1966* (NSW) empowers Racing New South Wales "to control, supervise and regulate horse racing in the State".

Table 3 Minimum, average incomes and players' share of revenue in major Australian sports 2012/2013 or 2013. (Source: Information provided by respective player associations)

	Top tier players	Minimum wage	Average income	Second tier players	Minimum wage	Players' share of revenue
AFL	Primary List (38–40 players)	\$ 74,445, plus \$ 3225 per match	\$ 252,000	Rookies (4–6 players)	\$ 49,287	25 %
Rugby League	First tier (25 players)	\$ 75,000	\$ 234,000 excluding national and state of origin players	Second tier (no limit)	\$ 45,000 plus \$ 3000 a game; after four games increased to \$ 75,000	Almost 25 % including national and state of origin players
Rugby Union	Super rugby (30 players) plus Wallabies	\$ 63,062	\$ 210,000 all players; \$ 140,000 super rugby players	Extended playing squad (five players)	\$ 43,095	34 % (this figure is for 2011)
Cricket	Cricket Australia (17–20 players)	\$ 230,000[a]	Cricket Australia players \$ 572,500–\$ 812,500; State \$ 128,700;and Big Bash \$ 55,555	State (15–20 players) Rookies (3–6 players) Big Bash (18 players)	\$ 50,000[a] \$ 18,000[a] \$ 20,000	24.5–27.5 % subject to performance
Soccer	A-League (23 players, 21 plus 2 marquee players)	\$ 47,094	\$ 125,751 (excluding two marquee players)	Rookies (minimum of three players)	\$ 38,020	31.5 % including Socceroos and other national teams#

All player numbers are per team/club
[a]Retainers. Number includes income generated by Socceroos and other national teams

Rugby League, Rugby Union, Cricket and Soccer for either 2012/2013 (Cricket and Soccer), or for 2013 (AFL and the Rugby codes). The AFL negotiated a new Collective Bargaining Agreement at the end of 2011. Cricket and Rugby League completed negotiations for new agreements in 2012. Rugby Union and Soccer are both in the process of negotiating new deals in 2013.

Table 3 makes a distinction between first and second tier players, and provides details on the number of such players specified in each tier. First tier players are those that play for leading teams, whether international representatives such as in Cricket and Rugby Union, or first team players in a League competition. "Lower" level players are either being groomed by clubs and/or will be used as replacement players when first tier players are injured or unavailable for other reasons. For example, the AFL has 38–40 first and 4–6 second tier, or Rookie, players. Cricket is somewhat more complicated than the other codes with a series of tiers. Seventeen to twenty players have what are called Cricket Australia contracts and mainly represent Australia in international fixtures. Then there are 15–20 State players and 3–6 Rookie players, who represent the six states that compete in four and one day competitions. Finally, there is an eight-team Big Bash competition (Twenty/20 Cricket) with a squad of 18 players. Virtually all of the State (and some Cricket Australia contracted) players compete in the Big Bash.

Table 3 reveals that there is a high degree of variance in the minimum and average wages of players in the first tier, but not so much in the minimum wage of players in the second tier of the respective codes. Cricket Australia contracted players have the highest minima (they are actually retainers) and average income of all the codes; $ 230,000 and $ 572,500–812,500, depending on meeting performance metrics. Both the AFL and Rugby League have similar minima in the region of $ 75,000, followed by Cricket State and Big Bash Players at a combined minimum of $ 70,000, Rugby Union at $ 63,000 and Soccer at $ 47,000. Putting to one side Cricket Australia contracted players, AFL players have the highest average income with $ 252,000; followed by Rugby League, $ 234,000; Rugby Union, $ 210,000 for all players, dropping down to $ 140,000 for Super Rugby players; State and Big Bash Cricketers, at $ 194,000; and Soccer less than $ 126,000.

Cricket again has the highest minimum wage for its first category of second tier, or state players at $ 50,000. Big Bash players have a minimum wage of $ 20,000 and Rookies $ 18,000. The AFL follows cricket, over $ 49,000 for Rookies, Rugby League, $ 45,000, Rugby Union, $ 43,000 and Soccer, $ 38,000.

There is a degree of variance in the shares of income received by players in the respective sports, which seems to be inversely linked to the size (income generated) of the respective codes. The AFL and Rugby League, Australia's two dominant winter sports, provide players with an approximate 25 % share of the revenue. The slightly greater variance in cricket is explained by player rewards being linked to performance indicators. It is also important to note that cricket is the only sport that makes use of retainers as the basis of the minimum incomes that it pays players. Soccer players (the A-League and members of respective international teams) receive 31.5 % and Rugby Union players 34 %.

Table 4 Licence conditions and riding fees across various jurisdictions. (Source: Jockey Licences and information provided by Australian Jockeys' Association)

	Licence fee	Track work requirement	Signing over of intellectual property	Riding fee	Trial fee
New South Wales	$ 220	Yes	Yes	$ 170	$ 61.25
ACT				$ 170	$ 61.25
Victoria*	$ 353	No	Yes	$ 175*	$ 65.00
Queensland	$ 300	No	No	$ 165	
South Australia	$ 383.50	Yes	Yes	$ 160	$ 40.00
Western Australia	$ 183	No	No	$ 155	
Tasmania*		Yes	No	$ 165[a]	$ 43.30
Northern Territory	$ 150	Yes	No	$ 225	$ 27.50

[a] A minimum ride allowance is paid in addition to the riding fee

To work as a jockey, one is required to obtain a license, from a Principal Racing Authority or an Association of Clubs.[6] The cost of obtaining such fees varies across the Principal Racing Authorities (see Table 4). Jockeys work 363 days of the year, with Good Friday and Christmas Day constituting their "annual" holidays. The typical day of a jockey is an early morning rise for track work, which commences sometime after 4 am and finishes sometime before 7 pm. Jockeys, on average devote 15 h a week to track work, for which they receive no pay (except for possibly five jockeys who are on retainers with trainers) in the hope of "keeping sweet" with trainers to obtain rides in the future. They do not receive travelling or other allowances. After track work, on some days, jockeys will be involved with trials, for which they receive payments that, for 2012/2013, range from $ 27.50 to $ 65.00 (see Table 4). Jockeys will return home and/or have a rest and will spend time exercising and/or using other methods to lose and/or make their weight for the racing that lies ahead. If there are no night meetings, they will return home and usually try to go to sleep at around 8.30 pm. If there are night meetings they will come home later. The cycle then resumes, all year round.

In 2009, Vivienne Sullivan completed her PhD thesis that examined the physical, psychological and social well-being associated with the relentless "wasting", or reducing and maintaining weight, which jockeys do to continue their careers. While her major findings will be presented below, she provides valuable information concerning employment characteristics of jockeys. Based on a survey she conducted, probably in 2007 or 2008, of 42 jockeys (10 women and 32 men), she found that jockeys on average spent 46.8 h on riding duties, with a standard deviation of 19.1 h. The average age of jockeys was 29.6 years, with a standard deviation of 8.6 years; and the average length of careers was 12.9 years, with a standard

[6] *Australian Rules Of Racing*, Amended to 1st November 2012, Articles 1 and 81.

deviation of 9.7 years.[7] In 2010, the Australian Jockeys' Association conducted a survey of its members. The average age of the 220 members who responded was approximately 34 years. It also found that 38 of its members found themselves working second jobs, an average of 30 h a week.[8] These were presumably jockeys who experienced problems obtaining rides.

The remuneration of jockeys is based on piece rates or performance pay. Except for a qualification in the next sentence, jockeys do not receive guaranteed minimum rates of pay or retainers, as those in the major Australian sports examined above. I was informed that there are five jockeys who are employed on retainers by trainers. The total value of these retainers is approximately $ 1 million. Other than for these five, other jockeys are paid per ride (see Table 4) and receive a share of the 5 % of prize money that is reserved for jockeys (15 % goes to trainers, 80 % to owners). This payment system has four major effects. Firstly, the income of jockeys is precarious. Secondly, it makes jockeys highly dependent on the good graces of trainers to obtain rides. Thirdly, and following from this, it is associated with feelings of insecurity, if not anxiety. Fourthly, given the year-long nature of the racing calendar it precludes jockeys from taking time off to recover from injuries/sickness and precludes the taking of holidays with family for fears of loss of income and losing future rides.

Table 4 provides a summary of various conditions contained in the licences[9] of jockeys and riding and trial fees they receive. The former are for the 2011/2012, with the exception of Western Australia (for 2012/2013), and the latter are for the 2012/2013. I do not have a licence for ACT riders, though presumably the majority of them are registered in New South Wales. Blank spaces represent an absence of knowledge concerning the matter under consideration. The information concerning licence fees only pertains to top or Class A jockeys. Other categories such as B, jump or apprentices are required to pay lower amounts when applying for licences.

Table 4 reveals that there is a range in the licence fees between jurisdictions, ranging from as low as $ 150 in the Northern Territory to as high as $ 383.50 in South Australia. In New South Wales, South Australia, Tasmania and the Northern Territory licences require jockeys to undertake track work, for which they receive no pay (see above). New South Wales, Victoria and South Australia require jockeys to sign over their intellectual property rights to their Principal Racing Authorities. Riding fees are generally in the range of $ 150–170, with the exception of the Northern Territory, which is $ 225. This higher rate, I have been informed, is due to fewer races and lower prize money which is on offer, compared to other

[7] Sullivan (2009).

[8] Australian Jockeys' Association, *Member Research 2010*, Final Report—September 2010, pp. 15 and 45.

[9] Racing NSW-Licence Application-Jockey: J 2011/2012; Racing Victoria, Jockey Application Form 2011/2012; Racing Queensland, Jockey Licence Application, 2011/2012; Thoroughbred Racing South Australia Limited, Application for Jockey's Licence: J 2011/2012; Racing and Wagering Western Australia, Thoroughbred Jockey New Licence Application (01.08.12 to 31.07.13); Racing Services Tasmania, Application for Jockey "A" Licence; Thoroughbred Racing Northern Territory-Jockey Application For Period Ending 30 April 2012.

Table 5 Total, percentage share and average annual income of jockeys 2006/2007–2012/2013. (Source: *Australian Racing Fact Book* (various issues)

Year	Total jockey income	Percentage share of income	Number of jockeys[a]	Average income[a]	Number of jockeys[b]	Average income[b]
2006/2007	$ 36,468,028	4.89 %	953	$ 38,267	884	$ 41,253
2007/2008	$ 42,274,171	5.25 %	969	$ 43,627	(899)	($ 47,024)
2008/2009	$ 41,980,173	4.78 %	903	$ 46,491	(838)	($ 50,096)
2009/2010	$ 52,009,347	5.41 %	897	$ 57,981	(832)	($ 62,511)
2010/2011	$ 52,367,818	5.30 %	868	$ 60,332	851	$ 61,537
2011/2012	$ 54,121,724 ($ 55,121,724)	4.41 % (4.48 %)	887	$ 61,017 ($ 62,144)	773	$ 70,015 ($ 71,309)
20012/2013	$ 56,282,106 ($ 57,282,106)	N/A	887[c]	$ 63,452 ($ 64,580)	773[c]	$ 73,093 ($ 74,104)

Author's estimate/guesstimate based on 2006/2007 ratio of a to b
N/A not available
[a] From Australian Racing Fact Book
[b] Australian Jockeys' Association estimate
[c] Based on previous year's data

jurisdictions, other than the ACT, which is usefully viewed as being a subset of racing in New South Wales. Trial fees range from a low of $ 27.50 in the Northern Territory to $ 60 to $ 65 in the more populous states.

Table 5 presents data on the total income of jockeys, their percentage share of the revenue of Principal Racing Authorities and average income from 2006/2007 to 2012/2013. It is derived from information published in annual editions of the *Australian Racing Fact Book*. As mentioned above, there are five jockeys on retainers that net them a combined amount of $ 1 million. This amount has been added to the data for 2011/2012 and 2012/2013 respectively, and is presented in brackets. This revised data will be used in the discussion that follows. Two calculations concerning average income have been provided. The first is based on information contained in the *Fact Book*. The Australian Jockeys' Association maintains that this overstates the number of jockeys. Some have licences in more than one state in following the racing calendar. The figures in brackets for 2007/2008–2009/2010 are based on my adoption of the same proportions between the two indicators for jockey numbers that occurred in 2006/2007. I have deliberately "biased" the number of jockeys downwards in these years to "produce" higher average incomes for jockeys. It is these "biased" upward calculations of jockey income that will be relied upon in the discussion that follows. I would rather be accused of understating the case than overstating it when it comes to the income of jockeys.

Average annual jockey income, using the Australian Jockeys' Association estimates of the number of jockeys, has increased from $ 41, 253–74,104 over this period; an increase of almost 80 %. This increase is higher than the 57 % increase for racing industry income as a whole (see above) because of the decrease in the number of jockeys which has occurred, especially after 2010/2011. The data here constitutes gross income. Jockeys incur a number of other expenses, which need to be deducted from their income (some of which they may be able to claim as tax deductions), which is not the lot of athletes in major Australian sports.

Table 6 A comparison of Australian jockey income with Australian average income 2007–2012/2013. (Source: Tables 2 and 3)

	Annual Australian income	Average jockey income
2006/2007	$ 58,984 (May 2007)	$ 41,253
2007/2008	$ 61,521 (May 2008)	$ 47,024
2008/2009	$ 64,662 (May 2009)	$ 50,096
2009/2010	$ 67,865 (May 2010)	$ 62,511
2010/2011	$ 70,673 (May 2011)	$ 61,537
2011/2012	$ 73,648 (May 2012)	$ 70,015 ($ 71,309)
2012/2013		$ 73,093 ($74,104)

The first is licence fees, as indicated in Table 4. Secondly, costs of riding equipment, helmets, saddles, straps, etc. that may average up to $ 4000 a year; or more for those who use superior equipment. Thirdly, there is the cost of saunas and "medications" to reduce/maintain weight. Fourthly, there are travel and accommodation costs, especially for attending meetings away from one's home or base. While players of Australia's leading sports will make their way to home games, travel, accommodation and meals for "away" fixtures will be met by their club or league. Cricket's Memorandum of Understanding has provisions for family members to be accommodated with players during the Christmas/New Year break, travel and accommodation on "long" overseas tours and attendance at the "Allan Border Medal", where leading cricketers receive awards.[10] Finally, apprentices pay 25 % of their riding income to their trainers, in "payment" for training and board.

The average income of jockeys has been consistently lower than average income for the Australian population as a whole, as demonstrated in Table 6. The difference between the two measures was over $ 17,000 in 2006/07. It has declined somewhat, in recent years with the difference in 2011/2012 being only $ 2500. A large part of this decrease, however, would be explained by the decline in jockey numbers that occurred after 2010/2011.

If we take the average income of jockeys for 2012/2013, it compares unfavourably with that of athletes of other leading Australian sports, as reported in Table 3 above. In fact, other than for Soccer and Rugby Union, it is below the minimum wages or retainers paid to top tier players of those respective sports. Australian Cricket contracted players have an annual minimum retainer of $ 230,000 with second tier state players with a $ 70,000 minimum, when their state minima retainer is combined with their Big Bash minima. AFL and Rugby League have minima of approximately $ 75,000, Rugby Union $ 63,000 and Soccer $ 47,000.

Table 7 provides information on prize money and riding fees in different nations (for 2012–2012/2013). No attempt has been made to combine the two separate pieces of data for each nation, to devise an overall league ladder because of my lack of knowledge concerning the weight of the two categories in the respective nations. In terms of prize money, Australia is a laggard, having the lowest share of prize

[10] Memorandum of Understanding Between Cricket Australia And Australian Cricketers' Association (2011/2012), Clause 7. A new Memorandum is in the process of being written up.

Table 7 International prize money and riding fees. (Source: Information supplied by respective Jockeys' Associations)

Country	Prize money	Average prize money Australian equivalent	Rank	Riding fees Australian equivalent	Rank
Canada	10%	$ 310–145,545	12	$ 39–97	11
France	8.5%	$ 2436	5	$ 21	14
Hong Kong	10%	$ 12,566	1	$ 123	6
India	7.5%	Very low	14	$ 26	13
Japan	5%	$ 2945	4	$ 328–794	1
Macau	10%	$ 3080	3	$ 123	6
Malaysia	5%	$ 889	10	$ 64	12
New Zealand	5%	$ 275–1964	13	$ 90	9
Singapore	5%	$ 2184	6	$ 199	2
South Africa	7% or 10%	$ 382–545	11	$ 86	10
UAE	10%	$ 1488–965,100	2	$ 157	5
UK	6%	$ 1137	8	$ 180	3
USA	10%	$ 2175	7	$ 68–101	8
Australia	*5%*	*$ 1103*	*9*	*$ 155–220*	*4*

money of 5% with four other nations. Six nations have a prize money pool of 10%. In Australian dollar equivalent terms, Australia finishes ninth out of 14 nations. When it comes to riding fees, Australia fares somewhat better. In Australian dollar equivalent terms, Australia finishes fourth; only exceeded by Japan, Singapore and the UK.

The average income levels of jockeys have been consistently lower than that of annual average earnings for the adult full-time workforce as a whole; though there has been a degree of catching up in recent years. The picture is starker in comparison to the athletes of leading Australian sports. Not only are jockeys' average incomes substantially below those of these respective sports, in some cases they are below the minimum rates of pay which have been enshrined in the respective sports' Collective Bargaining Agreements. Australian jockeys enjoy lower rates of prize money than most of their overseas compatriots. When it comes to riding fees they are somewhat better-off.

Jockeys experience income insecurity, if not anxiety, because they are employed on a piece rate or performance-based payment system. Jockeys have historically received 5% of racing industry income. In 2002, the Australian Jockeys' Association was formed. In recent years, it has been active in pursuing employment and related needs of members.[11] The Australian Jockeys' Association should seek to increase this percentage share to 12.5%, with the first 10% being income and the other 2.5% directed to jockey welfare programs (see below). This 12.5% is half,

[11] For details of its history and activities see the Australian Jockeys' Association website: www.australianjockeys.org.

or more than half of the share received by the athletes of other leading Australian sports (Table 3).

Jockeys are required to pay a fee each year to obtain a licence to continue in their careers. Given the low levels of income they earn and the correspondingly high income of the Racing Industry (Table 1), such fees should be abolished. Moreover, jockeys only need to be registered at work in the industry at the point of entry (as occurs in major Australian codes), where they are funnelled through as apprentices, and are not required to renew their registration each year, once granted. Their registration will come to an end on retirement and, of course, can be varied, revoked or whatever if and when jockeys fall foul of various racing industry requirements and codes. Once a jockey and an apprentice have been registered they should be paid a minimum retainer, as per arrangements in Cricket, consistent with traditional norms which have operated in racing. The minimum retainers are designed to be consistent with minimum payment arrangements in other Australian sports (Table 3) and average annual full time adult earnings of the Australian workforce (Table 2).

A major advantage of retainers is that it will provide jockeys with a sense of income security, which they have not hitherto enjoyed. It will help to reduce their dependency on "staying sweet" with trainers to obtain rides and to ride when ill or recovering from injury.

Based on the data for 2011/2012, the minimum retainers should have been $ 50,000 for apprentices, $ 75,000 for jockeys, with $ 90,000 for those jockeys which finished between 11th and 20th on the jockeys' premiership list, and $ 100,000 for those which finished in the top ten, on the assumption that the racing territory/jurisdiction concerned had 250 race meetings or 3000 races in that year. Effectively, this means New South Wales, Victoria and Queensland.[12] The more abled jockeys should receive a premium over less abled ones. The payment of such retainer amounts would/should be deducted from the 10 % share recommended above for jockeys with adjustments being made to the "previous" balance between riding fees and prize money. These retainers should be adjusted every year for changes in Principal Racing Authorities' income.

Jockeys are required to pay for their saddles, equipment and travel costs and apprentices pay back trainers, with whom they lodge 25 % of their riding income. Apprentices have low incomes and this traditional practice should not apply to the minimum retainer recommendation offered here. Why should trainers receive any compensation for training apprentices? It is in the interest of trainers to take on apprentices for the realisation of their business objectives. Why should trainers be enabled to "tax" apprentices for the work that they perform for them? And, to the extent that trainers have two types of apprentices, those that attract rides and those that don't, why should the successful ones be "taxed" when the less successful are not?

Decisions of courts, in various jurisdictions, involving so-called justifications for compensation for "training" provided to players, by clubs in professional team sports, could be applied to the situation of apprentices. Advocate General Lenz in

[12] See *2012 Australian Racing Fact Book: A Guide To The Racing Industry In Australia*, p. 10.

Bosman, a case involving a challenge to soccer's transfer and compensation system, under the European Economic Treaty, said:

> Any reasonable club will certainly provide its players with all the development necessary. But this is expenditure which it is in the club's own interests and which the player recompenses with his performance.[13]

In 1975, in *Mackey*, Mr Justice Larson of the US District Court Fourth Division (Minnesota), in a case involving American (gridiron) football said:

> the expenses incurred in selection, training and development of professional football players is not unlike that of any other businesses which incur hiring and training costs. There is no right of compensation for this type of investment.[14]

In 2008, the Court of Arbitration for Sport, in a case involving the Scottish football player Andrew Webster, provided a different perspective on this training argument. It said that there was no reason "to believe that a player's value on the market owes more to training by the club than to a player's own efforts, discipline and natural talents".[15] Why should a club receive a benefit for a player who has become more skilled because of his "own efforts, discipline and natural talents"?

The Employment Status of Jockeys

The *Australian Rules of Racing* defines a jockey as "a person licensed by a Principal Racing Authority or an Association to ride for hire". An apprentice is defined as "a person who is duly bound to a trainer or owner in accordance with the Local Rules of the Principal Racing Authority with jurisdiction over the territory in which such trainer or owner resides".[16] Note the difference in the language used between these two categories of "riders". Jockeys are *for hire*, employed as independent contractors, under contracts for service; and apprentices are *bound* (in a word which is charmingly Dickensian) to a specific employer as employees under a contract of service.

Apprentices are subject to traditional industrial law, such things as awards,[17] whereas jockeys are not. As a result, jockeys have been denied various award entitlements available to the Australian workforce, such as annual, long service, carers and other forms of leave and any associated loadings, a working week of (now) 38 h, ordinary or stipulated hours of working, breaks, overtime and penalty rates,

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[13] Case C-415/93 *Union Royale Belge des Societies de Football Association ASLB v Jean-Marc Bosman* (1995) ECR I-4921, Lenz at paragraph 237.

[14] *Mackey v National Football League*, 407 F Supp. 1000 (1975), at 1008.

[15] Court of Arbitration for Sport, CAS 2007/A/1298 *Wigan Athletic FC v Heart of Midlothian*; CAS 2007/A/1299 *Heart of Midlothian v Webster & Wigan Athletic FC*; CAS 2007/A/1300 *Webster v Heart of Midlothian*, 30 January 2008, at paragraph 142.

[16] *Australian Rules Of Racing*, Article 1.

[17] See *Horse and Greyhound Training Award 2010,* MA000008, Fair Work Australia.

various allowances germane to their employment, and redundancy and/or termination payments.

The Australian Jockeys' Association has informed me that, in the second half of 2012, it received a ruling from the Australian Taxation Office that jockeys, under Section 12(8)(a) of the *Superannuation Guarantee (Administration) Act 1993* (Cwth), were regarded as employees who were entitled to receive statutory superannuation payments for income derived from riding fees, but not prize money.

Being "classified" by the racing industry as independent contractors is the reason why jockeys (with the possible exception of those with retainers) have to provide their own equipment and meet travel and associated costs identified above. Should jockeys, in fact, be more correctly viewed as employees rather than independent contractors?

There are four leading cases in this area. *Zuijs v Wirth Brothers* determined that if those concerned were under the "control" of an employer they were, in fact, employees and not independent contractors.[18] *Stevens v Brodribb Sawmilling* extended this to consider the facts of what is performed against a range of "indicia".[19] This was modified in *Hollis v Vabu* to conduct a "multifactor" analysis.[20] Finally, in *On Call Interpreters v Commission of Taxation* such a decision would be based on the "reality" of the relationship between the parties.[21]

In answering the above question, it might be useful to first examine the situation of a representative independent contractor. Let us assume he or she is a plumber or electrician. Such persons may have appropriate qualifications from the licensing boards, as occurs in racing. And then again they may not. They may be able to obtain work without the provision of a formal qualification. Whatever the situation, they will work for different clients at terms, including attendance, mutually agreeable to both. They will receive payments from the individual/respective clients for whom they provide services. Such persons are not subject to dress requirements, drug, gambling, good behaviour and other codes. Nor are there rules which define who they can, or cannot, work for. To the extent that an independent contractor's work is not deemed to be appropriate, he or she will experience the discipline of the market.

Let us contrast the situation with jockeys. Principal Racing Authorities grant licences to trainers who "engage" jockeys who have received licences from the same bodies. The trainers act as agents on behalf of the Principal Racing Authorities in what is a classic example of what economists and others call a principal–agency relationship. Trainers provide information on the "engagements" of jockeys to the Principal Racing Authorities, which organise payments to jockeys according to their performance; that is, number of rides and prize money. Both the Queensland and Western Australian Racing Authorities licences require jockeys to provide them with their banking details to help facilitate their respective "centralised" payment

[18] *Zuijs v Wirth Brothers* (1955) 93 CLR 561.

[19] *Stevens v Brodribb Sawmilling* (1986) 160 CLR 16.

[20] *Hollis v Vabu* (2001) 267 CLR 21.

[21] *On Call Interpreters v Commission of Taxation (No 3)* (2011) FCA 366.

systems. It is the Principal Racing Authorities, and not trainers, who discipline jockeys for the various misdemeanours contained in the *Rules Of Racing* and/or the Authorities specific rules.

The *Australian Rules of Racing* imposes various categories of rules or conditions on jockeys. The first are those that require jockeys to maintain their fitness, compete to the best of their ability (ride horses on their merits), to attend meetings on time, to observe drug codes, to subject themselves to drug and alcohol testing, not to participate in bribery or betting or provide "inside" information to outsiders to ensure that the industry is kept "clean". The need to observe these rules and codes is similar to those that govern the *employment contracts* of the athletes of Australia's leading sporting codes. Such rules are seen as essential to the operation of and maintaining the integrity of the sports concerned. These are not strictures that would apply to independent contractors such as electricians or plumbers.

The second are rules that pertain to clothing and equipment. This starts with a dress code and includes items such as saddles, footwear, helmets, safety vests and lights on helmets for night work/races, all of which must be approved by stewards.[22] This is again similar to the major Australian sporting codes. The difference here is that jockeys are responsible for the costs of such items. While our generic independent contractors will need to buy tools of the trade in servicing clients, they are not subject to specific controls by an outside body, and certainly not a dress code.

Licences impose additional obligations on jockeys. Those of New South Wales, South Australia, Tasmania and the Northern Territory oblige jockeys to undertake track work (Table 4). For example, Clause 1 (g) of the New South Wales licence states, and the language in the other jurisdictions is similar:

1. The rider acknowledges and agrees to be subject to and bound by … (g) to attend tracks regularly for the purpose of riding track work and to make myself available at all times to ride in races under the Rules of Racing unless prevented from doing so upon reasonable and proper grounds.

As it has already been pointed out that jockeys are not paid for track work. It is something they do to please trainers and/or in the hope of obtaining rides. Under the *Horse and Greyhound Training Award 2010* a track rider, who due to them being a trainee, by definition, is "inferior" to a licensed jockey, had their weekly pay, in June 2012, increased to \$ 648 a week, or \$ 17.05 an hour, assuming a 38 h week.[23] Independent contractors are not "bound" by the requirement to "make themselves available at all times" and to provide work controlled by a central body, such as a Principal Racing Authority. Being *bound* by such a rule is the antithesis of the *independence* that is a keystone of being an independent contractor. Moreover, should requiring someone to provide work for nothing (and there is no guarantee that doing track work and incurring the associated costs of travel etc. will lead to trainers

[22] *Australian Rules Of Racing*, Article 86A.

[23] *Determination, Horse And Greyhound Training Award 2010* (C2012/1), Fair Work Australia, 18 June 2012, MA000008, PR522870.

offering them rides) be regarded as being "reasonable and proper"? It is suggestive of a different type of relationship.

The licences of New South Wales, Victoria and South Australia require jockeys to sign over their intellectual property rights to their respective Principal Racing Authorities (Table 4). Athletes in other major Australian sports provide for the signing away of such rights in their respective Collective Bargaining Agreements and in their employment contracts. Such rights are traded for benefits provided to players. The difference here is that the Principal Racing Authorities have complete or blanket control over such rights; whereas in the major Australian sports there are rules pertaining to major protected sponsors and the ability of individual players to market their own rights, even, if not especially, where there are protected sponsors.[24] And again returning to the situation with generic independent contractors there are no rules imposed by a central organisation requiring them to sign away their intellectual property rights.

The Australian Jockeys' Association should request jockeys to sign over their intellectual property rights, in all jurisdictions, to it. It should investigate ways to exploit these rights for individual jockeys and for jockeys as a whole and/or use its command of such rights in negotiations with Racing Australia and/or Principal Racing Authorities for the betterment of jockeys, as occurs in major Australian sports.

Jockeys should be properly regarded as employees and not independent contractors. Jockeys are paid and disciplined by central bodies (Principal Racing Authorities) that license agents (trainers) to act on their behalf in engaging jockeys. Jockeys are subject to specific rules such as fitness requirements, dress, drug and gambling codes and use of equipment, similar to that of athletes from leading Australian codes which are seen as being necessary for the operation of their sports. Jockeys, in some jurisdictions, are required to do track work for nothing (which seems to have become a norm across the industry whether it is prescribed in licences or not). Finally, some licences require jockeys to sign over their intellectual property rights for which they receive no compensation.

Employment Conditions

Reference has been made to Vivienne Sullivan's PhD thesis on jockeys denying themselves food and drink, in a never ending cycle to "make weights" to obtain rides.[25] Jockeys ride all the year round, with no specified holidays or days-off. They

[24] For example, see the arrangements contained in the *AFL/AFLPA Collective Bargaining Agreement 2007–2011*, Article 21. Its more recent agreement is in the process of being written up.

[25] Tolich and Bell (2008) state that "The jockey's professional skill may be the ability to ride a horse, yet his fundamental skill is an ability to waste successfully in order to make the required weight".

do not have a period or periods where they can obtain a break from wasting.[26] Sullivan points out that socialising invariably involves people eating and drinking together, and the larger the number of people interacting the more food and liquid consumed. Because of the concerns with weight, jockeys eschew social occasions, even eating with their own families, which lead to feeling of isolation and anxiety. Also, because of the daily work cycles of early morning rises for track work, constant exercise and saunas to keep weight down, riding without consuming food or drink, and recovering from such ordeals after race meetings, jockeys also experience sleep deprivation. Sullivan reached the disturbing conclusion that:

> wasting has detrimental effects on jockeys' physical, psychological and social wellbeing and impacts on the lives of their families.[27]

In addition to these problems, jockeys also experience high rates of injuries, even death. In a survey of members, the Australian Jockeys' Association found that 60 %, in the previous 12 months, have had a fall that stopped them from racing.[28] Matthew Benns estimates that in the 150 years that racing has been operating in Australia, 509 jockeys have died. Eleven jockeys had died since 2000.[29] In December 2012, Gold Coast based New Zealand jockey Ashlee Mundy, who was only 26, died in a fall at North Otago.[30] Benns quotes Paul Innes, Chief Executive of the Australian Jockeys' Association, who said that he knew of four jockeys in Victoria who had committed suicide in the previous year.[31] Following a campaign initiated in 2008/2009, the Australian Jockeys' Association and the Australian Racing Board agreed, in March 2009 to allocate 1 % of prize money to fund Public Liability Insurance, Personal Accident Insurance and welfare programs for injured and incapacitated jockeys.

The Australian Jockeys' Association 2010 survey reported on the level of secondary education obtained and whether or not members were enrolled in or had completed their apprenticeships.[32] There were no reports of a jockey having undertaken other types of tertiary education, whether trade-based or at a university, for post-jockey careers. A potential problem with apprenticeship programs is they will undoubtedly be occupationally specific, rather than focus on generic intellectual training, which is associated with more broadly based tertiary, and especially, university studies. To the extent that it might be thought desirable to provide scope for jockeys to pursue further education and second career training, there is no time available to do so with racing's commitment to all year racing.

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[26] Laura Hillenbrand, *Seabiscuit: An American Legend,* Ballantine Books, New York, 2001, provides valuable information on the Dickensian employment conditions of American jockeys.

[27] Sullivan (2009).

[28] Australian Jockeys' Association, *Member Research 2010*, Final Report—September 2010, p. 32.

[29] Benns (2012).

[30] "Racing Industry rocked by young jockey's death after mount falls", *The Sydney Morning Herald,* 1 January 2013, p. 23.

[31] Benns (2012).

[32] Australian Jockeys' Association, *Member Research 2010*, pp. 18–19.

Is operating all year round the best or most rational way to manage the industry's resources and enhance its brand? Would it be wiser to have an annual break, and specify at least one day a week (during the week, a Tuesday or Wednesday) as a racing-free day, where everyone in the industry can relax and take it easy. More generally, if the industry rationalised its activities to eliminate marginal meetings, it could obtain a greater return for the resources it utilises. For jockeys, such breaks would provide them with necessary rest and recuperation and would enable them to spend more time with friends and family and help address problems identified by Vivienne Sullivan.

Employees who work a traditional working week of 38 h days are entitled to 4 weeks annual leave. Athletes of leading Australian sports, because of the pressure associated with training and playing in a condensed season receive extra periods of annual leave. The AFL Collective Bargaining Agreement, for example, grants 8 weeks of such leave.[33] The payment of retainers would enhance the ability of jockeys to take such holidays, and mitigate concerns about "lost" income.

Leading Australian sports have recently adopted the practice of providing players with sports-free days where they can attend to private matters, which, amongst other things, enables them to take advantage of the resources that the respective sports set aside for second career training and further education. Jockeys should be similarly provided with 1 day a week off from riding duties. It could be a racing free day for the industry as a whole, as suggested above. There is an aspect of such a proposal, unique to jockeys, which needs to be addressed.

Martin Tolich and Martha Bell conducted a survey of the eating habits of 15 New Zealand jockeys. Sunday was/is a racing free day in New Zealand. Tolich and Bell found that after the last race on Saturday jockeys participated in binge eating, usually of junk food, and then purging to reduce their weight for the start of a new racing week. Jockeys would increase/decrease their weight in such periods by 5 kg, between 8 and 10% of their body weight.[34] Presumably, Australian jockeys would behave similarly if they had 1 day a week free of racing commitments. A more measured approach would need to be explored to address the eating disorders of jockeys.

With early rising for travel, to and from track work, the demands of riding, wasting during the day and being hyperactive after a day or riding, especially with meetings at night, jockeys are sleep deprived. Vivienne Sullivan's research revealed that this cocktail results in physical and psychological harm for jockeys. It should be remembered that jockeys are not paid for track work which usually starts sometime after 4 am. Attendance at track work will necessarily involve earlier risings for jockeys who live substantial distances away.

A standard norm of life, outside family and friendship networks; or what might be called commercial life, is that you do not do something for nothing. Jockeys do track work in the hope of obtaining rides from trainers. Some jockey licences mandate that jockeys must provide such services, unless there are "reasonable and

[33] *AFL/AFLPA Collective Bargaining Agreement 2007–2011*, pp. 76–79.

[34] Tolich and Bell (2008).

proper grounds" for not doing so. Not receiving payment, especially when such payments are made to trainee riders would appear to be a "reasonable and proper ground" not to undertake track work. The time at which track work is undertaken should be delayed for several hours to enable jockeys to sleep more and enhance their overall health and well-being. The earliest start should be 7 am. Moreover, jockeys should be paid for such work; at a minimum it should be $ 50 an hour, approximately three times the amount paid to track work trainees under the *Horse and Greyhound Training Award 2010.* Jockeys should also receive travel and other allowances and be provided with healthy food and drinks at no cost to them, following advice from nutritionists and/or dieticians. Limits should also be placed on the number of times in a week that jockeys should be required to do track work, and they should not be required to perform such work on the morning of big meetings, such as would normally occur on a Saturday, or Tuesday for a Melbourne Cup, to provide them with more sleep and be "fresh" for the day ahead. Others should perform track work on such days.

If nothing else, rising later and having track-free days would enable jockeys to spend time with their families and children in the morning; even take the latter to school on days they are free. Damien Oliver, who was banned for 10 months for placing a bet on a rival horse in a race that he was riding, has referred to the positive effect this ban has had on his life. He said:

> The one positive to come out of all this is that I've had time to spend with my family and young children growing up, getting involved in their education and sport and activities…As a jockey, the constant battle with losing weight all the time and not eating properly, you get tired and cranky, so living like a normal person has been nice for a change.[35]

The use of weights to handicap horses of different abilities is used to enhance the excitement of races and betting associated with the sport. Jockeys selected for rides have to make the weight attached to each horse by handicappers. Jockeys are weighed before and if victorious (which means their finish involves prize money being paid to connections) after the race. A half a kilo allowance is made for minor weight losses that jockeys may experience during the race. Jockeys, who are lighter than the prescribed weight for their horse, prior to the race, overcome this by adding weights to their saddlebags. Being less than the prescribed weight is regarded as cheating and the horse will be disqualified. A horse whose rider is more than half a kilo over the prescribed weight will also be penalised.[36] The rationale for the latter is that extra, or more correctly "unaccounted" weight reduces the chances of the horse performing to a handicapper's notion of its best, in the race concerned. It is akin to "not trying".

As a general rule, jockeys eat and drink very little, or nothing at all, during a race day/meeting. They then have a "largish" intake after the meeting at night, and restart the cycle of wasting the next day. A solution to this problem would be to encourage jockeys to have a series of small intakes of food and drink during race meetings

[35] "Ban could extend my racing career: Oliver", *The Australian*, 20 March 2013, p. 32.

[36] *Australian Rules Of Racing*, Articles 142–145.

to break this cycle and help improve the overall welfare of jockeys. The advice of nutritionists and dieticians would be crucial here.

Weight is seen as a prominent determinant of success in racing. The need to maintain weight is the major factor in the life of jockeys, which impacts their health and well-being and that of their families. There needs to be a recalibration of the use of weight in racing to enhance jockeys' welfare. To the extent that there is a choice between performance and weight, decisions need to be biased to relaxing "weight norms" in favour of jockeys. Racing's "weight norms" are based on two-key relationships or assumptions.

The first concerns the "weight" relationship between jockeys and horses. Vivienne Sullivan has recommended that minimum weights should be lifted, though she does not specify a precise amount.[37] A total of 2 kg may be appropriate for both minimum and maximum weights. A total of 2 kg represents about half of the wasting that jockeys spend their time doing each day. Will this result in harm to horses? A regime of different weights, the maximum currently being 59 kg,[38] while acknowledging that weights are linked to the distance of races the age and gender of horses, must mean that many horses can function effectively at "higher" weights.

We also need to consider the following question: Has breeding, equine veterinary science and training increased the weight and health of horses, over and above what they were, say, 50 years ago? In much the same way our health has increased over this period, it will be hypothesised that the same has occurred to thoroughbred horses. To the extent that this hypothesis is correct, it provides grounds for increase in the weight of jockeys. To the extent that the hypothesis is less robust, their better management can resolve the detrimental impact on horses. The way in which Black Caviar is managed provides a case in point.[39]

A horse is attached a weight to handicap it in the quest to produce close and exciting races. Then the connections of that horse employ a jockey. This leads us to the second assumption. Any jockey can be chosen. With an exception that will soon be discussed, this practice assumes that all jockeys are equal. Those who control racing are disinterested in who is chosen, as long as the jockey confirms with the weight determined by handicappers. The exception is allowances for apprentices, up to 3 kg, depending on the length of their apprenticeship and performance on the track. Rather than lowering the riding weight of apprentices and reinforcing a regime of wasting and its harmful side effects, an alternative would be to enable other jockeys to ride at weights higher than initially stipulated by handicappers, by an amount equal to the allowance for apprentices. This "raising of the boats" has the same effect as lowering them in terms of the race that is to occur. It has, however, a positive advantage for jockeys. It has the potential of providing them with relief from wasting and enabling them to eat and drink on the race day.

Are jockeys of a given weight equally capable of success on the track? Or is there a trade-off between weight and success? Jockey premiership tables demonstrate that

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[37] Sullivan (2009).

[38] *Australian Rules Of Racing*, Article 103.

[39] Whateley (2012).

there is a high degree of variance in the skills of jockeys. It would be reasonable to surmise that a trainer would prefer a more skilled heavier jockey to a less skilled lighter jockey. But, under the current *Rules of Racing*, a skilled jockey who cannot make a prescribed weight would be precluded from riding. Professional foot racing has a system, which handicaps faster runners. Racing should consider introducing a system of grading jockeys that provides successful jockeys with a *premium* whereby they can ride at a higher weight than that attached to its horse by handicappers. It is recommended that there be two classes of premiums; 1 and 2 kg. Knowledge of such premiums should be made public to all involved and concerned with the industry. The *Rules of Racing* has provision for Riding Skills Panels for jockeys.[40] Their functions could be broadened to allocate weight premiums for skilled jockeys. Being able to ride at slightly higher rates would provide an additional element in helping jockeys tackle and overcome the problems associated with wasting.

Finally, would it be possible to organise meetings so that horses with lighter prescribed weights run first and those with higher weights later, so that as weight requirements for races go up jockeys would be more able to eat and drink during meetings?

A conference should be convened by the Australian Jockeys' Association of former and current jockeys, health professionals who specialise in eating disorders, nutritionists and dieticians, trainers, handicappers and others with appropriate knowledge to investigate the current rules associated with weight requirements and ways to improve the eating habits, health and general well being of jockeys. Such investigations, together with input from Racing Australia and Principal Racing Authorities should be funded from the 2.5 % of Racing Industry income that was recommended above concerning provisions for jockey welfare.

Major Australian sports have provisions for a number of schemes to promote players' welfare outside and after they finish their careers. Second career training and further education have already been identified. Other schemes include the setting aside of funds for retirement (over and above those of the statutory requirement of superannuation), welfare and professional advice and help with medical problems stemming from their time as players, as well as death and permanent disability insurance. The Australian Jockeys' Association 1 % campaign of 2008/2009 (see above) has helped to some extent with the latter. Due to of the demands of their occupation, especially wasting, jockeys experience ongoing risks to their health and well-being. Specialist medical care and advice should be made available to jockeys throughout their careers.

A medical and research centre should be established which employs health professionals with specialist knowledge in eating disorders and nutritionists and dieticians to engage in ongoing and long-term research on the health needs of jockeys, to combine both general and specific advice for jockeys. This Medical and Research Centre should be under the control of the Australian Jockeys' Association with members of its Board being drawn from Racing Australia and/or Principal Racing Authorities.

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[40] Australian Rules Of Racing, Article 92.

A condition of all jockeys' registration forms should be that they agree to consult with officials of this Medical and Research Centre on a quarterly basis for regular and ongoing advice concerning their health and other welfare needs. Health insurance and other medical costs of jockeys should be covered as per this requirement. Medical and other information concerning jockeys' health and welfare needs are to be strictly private and confidential; not to be released to any outside person or bodies without the permission of jockeys and following advice from the Australian Jockeys' Association.

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An Orbit of Coercive Comparison: Collective Bargaining in the Australian Football League and the National Rugby League

Braham Dabscheck

Abstract This chapter employs Arthur M. Ross's notion of 'orbits of coercive comparison' to explain recent developments in collective bargaining in Australian professional team sports. It focuses on how the Rugby League Players' Association based its negotiations for an agreement with the National Rugby League on an earlier agreement negotiated in the Australian Football League. The chapter provides basic information on broader developments within both codes, accounts of the negotiation and major features of both agreements and post collective bargaining developments in the respective sports.

Introduction

In 1948, Arthur M. Ross coined the phrase 'orbits of coercive comparison' to describe how trade unions base their case for improvements in wages and employment conditions on agreements which have been negotiated in, what they regard as, comparable areas.[1] This insight, developed almost two-thirds of a century ago, provides a useful starting point in understanding recent developments in collective bargaining in Australian professional team sports. At the end of 2011, the Australian Football League (AFL) and the Australian Football League Players' Association (AFLPA) negotiated a collective bargaining agreement.[2] Almost 12 months later, the National Rugby League (NRL) and the Rugby League Players' Association

[1] Ross (1948).

[2] Andrew Demetriou and Matt Finnis, CBA statement in full, December 2011; [AFLPA] Your CBA- A Snapshot (December 2011); and Adrian Anderson and Ian Prendergast, Memorandum:

I was a consultant for the Rugby League Players' Association in the negotiation of the collective bargaining agreement examined here. I have also been a consultant to the Australian Football League Players Association and a member of their Player Agent Accreditation Board. I bear sole responsibility for the contents of this chapter. I am responsible for the analysis and any errors contained herein.

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(RLPA) also completed a collective bargaining deal.[3] The RLPA utilised the AFL agreement as an 'orbit of coercive comparison' in its negotiations with the NRL.

This chapter will examine and explain various aspects associated with the negotiation of these two deals. It will begin with some basic information on broader developments within the two sports, from both a league/clubs and players' association perspective, respectively. It will be flagged here that it is only in the last year or so that Rugby League has been able to 'move on' from events ('mistakes') of the past. This will be followed by accounts of the negotiation of and major features of both agreements, highlighting where Rugby League borrowed from Australian Football's agreement. Some brief comments will be provided on post-collective bargaining developments in both codes, before drawing the threads of the discussion together in a conclusion.

Before proceeding further, an important caveat, or conflict of interest, should be noted. As indicated above, I was employed as a consultant by the RLPA in the negotiation of Rugby League's collective bargaining deal, and have been employed as a consultant by the AFLPA and a member of its Player Agent Accreditation Board. Two issues emerge here. The first is that of potential bias. Second, I have signed a confidentiality agreement with the Rugby League negotiations concerning sensitive material, which I have been unable to draw on.

Australian Football and Rugby League: A Historical Synopsis

Australian Football[4] and Rugby League[5] are Australia's two most popular winter sports.[6] Australian Football, 'a game of our own', developed in Melbourne in 1858 and spread to the 'Southern' states of Tasmania, South Australia and Western Australia. Rugby League developed as a 'breakaway' from Rugby Union in Sydney, in 1907/1908, and is popular in the 'Northern' states of New South Wales and Queensland. Both codes were initially organised on a capital city basis. The stronghold of Australian Football was in Melbourne (and Geelong) in the form of the Victorian Football League (VFL); and that of Rugby League in the Sydney-based

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CBA memo to AFL Industry, 22 March 2012. At the time of writing, the Collective Bargaining Agreement is still in the process of being written up.

[3] NRL-RLPA Collective Bargaining Agreement Proposed Terms, December 2012; and NRL/RLPA CBA Heads of Agreement, May 2013.

[4] Australian Football is an eighteen players a side game, with no off side. Imagine basketball, with a kicking game played on an Olympic Games style egg shaped oval.

[5] Rugby League is a thirteen players a side game, with off side, played on a rectangle. It is akin to American Football, without a forward pass.

[6] Rugby Union is also played in winter. It is a game not that dissimilar to Rugby League, with fifteen players a side. Soccer, a fourth football code is played in summer. Cricket is Australia's leading summer sport.

New South Wales Rugby League (NSWRL). Both codes evolved into twelve team leagues: The VFL in 1925, the NSWRL in 1967.

Changes in technology, in particular, those associated with broadcasting have been the most important source of change for all sporting codes in Australia in recent decades. In 1975, Australia embraced colour television, and in 1992 cable/pay television. This provided both sports with an incentive to move from a city/state to a national-based model of organisation to 'cash in' on larger markets from both broadcasters and sponsors. The VFL transformed itself into the AFL and is now an 18-team competition: ten in Melbourne/Geelong, and two each in Adelaide, Perth, Sydney and Queensland. The Gold Coast Suns entered the competition in 2011 and the Greater Western Sydney Giants in 2012. Changes in Rugby League have not been as smooth as those in Australian Football (see below). The NSWRL morphed into the 16-team NRL, with eight teams in Sydney, two in regional New South Wales, three in Queensland and one each in Canberra, Melbourne and New Zealand.[7]

The VFL/AFL experienced a number of problems, especially in the 1980s, in making the transformation from a city to a national-based competition. It commissioned a number of inquiries to advise it on how to proceed. The most significant of these was the formation of the Australian Football League Commission to take over management of the code, rather than joint decision-making by clubs. Over the last two or three decades, the Commission has issued a series of strategic plans, which have rationalised the operation and growth of the sport. Stewart and Dickson have described the AFL as 'one of the most corporatist, collusive and tightly organised sport leagues in the world'.[8] It is the premier code in Australia. AFL and club income in 2012 was probably in the order of $ 950 million[9]. For the 2013 season it may increase to $ 1 billion.

Rugby League initially experienced success in the transformation to a national competition. By 1995, presently named Australian Rugby League (ARL) had expanded to 20 teams, including a club each in Adelaide and Perth. It had negotiated broadcast rights with Kerry Packer's Channel Nine Network. Rupert Murdoch's News Corporation decided to enter into the sports' market in seeking product for its cable/pay outlets. In 1995, it announced its intention to attract clubs, and their playing staff to a new competition called Super League.[10] This ushered in the Super

[7] For details on the various teams which have occupied both leagues see Macdonald and Booth (2007); Terry Williams, 'The Lost Tribes of League: The Fate of Axed and Merged Clubs and Their Fans', 11th Annual Tom Brock Lecture, Australian Society for Sports History, 2010.

[8] Stewart and Dickson (2007).

[9] In 2011 it was estimated to be $ 835 million—$ 345 million AFL and $ 500 million for clubs, exclusive of redistributions from the AFL. Dabscheck (2011). The Australian Football League Annual Report 2012, pp. 124, 4 and 74 records AFL income increasing to $ 420 million, total attendance of 6,238,876 and total club membership 650,562.

[10] It also took over the hitherto amateur game, Rugby Union, in developing a two tiered competition between initially 12 (now 15) regional teams from South Africa, New Zealand and Australia and initially a Tri-Nations competition between national teams, and now a fourth team, Argentina.

League war, which had a deleterious effect on Rugby League; something which is only now being rectified.

The ARL and Super League competed head to head in 1997. Both bled to death. The two leagues merged at the end of that season and formed the NRL, with the attendant costs of deciding, which clubs should be continued with, merged or wound up.[11] It was subsequently reported in *The Australian Financial Review,* in August 2005, that News Limited lost in excess of $ 560 million during the Super League war.[12]

A six person Partnership Executive Committee comprising three representatives each from News Limited and the ARL headed the NRL. There were a number of problems with this arrangement. The two sides of the Partnership experienced difficulties in working together and developing any strategic direction for the further growth of Rugby League. In an attempt to overcome losses from the Super League war, the Partnership operated as a cost minimiser, which, amongst other things, involved enforcing a hard and 'low' salary cap on players. The Partnership was reactive, rather than proactive, in comparison with the AFL. The Partnership also found itself negotiating broadcasting rights with News Limited, who controlled 50 % of the Partnership! In May 2013, journalist Brad Walter reported:

> One former [Rugby League] official estimated that the previous two broadcast deals before the current one that began this season had been undersold by a combined total of more than $ 250 million.[13]

One way to test the veracity of this claim, especially in light of the most recent broadcasting agreements negotiated in both the AFL and NRL (see below), is to compare the agreements negotiated in both codes in the time period referred to above. The AFL negotiated a $ 500 million deal for 2002–2006, and $ 780 million for 2007–2012, for a total of $ 1280 million, or an average of $ 128 million a year. The NRL, on the other hand, negotiated a $ 400 million deal for 2001–2006 and $ 500 million for 2007–2012, for a total of $ 900 million, or an average of $ 81.8 million a year.[14] Ignoring the extra year of the NRL agreements, this involved the NRL in a $ 380 million shortfall compared to the AFL.

News Limited decided to withdraw from the Partnership. In February 2012, the Australian Rugby League Commission was formed. The NRL's website states that the formation of the Commission 'was an historic opportunity to streamline Rugby League's governance structure and provide a single point for all strategic direction'.[15] Rugby League was seeking to emulate something that had been developed by the AFL two decades earlier.

[11] Skinner and Edwards (2007).

[12] "Lachlan's Legacy: $ 560 million Lost on Super League", *The Australian Financial Review,* 8 August 2005, pp. 1 + 72–73.

[13] Walter (2013).

[14] Macdonald and Booth (2007).

[15] www.nrl.com/About/ARLCommission/tabid/10891/Default.aspx. Accessed 23 July 2013.

In 2012, the NRL and the clubs had a combined income of approximately $ 390 million.[16] For the 2013 season, following the negotiation of a more lucrative broadcasting deal, it may increase to over $ 460 million; less than half that of the AFL. The AFLPA (originally called the Victorian Football League Players' Association) was formed in December 1973. For the first two decades of its existence it found it difficult to develop a bargaining relationship with the AFL and obtain benefits for members. On a few occasions, the AFLPA threatened strike action either over unilateral decisions by the then VFL, in 1974, to rescind a rule which granted 10-year-players free agency; threatened withdrawal of recognition by the VFL in late 1980/early 1981; and difficulties in negotiating collective bargaining agreements in 1989/1990 and 1993.[17] To the extent that the AFLPA had any leverage to negotiate a deal, it had to agree to not mount a case before Australia's system of industrial tribunals and agree to the inclusion of a clause in such deals that stated that the AFL's employment rules, in the form of a draft and a salary cap, were 'necessary and reasonable for the purpose of protecting the legitimate interests of the AFL, the AFL Clubs and the AFL Competition'.[18] Such a clause, so the AFL believes, will protect its restrictive employment rules from actions before common law courts.[19]

The AFL's employment rules combine a by and large common roster, drafts, a salary cap and limited-free agency. Under the AFL/AFLPA Collective Bargaining Agreement 2007–2011, clubs had player lists that combined a primary list of 38 players, up to two veterans and up to six rookies, for a 'combined' list of 44 players. The two expansion teams, the Gold Coast Suns and Greater Western Sydney Giants, were given a higher roster of 50 players. The Suns now have a roster equivalent to that of longer-established clubs. A total of 725 players were on the lists of clubs for 2012.[20] New players are drafted by clubs, as are players whose contracts expire and wish to move to new clubs. There are also provisions for clubs to trade players and/or for draft picks, but not cash.

The salary cap for 2011 was set at $ 8,212,500 per club, with allowances for veteran and injured players. In addition, players were entitled to receive additional service agreements, for bona fide promotional work, of $ 573,000 per club. Clubs were required to spend not less than 92.5 % of these combined payments on players. There was also provision for individual payments for bona fide work of a non-football variety for sponsors. In 2011, the minimum salary for a third year

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[16] The estimates are based on an earlier calculation of NRL income for 2009/2010 of $ 157 million for the NRL and $ 195 million for clubs, a total of $ 352 million. Dabscheck, "Player Shares of Revenue", p. 69. Part of club income is derived from grants from their respective Leagues' Clubs. During the collective bargaining negotiations, the RLPA was told that these grants were expected to fall. In 2012, the NRL (not the clubs) obtained an income of $ 186 million. Australian Rugby League Commission Consolidated General Purpose Financial Report for the year ended 31 October 2012, p. 6. The NRL Annual Report 2013, p. 11, records total attendance for 2012 of 3,151,660, with total club membership of 210,677. Compare this the AFL above.

[17] Dabscheck (1996).

[18] AFL/AFLPA Collective Bargaining Agreement 2007–2011, Clause 8.1, p. 15.

[19] Dabscheck and Opie (2003).

[20] Australian Football League, Annual Report 2012, p. 63.

player was $ 69,900, $ 51,000 for a first year player and $ 35,400 for a rookie. The reason for the distinction between first (and second) and third year players, is that the collective bargaining agreement specifies additional payments for first and second year players which are linked to the number of games played.

The AFL and AFLPA agreed to a limited form of free agency, which commenced in 2012. Any player delisted by a club automatically becomes a free agent. The same applies to 10-year-players and players with 8 years service who are not in the top 25 % of money earners in their club. Eight-year-players who are in the top 25 % or earners are restricted free agents; with his club having a right of first refusal.[21]

The AFLPA, over the years, has been able to negotiate a range of protections and benefits for members. Probably, the most important of these are AFL funding for a variety of welfare, education and retirement benefits. In 2011, such funding was in the order of $ 11.36 million, plus at least an additional $ 1.4 million each year into a Player Retirement Fund. Players would have a minimum of $ 14,000 a year paid into their retirement accounts.[22] It also provided players, whose careers were terminated because of injury, with 50 % of their contract base payments[23]; other players with payments up to 30 matches (a season comprises 22 matches, excluding finals); and for players delisted, match payments for the remainder of the time contained in their contracts.[24] The deal for 2007–2011 also had a grievance procedure with a jointly appointed Chairman.[25]

The RLPA (originally called the Association of Rugby League Professionals) formed in 1979. Putting to one side the just completed collective bargaining deal with the NRL, the RLPA has been an ineffectual organisation that had found it difficult to obtain concessions for members. In the first decade of its operation, it had a cordial, essentially passive relationship, with the then NSWRL. In 1991, the RLPA successfully initiated court proceedings in stopping the NSWRL from introducing a draft.[26] Despite this victory, they was unable to negotiate a collective bargaining agreement with the NSWRL.

Its position was further undermined by the Super League war. At its height, both leagues offered players high wages in competing for their services. The RLPA was seemingly irrelevant, watching events from the sidelines. Following the merger between the two leagues, the NRL was determined to keep a lid on player costs and 'recover' losses from the Super League war. The major way to do this was by

[21] AFL/AFLPA Collective Bargaining Agreement 2007-2011, Clause 11, pp. 18–20; Schedule B, pp. 66–72; and *InForm,* Official Magazine Of The Australian Football League Players' Association, Edition 57, April 2010, pp. 12–13.

[22] AFL Players' Association Players' Handbook, pp. 32–33.

[23] Base payment here means a specified amount (base) contained in the contract as distinct from match or performance based payments, say for selection in an All Australian side. Other than first and second year players, the overwhelming majority of payments to players are specified as base payments.

[24] AFL/AFLPA Collective Bargaining Agreement 2007–2011, Schedule B, pp. 81–91.

[25] AFL/AFLPA Collective Bargaining Agreement 2007–2011, Clause 33, pp. 51–59.

[26] *Adamson v New South Wales Rugby League* (1991) 31 FCR 242; 103 ALR 319.

the adoption of a hard salary cap. In June 2003, the RLPA affiliated to the Labor Council of New South Wales, the now named Unions New South Wales. Following this, the RLPA was able to negotiate a 2 year collective bargaining deal, which provided the first increase in the salary cap since the formation of the NRL.[27] A subsequent agreement has been negotiated, with variations added[28] prior to the conclusion of the deal covering 2012–2017, which will be examined below. The RLPA also severed its affiliation with Unions New South Wales.

At one level, the NRL has a freer set of labour market rules than the AFL. It operates a system of free agency (has no draft), subject to the operation of a hard salary cap. Like the AFL, it has a common roster with a number of tiers. Each club has 25 first tier players, an unspecified number of second tier and national youth competition players (details of the latter will be ignored here), respectively. Second tier players are akin to rookies in the AFL, in that they provide an alternative source of labour in the event that clubs 'run short' of players due to injury or other reasons.

In 2012, for the 25 first tier players each NRL club had a 'base' salary cap of $ 4.4 million, of which they were required to spend 70 % on players, plus an extra $ 400,000 for marquee player allowances, for a 'total' salary cap of $ 4.8 million. In addition, each club paid $ 20,000 to the RLPA to fund its operation.[29] The minimum wage for first tier players was $ 55,000, with an additional $ 3200 paid each year into a retirement account.

Two types of second tier players were distinguished under the agreement. The first were those who were trained for more than 6 weeks. They were entitled to a minimum payment of $ 25,000 and $ 3000 for any match they played. This $ 25,000 minimum was below the (annual) minimum adult wage of $ 30,644 determined by Fair Work Australia, commencing on 1 July 2011, and that of $ 31,533, commencing on 1 July 2012.[30] Players who were trained for 6 weeks or less were entitled to a minimum payment of $ 300 per week. This was less than the $ 589.30 and $ 606.40 respective weekly payments contained in the above Fair Work Australia determinations.

The NRL has a three-match State of Origin tournament between New South Wales and Queensland, which in broadcasting, sponsorship and fan appeal, is the jewel in Rugby league's crown; more important than the Grand Final at the end of the season. Players received a direct payment of $ 12,000, with $ 8000 placed into a representative player account. Players who represent Australia in Test (international) matches received a direct payment of $ 5400, with $ 3600 lodged in their

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[27] Dabscheck (2007).

[28] Rugby League Players (NRL) Collective Agreement 2006–2010; Unregistered Agreement Between National Rugby League and Rugby League Professionals Association 2007; Agreement Between National Rugby League and Rugby League Players Association 12 November 2012; and Annexure 1 (not dated for 2012 season).

[29] Various collective bargaining deals in Australian sport specify that a portion of the income paid to players should be specifically directed to their respective player associations.

[30] *Annual Wage Review 2010–2011* (2011) FWAFB 3400; and *Annual Wage Review 2011–2012* (2012) FWAFB 5000. Fair Work Australia's determinations are expressed as a weekly payment. These amounts have been multiplied by 52 to provide a yearly amount.

representative accounts. There is also a scale of payments for their performance in a Four Nations Tournament with the same 60/40 split of prize money to a maximum of $ 25,000.

Clubs were required to provide a minimum of $ 33,000 in education and welfare benefits for players; a total of $ 528,000. Clubs, however, could escape this obligation on grounds of hardship. For the 2012 season, the NRL directed an extra $ 160,000 to be put aside for player education and welfare.[31]

Under the NRL Playing Contract, a player who incurs a career-ending injury in a trial match for the club was entitled to receive 100 % of his salary for that season and 25 % if his contract included any additional seasons. Other players who have not recovered from an injury in a previous season, or were injured during the current season were entitled to receive 25 % for the years remaining on their contracts.[32]

The Comparator: Collective Bargaining in the AFL

In April 2011, the AFL negotiated a new 5-year-broadcasting deal, for 2012 to 2016, worth $ 1.253 billion. The AFL Commission had determined a new strategic direction for the code. It comprised four parts. First, it was in the process of expanding the league from 16 to 18 teams. The Gold Coast Suns entered the competition in 2011, and the Greater Western Sydney Giants would do so in 2012. The AFL believed that it would take at least a decade before both teams would be viable. Second, the AFL wished to improve the quality of stadiums and club facilities across the league. Third, it had decided to allocate funds to AFL Media to take advantage of and use the internet to promote the code. Fourth, it wanted to set aside $ 144 million into a Future Fund to be directed to the specific and different needs of clubs.[33]

The AFL's ambitious strategic vision imposed a major problem for the AFLPA. The AFL would claim, despite its bountiful broadcasting deal, that it was not in a position to provide players with the benefits that the AFLPA was hoping to achieve.

A problem with negotiating a long-term collective bargaining agreement is predicting/estimating income that will be generated in the latter years of the deal. Leagues and their accountants will make conservative calculations concerning the future, in case 'things don't work out as they should'. If times are better than anticipated, unless there is a revenue sharing formula or other 'catch up' mechanism in place, player associations will be less willing to negotiate a long-term deal.

This was an issue of importance for the AFLPA in negotiations for a new collective bargaining agreement. Prior to the start of negotiations, it was revealed that the players' share of income had fallen from 27.5 % in 2001, to 21.28 % in 2007, and

[31] Information in the above paragraphs is derived from sources in Footnote 29.

[32] Section 6, National Rugby League Playing Contract.

[33] Australian Football League Annual Report 2011, pp. 13–19, 25–26, 35–37 and 41–43; also see Australian Football League Annual Report 2012, 34–48.

20.82 % in 2009.[34] The AFL was unhappy with the release of this data and provided an alternative set of calculations where it excluded government grants and gaming revenue derived by clubs, and included rookie payments. These adjustments produced a players' share of income of 30 % for 2001, 24 % for 2007, and 25 % for 2009.[35] Irrespective of these recalculations, both sets of data showed a consistent decline in the percentage of revenue obtained by players.

The AFLPA wanted to reverse this decline in the players' share of income and solve the problem of 'determining' levels of income in the latter years of a long term (5 year) collective bargaining agreement. It also wanted to convert the retirement scheme into an annuity system to provide players with regular income after they retire.[36] In another orbit of coercive comparison, the AFLPA based its scheme on the one developed for American football.[37]

A problem confronted by all player associations is the shortness of the playing life of members. It is estimated that the average AFL player spends seven seasons in the game, including up to 2 years as a rookie. The AFLPA wanted to involve its members, especially its Board, in negotiations with the AFL. Approximately a year prior to the commencement of negotiations, the AFLPA devoted resources to enhancing the skills and knowledge of Board members concerning the economic operation and workings of the AFL and being able to engage in face-to-face negotiations with AFL officials across the bargaining table. It also devoted resources to educating club delegates so they could liaise with members concerning the progress of collective bargaining.

The apex of this involvement occurred on 29 June 2011, when 400 Victorian-based players meet at the Palladium at Crown Casino, with a video hook up to players in Perth, Adelaide, Sydney and Brisbane—a total of almost 800 players—to hear a report on and consider future action concerning collective bargaining negotiations.[38] Matt Finnis, the AFLPA's chief executive officer, after a deal had been negotiated, wrote:

> The extensive consultation amongst players which formed the basis of our claims was reflected in the players' ownership of their proposals and desire to have a voice in the negotiations. We matured in a collective sense, with the players taking responsibility for improving their terms and conditions of employment.[39]

[34] Dabscheck, "Player Shares of Revenue", p. 65.

[35] AFL, CBA Proposal to AFLPA, Presentation to Media, August 2011.

[36] Australia has a legislated superannuation system that applies to sportspersons as well as other employees. Under it, employers were required to contribute 9 % of income into a fund, which has recently been increased, in a first step, to a 12 % contribution. *Superannuation Guarantee (Administration) Act 1992* (Cwth).

[37] NFL Collective Bargaining Agreement 1993–2005 (this agreement was extended to 2010), Article XLVII, pp. 198–200; and NFL/NFLPA Collective Bargaining Agreement (2011–2020) August 4, 2011, Article 55, pp. 225–256. This agreement and others in American baseball, basketball and hockey provide a variety of retirement benefits to players.

[38] AFLPA website, click onto CBA; AFL Players Association, 2011 AFL Players' Year In Review.

[39] 2011 AFL Players' Year In Review, p. 6.

Table 1 AFL Club salary caps and additional service agreements: 2011–2016. (Source: Andrew Demetriou and Matt Finnis, CBA statement in full, December 2011)

Year	Salary cap $ m	Percentage change	ASAs $ m	Percentage change
2011	$ 8.21m		$ 0.573m	
2012	$ 8.787m	7 %	$ 0.613m	7 %
2013	$ 9.139m	4 %	$ 0.852m	39 %
2014	$ 9.632m	5.4 %	$ 0.963m	13 %
2015	$ 9.92m	3 %[a]	$ 0.992m	3 %[a]
2016	$ 10.20m	3 %[a]	$ 1.022m	3 %[a]

[a] A minimum, subject to mid-term review

The AFL and AFLPA signed off on a new deal at the end of 2011. Its term would last for five years. Given the problems of predicting future income, the AFLPA, at one stage, had sought a three-year deal; with negotiations to resume when more up-to-date financial information became available. While there were improvements in various entitlements for players, the major innovations contained in this deal were the introduction of an annuity system for retired players and a mid-term review to 'adjust' payments/concessions for players for the last 2 years of the deal, 2015 and 2016. The AFLPA released a summary of the agreement where it claimed that it had obtained a 25 % share of AFL and club revenue, per the AFL's definition of revenue (see above), for the first 3 years of the deal.[40]

Table 1 provides details of changes in club salary caps and additional service agreements, and percentage changes, from 2011, the final year of the previous agreement, and each year to 2016, under the current agreement. The increase for 2015 and 2016 are minimal, which are subject to a mid-term review. Clubs are required to spend a minimum of 95 % of their salary cap and additional service agreement allowances on players, up from 92.5 % under the 2007–2011 agreement. Compared to the last year of the 2007–2011 agreement, by 2016 the salary cap will increase from $ 8.21 million to $ 10.20 million, an increase of over 24 %. Additional service agreements will increase from $ 0.573 million to $ 1.022 million, an increase of 44 %. The increase of the two combined is from $ 8.783 million to $ 11.222 million, an increase of 27.8 %. Note the substantial increase in additional service agreements of 39 % for 2013.

In addition, payments for the players' retirement scheme are to increase from $ 35 million, under the 2007–2011 agreement, to $ 70 million under the new agreement. This translates into an approximate payment of $ 20,000 each year into players' retirement accounts. Depending on how many years the players have been employed, they will be able to take out a certain percentage of their entitlements upon retirement, with the remainder accruing interest and to be drawn down as a pension in later years. Payments from the AFL to the AFLPA increased from $ 10.66 million to $ 17,286 million for each year of the agreement.[41]

[40] (AFLPA) Your CBA.

[41] AFL Players' Year In Review 2012, p. 45.

Table 2 Minimum wages: 2011–2016. (Source: AFL/AFLPA Collective Bargaining Agreement 2007–2011; and Adrian Anderson and Ian Prendergast, Memorandum: CBA memo to AFL Industry, 22 March 2012)

Year	Rookie	First year player	Third year player
2011	$ 35,400	$ 51,000	$ 69,900
2012	$ 41,400	$ 54,570	$ 71,580
2013	$ 49,200	$ 56,755	$ 74,445
2014	$ 53,825	$ 59,815	$ 78,465
2015	$ 55,540	$ 61,610	$ 80,815
2016	$ 57,100	$ 63,460	$ 83,240

Table 2 provides information on the minimum wages for rookies, first year and third year players from 2011, the last year of the previous agreement, and for each year of the current agreement to 2016. First and second year players are entitled to receive extra specified payments for each game they play. The minimum for rookies will increase from $ 35,400 in 2011 to $ 57,100 in 2016, an increase of 61.3 %. The increases for the other two categories of players have been more modest. The minimum for first year players has increased from $ 51,000 in 2011 to $ 63,460 in 2016, an increase of 24.4 %. For third year players the increase is from $ 69,900 to $ 83,240, an increase of 19.1 %. In November 2012, the Australian Bureau of Statistics reported that full-time adult annual earnings were $ 75,587.[42] This would mean that the minimum payment for a third year AFL player is approximately $ 4000 below that of the average annual income for the workforce as a whole.[43]

The agreement also provides improved injury benefits for player. Under the 2007–2011 deal rookies were not entitled to receive injury pay. Under this agreement, if they miss more than three matches they are entitled to receive $ 775 a match, up to a total of $ 8250 (16 matches). Listed players, who incurred a career-ending injury, were entitled to receive 50 % of their final base year payments. The new deal provides improved benefits, based on the age of players. Players under the age of 25 will receive 200 % of their base payments, 150 % for those over 25 and under 30, and 50 % for those over 30. In addition, insurance for death and disability has been increased from $ 500,000 to $ 1 million.[44]

The agreement provides a formal review of the first 3 years of the agreement to determine any 'profits' or increases in income over projections that had been provided by the AFL in the negotiation of the 2012–2016 deal. If the parties are unable to agree, the AFLPA will be entitled to a penalty payment from the AFL, which I have been told is in the order of $ 10 million, and a lowering of the free agency thresholds that came into force in 2012. The threshold for unrestricted free agents will be reduced from 10 to 8 years, and for restricted-free agents it will be reduced from 8 to 6 years.[45]

[42] Australian Bureau of Statistics, Cat. No. 6302.0, Average Weekly Earnings, November 2012. The annual figure has been derived by multiplying the reported weekly figure by 52.

[43] (AFLPA) Your CBA; and AFL Players' Year In Review 2012, p. 45.

[44] Anderson and Prendergast, Memorandum.

[45] Demetriou and Matt Finnis, CBA statement in full.

Concluding the Orbit: Collective Bargaining in the NRL

In August 2012, the NRL, under the direction of the Australian Rugby League Commission, secured a broadcasting deal for 5 years, 2013–2017, of $ 1.025 billion.[46] It was more than twice its previous six-year deal, and approximately a quarter of a billion dollars less than the AFL's deal negotiated the year before. On 29 October 2012, the NRL released a document entitled 'The Greatest Game of All', which outlined a strategic plan for the future growth of Rugby League. Other than for specifying the creation of a $ 200 million Future Fund for investment in key projects, it contained various aspirations the NRL hoped to achieve.[47]

The NRL provided further details concerning the background and what it regarded as the implications of the broadcasting deal and its strategic plan in bargaining sessions with the RLPA. 'The Greatest Game of All' spoke briefly about the NRL's plans for players. It said:

> Our game will attract and retain the best athletes by providing first rate player conditions and career paths.

AFL players had the best 'conditions and career paths' of the football codes, operating in Australia. The task for the RLPA was to obtain concessions similar to those obtained by the AFLPA in its just completed collective bargaining negotiations; to ensure that the NRL lived up the above words contained in 'The Greatest Game of All'.

Key comparators for the RLPA were to achieve a players' share of revenue of 25 % and replicate various minimum protections in the AFL deal; such as minimum wages, especially to lift second tier minimums above the national minimum wage, retirement benefits and career ending injuries. It also wished to incorporate a mid-term review to take account of the possibility of revenue being above projections as occurred in the AFL deal. And it sought to improve welfare and education benefits, and to be in-charge of the administration of such programs rather than the NRL and clubs. As already mentioned, the AFLPA receives substantial funds from the AFL to run such programs.

The RLPA also had another objective, which was not an issue in the AFL negotiations. The RLPA, especially since the Super League war and its aftermath, has been an impecunious and under-staffed organisation. Beside, David Garnsey, its chief executive officer, has only one other employee.[48] Under its previous collective bargaining agreement, the RLPA received $ 320,000 a year from the NRL, or rather clubs, to fund its operation. This can be contrasted with the AFLPA. In 2010, it had a staff of 18. It is currently 23.[49] It had funding under the 2007–2011 agreement of

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[46] Read (2012a); Lee (2012)

[47] NRL, The Greatest Game of All (29 October 2012); NRL, Media Release, 29 October, 2012.

[48] He commissioned Brendan Schwab, a long time leader of Professional Footballers Australia, and me as consultants to aid him in negotiations. Brendan Schwab has since moved into consultancy full time.

[49] *InForm*, August 2010, p. 2. AFLPA website, click onto staff.

$ 10.66 million per annum, which has been increased to $ 17,286 million per annum in the agreement covering 2012–2016. The RLPA wanted to overcome this logistic problem and secure its financial base to improve its ability to provide improved service and benefits for members.

The AFLPA involved players, especially members of its Board, in negotiations with the AFL. The RLPA similarly involved players, though in a more ad hoc manner than the AFLPA. Negotiations of the agreement occurred during the finals series and the off-season when players take annual leave. Despite this, a variable number of players were present and involved in every negotiating session. The most important of these was the presence of approximately a dozen players, the majority of whom were stars, following a 'low ball' offer made by the NRL.[50] The NRL decided to take this offer off the table when it was asked if they wished RLPA representatives to communicate it to players.

At the end of November 2012, there were newspaper reports of threatened strike action by players over stalled negotiations.[51] Such reports were ill informed. There was no discussion of industrial action by members of the RLPA bargaining team and was never a subject of consideration across the bargaining table.

In 'The Greatest Game of All' and in negotiations across the bargaining table, the NRL made it clear that it wanted to use the improvised broadcasting deal to improve the quality of stadiums for fans and facilities for clubs via the establishment of a Future Fund. In effect, it wanted, to make up for the lost time resulting from the Super League war and the joint partnership with News Limited. The NRL also emphasised that, with one, or possibly, two exceptions, clubs were in a parlous financial state; dependent on grants from leagues clubs, which were predicted to fall. NRL clubs derived substantially lower net (minus NRL and leagues club grants) income than AFL clubs.[52] The NRL sought to overcome this problem by increasing its annual grant to clubs for 2013 to $ 7 million, up from $ 3.85 million in 2012.[53] It also unilaterally increased the salary cap to $ 5 million, as an 'interim measure', to provide clubs with 'guidance' for salary negotiations with players for 2013.

An agreement was finalised between the parties in mid December 2012. The RLPA bargaining team estimated that the various benefits achieved resulted in players receiving slightly less than 25 % of revenue generated, slightly less than that of the AFL 2012–2017 agreement. Table 3 provides information on changes to the salary cap from 2012, the last year of the previous agreement, and for each year from 2013 to 2017. Payments to the RLPA are incorporated as part of each club's salary cap. They have been excluded to reveal the net amount that is available to players. Clubs are required to spend a minimum of 90 % of their cap, up from 70 % in the previous agreement, but less than the 95 % minimum spends contained in the AFL agreement. Like the AFL agreement, there is to be a mid-term review, to commence

[50] Walter (2012); Read (2012e).

[51] Read (2012c); Brent (2012d).

[52] Also see Heathcote (2012), for comparative data on the income of the top 30 football clubs, across all codes, for 2011.

[53] Read (2012b).

Table 3 NRL Club salary caps: 2012–2017. (Source: NRL-RLPA collective bargaining agreement proposed terms, December 2012; and NRL/RLPA CBA Heads of Agreement, May 2013, Clause 7.1)

Year	Top 25 salary cap	Marquee player allowance	Motor vehicle allowance	RLPA funding	Total	Total less RLPA funding	Percentage increase (%)
2012	$ 4.40m	$ 300,000	$ 100,000[a]	$ 20,000	$ 4.82m	$ 4.80m	
2013	$ 5.15m	$ 550,000	$ 100,000	$ 50,000[b]	$ 5.85m	$ 5.80m	20.83 %
2014	$ 5.50m	$ 600,000	$ 100,000	$ 100,000	$ 6.30m	$ 6.20m	6.90 %
2015	$ 5.75m	$ 600,000	$ 100,000	$ 100,000	$ 6.55m	$ 6.45m	4.03 %
2016	$ 6.00m	$ 600,000	$ 100,000	$ 100,000	$ 6.80m	$ 6.70m	3.88 %
2017	$ 6.20m	$ 600,000	$ 100,000	$ 100,000	$ 7.00m	$ 6.90m	2.99 %

[a] In 2012 this allowance was only for marquee players
[b] The RLPA will receive an extra $ 400,000 from the NRL in 2013, which it will refund from club payments for 2014; Heads of Agreement, Clause 26.1

by 1 March 2015, to ascertain the 'profitability of the game in Australia' and to determine if there should be increases to various entitlements contained in the agreement for seasons 2016 and 2017.[54]

Table 3 shows that the total cap available to players has increased from $ 4.8 million in 2012 to $ 6.9 million in 2017. This is an increase of 43.75 %, which is higher than the 27.77 % increase in the combined salary cap and additional service agreements of the AFL agreement. The RLPA achieved a substantial increase in its funding, from $ 320,000 in 2012, to $ 1 million in 2013, $ 1.2 million in 2014, and then $ 1.6 million for the final years of the agreement.

The agreement involved substantial increase in minimum payments. For the 25 top tier players, the minimum for 2013 was set at $ 75,000, increasing thereafter every year by $ 2500–85,000 in 2017. These minima exceed those of first year, and approximate those of third year, AFL players (Table 2). Second tier players who train with the first team squad for at least 75 % of the season will receive a minimum payment of $ 45,000 in 2013, adjusted each year for changes in the Consumer Price Index (CPI). This lifts their income above the minimum adult wage determined by Fair Work Australia (see above). Assuming that the CPI increases in the future will be approximately 2.5–3.0 % a year, these minima would increase by approximately $ 1000 a year, to about $ 50,000 by 2017. Such income levels would be below those of rookies under the AFL deal (Table 2). Second tier players who train for shorter periods will receive a minimum payment of $ 865 a week ($ 45,000/52), adjusted every year for the CPI.[55]

Payments for players in State of Origin fixtures were increased from $ 20,000, containing a combination of direct and deferred income, to a direct payment of $ 30,000 a game, with players being able to cash out previous entitlements held in trust. Payments for international fixtures were increased to $ 20,000 for each match

[54] Heads of Agreement, Clause 11.2, p. 27.
[55] Heads of Agreement, Clause 8, pp. 21–23.

and a scale for prize money up to $ 50,000 for international tournaments, plus a per diem allowance of $ 100 during such tournaments.[56]

Under the previous agreement, Top Tier players received a retirement benefit of $ 3200. This was increased to $ 9000 for 2013, and any second tier players who play at least four games, with an increase of $ 250 each year, to $ 10,000 by 2017.[57] These amounts are less than the approximate $ 20,000 annual retirement benefit of AFL players.

The agreement substantially improved the contractual protection of players who suffered a career-ending injury. Previously, the norm had been a 25 % payout of the value of the players' contract. This was increased to a 100 % payout. In, agreeing to this change, in possibly the oddest aspect associated with the negotiation of this agreement, the NRL consulted The Rugby Union Players' Association, not the Australian Rugby Union, on the operation of such an arrangement in Rugby Union.[58] In addition, the parties agreed to work together on an income protection policy for a player who suffered permanent incapacity to a value of $ 300,000/500,000.[59] An extra $ 10 million would be allocated to player education and welfare over the life of the agreement.[60] The NRL would administer this scheme. Such funding is substantially below that of the AFL.

Under the previous NRL Playing Contract, disputes between a player and a club would be heard before a NRL Appeals Committee.[61] This has been changed where disputes between a club and a player, other than those involving suspensions of less than 5 weeks and/or fines of less than $ 3000, will be heard by a private arbitrator. If the parties cannot reach agreement on such a person they will ask the President of the Law Society of NSW to make an appointment. A similar mechanism has been put in place for the adjudication of disputes between the NRL and RLPA over the interpretation of this agreement.[62] Finally, the RLPA secured its financial base to enable it to employ more staff to more ably serve the interests of members.

The RLPA replicated, in some cases exceeded, benefits obtained by the AFLPA in its 2012–2017 collective bargaining agreement. It obtained slightly less than a 25 % share of revenue; obtained a higher percentage increase in payments for players than in the AFL—43.75 % versus 27.77 %: an increase in the minimum amount that clubs are required to spend of their cap on players from 70 to 90 %, less than the 95 % for the AFL; higher minimum incomes for first tier players than in the AFL; an increase in the minimum income for second tier players above the Australian adult minimum wage, but lower than that for rookies in the AFL; contractual protection

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[56] Heads of Agreement, Clause 10, p. 24.

[57] Heads of Agreement, Clause 12, p. 28.

[58] Australian Rugby Collective Bargaining Agreement Mark III, Schedule C—Standard Player Contract, Clause 18, p. 11. The term of the agreement was from 2006 to 2009. It has been rolled over each year until now and is in the process of being renegotiated.

[59] Heads of Agreement, Clause 13, p. 28–32.

[60] Heads of Agreement, Clause 20, p. 38–39.

[61] National Rugby League Playing Contract, Sect. 11, p. 17.

[62] Heads of Agreement, Clauses 22 and 27.5, pp. 39–40 and 47–48.

for permanently injured players; a mid-term review and an independent grievance procedure. While the RLPA obtained an almost three-fold increase in the retirement benefit for players, it is approximately half of that provided to AFL players. Moreover, AFL players have substantially more revenue directed to their welfare and education needs than NRL players, which are administered by the AFLPA rather than the NRL and clubs.

While, for players, there are some shortfalls between the AFL and NRL agreements, the NRL deal has involved a substantial catching-up in the employment benefits of NRL players. In 2011, the last year of the AFL's former collective bargaining agreement, the average income of players was $ 237,000. In 2012, the first year of the new agreement it increased to $ 252,000.[63] It may increase to $ 270,000 in 2013. In 2012, the last year of the NRL's previous collective bargaining agreement, incorporating salary cap, State of Origin and other representative fixtures, first tier players may have received an average income in the tune of $ 200,000. For 2013, the first year of the NRL's new agreement, Table 3 would indicate that this will increase to $ 241,000.

Orbital Realignment: Post Collective Bargaining Developments

In its 2012 Annual Report, the AFL champions its employment rules of a common roster and salary cap, and the draft, as promoting a more even competition. What it refers to as equalisation, is the building block upon which its employment rules, and revenue sharing is based.[64] This model, however, has come under serious attack in recent years. The salary cap was introduced in the AFL with two objects: to contain costs and promote sporting equality (In the NRL it was reduced to overcome the losses which flowed from the Super League war). The AFL and clubs as a whole are now in a strong financial position, as is evidenced by the AFL's most recent broadcasting deal. Most clubs generate profits.[65] In 2012, the AFL made payments to clubs of $ 200 million and, at the end of 2012, had a future fund of $ 89 million.[66]

Economic theory says that output is a function of the combination of capital and labour. Focusing on the salary cap only takes account of the contribution to labour; it ignores that of capital. More successful clubs, with surplus income increase expenditure on capital to enhance their chances of on-field success.[67] Capital here means football departments, such things as coaching, sports science, medical and other staff and improved training facilities for players.

[63] Australian Football League Annual Report 2012, p. 63.

[64] Australian Football League Annual Report 2012, p. 16.

[65] Heathcote, 'Not Just A Game'.

[66] Australian Football League Annual Report 2012, p. 122.

[67] This rests on the assumption that clubs are utility and not profit maximisers. Additional funds will be utilised to enhance the team's chances of success.

Table 4 AFL Football Department spending and spending on players: 2011 and 2010. (Source: Denham 2012)

Rank	Club	Football department 2011	Football department 2010	Players 2011	Players 2010	Finish 2011
1	Collingwood	$ 19.1m	$ 19.5m	$ 10.1m	$ 10.7m	2
2	West Coast	$ 18.6m	$ 18.1m	$ 10.8m	$ 10.0m	4
3	Essendon	$ 18.6m	$ 16.6m	$ 10.4m	$ 9.4m	8
4	Geelong	$ 18.4m	$ 17.8m	$ 10.9m	$ 10.1m	1
5	Carlton	$ 18.2m	$ 16.7m	$ 10.1m	$ 9.9m	5
6	Fremantle	$ 17.9m	$ 17.0m	$ 10.4m	$ 10.0m	11
7	Hawthorn	$ 17.7m	$ 17.0m	$ 10.2m	$ 9.8m	3
8	Sydney	$ 17.7m	$ 16.5m	$ 10.9m	$ 9.7m	6
9	Brisbane	$ 17.4m	$ 17.0m	$ 10.9m	$ 10.4m	15
10	St. Kilda	$ 17.0m	$ 17.3m	$ 10.4m	$ 11.5m	7
11	Melbourne	$ 16.3m	$ 15.3m	$ 9.9m	$ 9.7m	13
12	Adelaide	$ 16.2m	$ 15.8m	$ 10.0m	$ 9.7m	14
13	Richmond	$ 16.0m	$ 14.2m	$ 9.7m	$ 8.7m	12
14	Port Adelaide	$ 15.6m	$ 15.3m	$ 10.2m	$ 9.2m	16
15	Gold Coast	$ 15.3m		$ 10.0m		17
16	North Melbourne	$ 15.1m	$ 14.0m	$ 9.8m	$ 9.0m	9
17	Western Bulldogs	$ 14.7m	$ 14.7m	$ 9.9m	$ 10.0m	10

Table 4 provides information on the level of expenditure on football departments by clubs in 2010 and 2011. More recent data is not available. All clubs have similar salary caps, per the AFL's employment rules. There is no limit on which clubs can spend on their football departments. In 2011, the average expenditure on salary caps was $ 10.25 million, and on football departments was $ 17 million. The latter is 60 % higher than the former. Table 4 shows that those clubs who spend the most on their football departments experience more success than those that spend less. It also shows that football department expenditure is on the increase; St. Kilda and Collingwood spent less in 2011 than 2010 due to the drawn/replayed Grand Final of 2010.

The disparity in the football department spends of clubs has become an increasing cause of concern for clubs and the AFL. At the end of July/early August 2013, AFL, club and AFLPA officials travelled on a fact finding mission to America to ascertain how baseball, basketball and football tackle such problems.[68] Of particular interest will be the revenue sharing and luxury tax schemes which operate in the respective sports.[69]

Escalations in football department expenditure suggest that salary caps are too low. If the AFL is wedded to equality, it should ensure that the combined expen-

[68] Ryan (2013a, b).

[69] Quinn (2012); Berri (2012); Rascher and DeSchriver (2012).

diture on salary caps and football departments by clubs are the same. If they were unprepared to cap the latter, one way to enhance equality would be to lower AFL distributed revenue to clubs who spend over the average level of football department expenditure, and provide extra revenue to those clubs that spend less than the average. This additional revenue should be added to these clubs salary caps to enable them to attract more able players to enhance on field success. All salary caps could be then raised in the following year to the average amount of club salary caps in the previous year, and for 'second round' disparities in the football department spends of clubs and other mechanisms for increases, essentially linked to growth in AFL and club income, agreed to by the parties. This proposal could be coupled with a further enhancement of the free agency rules to enable less successful clubs to attract more able players to lift their performance. Linking salary cap increases to football department expenditure would ensure that players would be able to obtain salary increase which would not compromise the financial viability of the AFL, and, at one and the same time, enhance competitive balance: the twin objects the AFL had when it introduced the salary cap. But then again equality may be of the Orwellian type where all football clubs are equal, but some clubs are more equal than others.

Rugby League has expressed disquiet about the operation of its salary cap since the conclusion of the 2012–2017 collective bargaining deal. Rugby League is an offshoot of Rugby Union and there has always been a steady stream of players backwards and forwards between the two codes. When the AFL expanded into the Gold Coast and Western Sydney, it stunned sporting commentators when it attracted two of Rugby League's leading stars, Karmichael Hunt and Israel Folau, to its fold. At the end of 2012, Folau decided that he had played enough for AFL and was interested in either a return to Rugby League, or a new career in Rugby Union. At one stage, there was a chance that he would join Parramatta in the NRL. His asking price, however, was too high. Parramatta could not fit him under its salary cap and he joined Rugby Union's New South Wales Waratahs, and represented Australia in international fixtures in 2013.

The NRL wishes to attract the best athletes to its code as part of its strategy of developing 'The Greatest Game of All'. It appointed Dave Smith as its chief executive officer after the parties reached agreement on the NRL's collective bargaining agreement. Following disquiet expressed by clubs, he has commissioned an enquiry into Rugby League's salary cap to ensure it can attract and retain the best players. This review will involve an examination of domestic and overseas leagues.[70] The NRL may emulate the marquee player exceptions to the salary cap that operate in Australian soccer. Under its collective bargaining agreement, with a roster of 20 (plus three youth) players, clubs are allowed to employ two marquee players; one from overseas and one Australian, whose payments are not included in clubs' salary caps.[71] The NRL may be of a mind to modify this model to one player from overseas, or another code, and one home-grown player.

[70] Read (2013).

[71] A-League Collective Bargaining Agreement 2008/2009–2012/2013, H-AL and NYL Player Contract Regulations, Clauses 6.2 and 7.6; and Variation and Extension of A-League Collective

The Ubiquity of Orbits of Coercive Comparison

Arthur M. Ross's orbits of coercive comparison rests on the idea that a trade union will base its claims on the best terms and conditions achieved by other unions, comparable to themselves. The ability to realise such aspirations is dependent on the product market success of the firms that they bargain with. If these firms do not have the wherewithal to provide such benefits then the aspirations of such unions will not be realised.

NRL players had inferior wages and employment conditions compared to those of the AFL. They were burdened by the joint venture of the ARL and News Limited, in the form of the NRL, following the disaster that was Super League. The ARL and News Limited parted company in early 2012. This in turn enabled the NRL to negotiate a more lucrative broadcasting deal. The RLPA sought to emulate the better conditions that AFL players had historically enjoyed, enhanced by the collective bargaining agreement negotiated between the AFL and AFLPA in 2011. In particular, the RLPA wanted to and succeeded in increasing both the income of players and obtaining similar minima to those enjoyed by AFL players. The RLPA also managed to secure its financial base. The major area where it fell short, in comparison with the AFL, was the extent of welfare and education funding and being in control of the administration of such schemes.

The notion of orbits of coercive comparison can be thought of more conceptually and applied to other organisations as well as trade unions. All organisations are looking elsewhere for guidance on how they can improve their operation. In the jargon of these more modern times the term is referred to as 'best practice'. Both the AFL and NRL are in the process of examining developments in other codes, overseas and in Australia, for guidance concerning means with which to overcome problems with the generation and distribution of funds, in the increasingly competitive environment that is professional sport.

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Part IV
Sports and Community

Effect of Professional Sports Teams on Social Capital Formation: Comparison Between Football and Baseball in Japan

Eiji Yamamura

Abstract The Japanese Professional Football League (JPFL) was established in 1993 in an attempt to enhance social interaction within teams' home cities through football. In contrast, the Japan Professional Baseball League (JPBL) was created prior to World War II and has been supported mainly by corporate sponsorship. Using individual-level data from 1996, this paper contains over 250,000 observations to investigate how the JPFL enhanced social capital formation in comparison with the JPBL. A bivariate probit estimation showed that in those areas in which a JPFL team home city was located, people were more likely to play football with their neighbors. In contrast, the presence of a JPBL team did not lead people to play baseball with their neighbors.

Introduction

There are many differences between football and baseball. For instance, football is more popular than baseball in most parts of the world, with baseball considered a minor sport and not as well known. However, professional baseball teams yield higher profits than professional football teams (Szymanski and Zimbalist 2005). In Japan, like the USA, baseball has traditionally been considerably more popular than football.

In post-World War II Japan, a rise in income levels resulted in an increase in the demand for leisure activities. Furthermore, the end of the war signaled a turn towards American culture by the Japanese people. Thus, the demand for professional baseball in Japan has grown in the last 50 years or so. The Tokyo Yomiuri Giants are recognized as the most popular team in the Japan Professional Baseball League (JPBL), much like the New York Yankees in Major League Baseball in the USA. The Yomiuri Corporation, a newspaper publishing company, is the sponsor of the Giants. The corporation also holds various subsidiary companies including Nihon Television, forming a mass media conglomerate. Hence, a system of vertical integration between media and sports teams has been established. Consequently,

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people have become exposed to the JPBL through televised programs on the Giants (Yamamura and Shin 2008). Without a doubt, the JPBL is the most popular professional sport in Japan.

Since the establishment of the Japan Professional Football League (JPFL) in 1993, football has become very popular, especially among young people. The JPFL is regarded as an alternative to the JPBL. The popularity of the JPBL has declined after the introduction of the JPFL (Yamamura and Shin 2008)[1]. Similar to football club teams in Europe (Dobson and Goddard 2001), an academy system was established after the creation of the JPFL. Each JPFL team has a youth team, which provides an opportunity and incentive for young people in the team's home city to play football. A number of private companies invest in JPFL teams. However, the names of these companies are not widely publicized. This is different than the JPBL, where teams are owned by private companies and are viewed as advertisement vehicles. JPBL teams are unlikely to engage in local fan or community events (Harada 2013).

As shown in Table 1, in most cases, the formal name of the JPBL teams includes the owner company's name, while none of the JPFL teams include it. Furthermore, the home city's name is included in the name of all JPFL teams, whereas the home city's name is not generally included in JPBL team names. Basically, the JPFL places a greater importance on its relationship with the teams' home cities than the JPBL, even though the JPFL is a professional sports league. That is, JPFL teams are promoted and involved in their home communities and the community members support the teams. These characteristics contrast with those of JPBL teams, which are integrated into communities via extensive media coverage. Not only fans from its home city Tokyo but also fans from all over Japan support the Giants[2].

The geographical locations of the JPBL and JPFL teams are illustrated in a map of Japan in Figs. 1 and 2, respectively[3]. The figures show that the home-city

[1] Before the launching of the JPFL in 1993, the Japanese national football team consisted of amateur players. Its performance was far below the level required to advance to the FIFA World Cup, and accordingly, Japan had never won any preliminary matches to obtain entry. It was at the 1998 FIFA World Cup in France that Japan won its first preliminary matches and qualified for the final stage of FIFA World Cup.

[2] With the exception of the Giants, JPBL teams are not well supported, even by hometown fans. For instance, the home city of the Yakult Swallows is also Tokyo. Haruki Murakami, the world-renowned Japanese novelist, is a zealous Swallows fan. At a Swallows game attended by Murakami in the home stadium, Jingu Kyujo, visiting-team fans outnumbered Swallows fans. Murakami was disgusted at the situation and described it as unnatural, unpleasant and inadmissible (Nishi Nihon Shimbun, September 3, 2013).

[3] After 1996, the number of JPFL teams increased and were established in more cities throughout Japan. With respect to the JPBL, in 2004, the Fighters relocated its home from Tokyo to Sapporo, located in the northern island of Japan. The Buffaloes, whose home is Osaka, then merged with the Blue Wave in 2004. The Eagles is a new JPBL team established in 2005, and its home city is Sendai, northeast Japan. Hence, there appears to be a trend in the JPBL where teams are relocated from larger urban areas to smaller local cities. In summary, the shift from urban to local cities has been observed not only for JPFL teams but also for JPBL teams; however, this trend is more obvious in the JPFL than in the JPBL. No JPFL team has been relocated from an urban to a smaller city. In 1999, JPFL created a second division (J2). Therefore, there is now an upper division (J1) and the J2. Many teams were started in the JPFL, especially when the J2 was established; the number

Table 1 Size of teams' home cities (Asahi Shimbunsha 2012)

JPFL team	Prefecture	Home city	Population of home city (in thousands)
Kashima Antlers	Ibaragi	Kashima	60
Nagoya Grampus Eight	Aichi	Nagoya	2083
Yokohama Flügels	Kanagawa	Yokohama	3281
Jubilo Iwata	Shizuoka	Iwata	84
Kashiwa Reysol	Chiba	Kashiwa	316
Urawa Reds	Saitama	Urawa	451
Verdy Kawasaki	Kanagawa	Kawasaki	1178
Yokohama Marinos	Kanagawa	Yokohama	3281
JEF United Ichihara	Chiba	Ichihara	277
Shimizu S-Pulse	Shizuoka	Shimizu	239
Bellmare Hirazuka	Kanagawa	Hirazuka	252
Cerezo Osaka	Osaka	Osaka	2481
Gamba Osaka	Osaka	Osaka	2481
Sanfrecce Hiroshima	Hiroshima	Hiroshima	1087
Avispa Fukuoka	Fukuoka	Fukuoka	1234
Kyoto Purple Sanga F.C	Kyoto	Kyoto	1390
Average			1260
JPFL team	*Prefecture*	*Home city*	*Population of home city (in 10,000s)*
Tokyo Yomiuri Giants	Tokyo	Tokyo	7817
Yakult Swallows	Tokyo	Tokyo	7817
Hanshin Tigers	Hyogo	Nishinomiya	391
Chunichi Dragons	Aichi	Nagoya	2083
Yokohama Bay stars	Kanagawa	Yokohama	3281
Hiroshima Carp	Hiroshima	Hiroshima	1087
Seibu Lions	Saitama	Tokorozawa	317
Chiba Lotte Marines	Chiba	Chiba	843
Nippon Hamu Fighters	Tokyo	Tokyo	7817
Fukuoka Daiei Hawks	Fukuoka	Fukuoka	1234
Orix Blue Wave	Hyogo	Kobe	1439
Kintetsu Buffaloes	Osaka	Osaka	2481
Average			*3050*

Population data are of 1996

locations of the JPBL teams are similar to those of JPFL teams. Figures 1 and 2 show the locations at the prefecture level.[4] For a closer examination, "home city"

of JPFL team increased from 16 in 2004 to 37 in 2013. Of the 37 teams, 18 are a part of J1 and 19 are a part of J2. Most of the new JPFL teams are located within the city that they are a part of. Consequently, there are cities that have a JPFL team in most parts of Japan.

[4] A Japanese prefecture is equivalent to a state in the USA or a province in Canada. There are 47 prefectures in Japan.

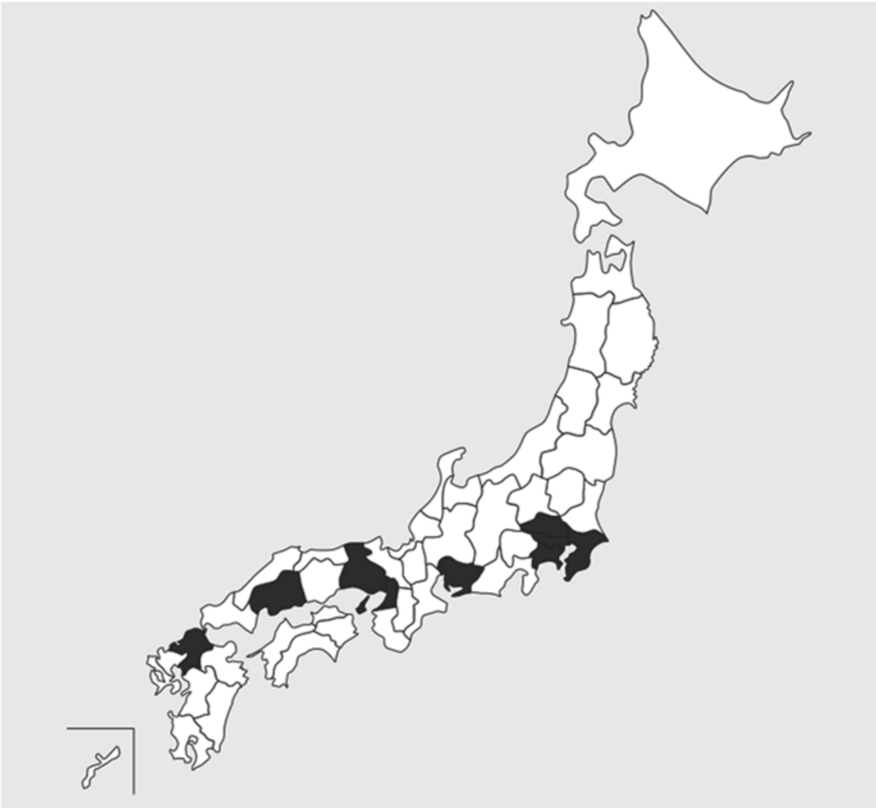

Fig. 1 Location of the home cities of JPBL teams in 1996. (The *shaded areas* denote the prefectures where the home cities were located)

should be considered at the city level. A prefecture in Japan consists of cities, towns, and villages. Hence, Table 1 shows the characteristics of each team's home city in 1996, including population size. It is interesting to observe that the population size of a JPBL home city is on average three times larger than that of a JPFL home city. The JPFL teams located in Kanagawa *Prefecture* in 1996 were the Marinos, Flügels, and Bellmare. Hence, their locations are same in Fig. 1. However, the *home city* of the Marinos and Flügels[5] is Yokohama with a population of 3,280,000, while Bellmare has its home in Hirazuka with 252,000. Furthermore, in 1996, three JPBL teams, the Giants, Swallows, and Fighters, were located in Tokyo, Japan's capital, with a population of 7,817,000. In contrast, in 1996 none of the JPFL teams were located in Tokyo[6]. This partly explains why the geographical location of the home

[5] The Flügels and Marinos merged in 1999 and formed the F-Marinos.

[6] In 1999, FC Tokyo entered the JPFL. FC Tokyo was the first team to choose Tokyo as its home city. Verdy then followed, relocating from Kawasaki to Tokyo in 2001.

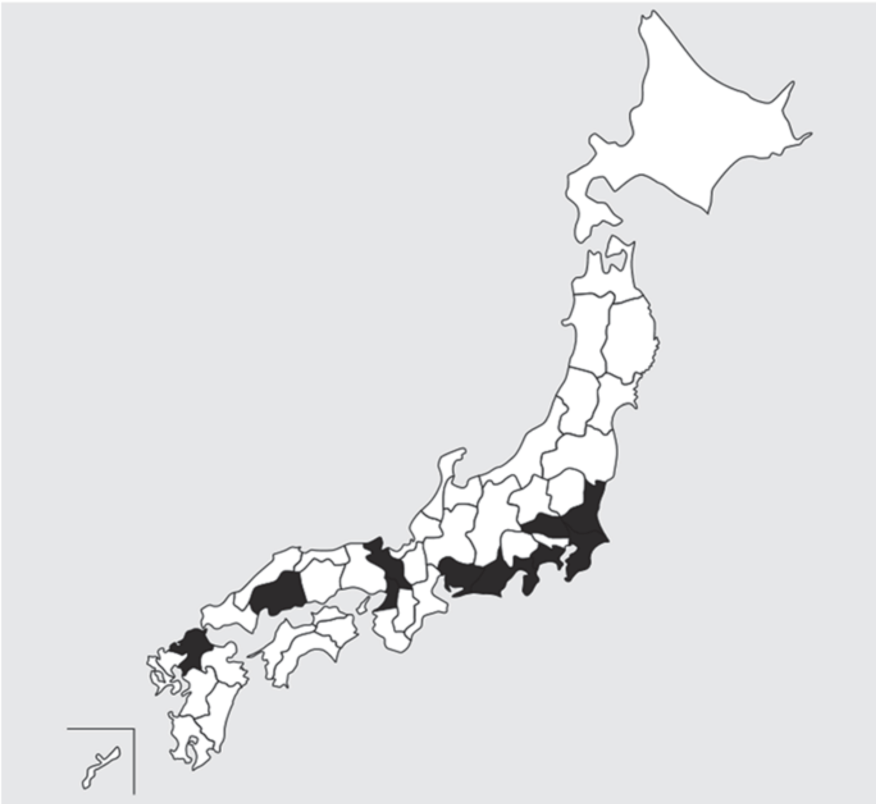

Fig. 2 Location of the home cities of JPFL teams in 1996. (The *shaded areas* denote the prefectures where the home cities were located)

cities is similar for both the JPBL and JPFL in Figs. 1 and 2, whereas they show a remarkable difference in terms of population size as shown in Table 1. Overall, JPFL teams are located in smaller cities than JPBL teams, even if a larger city exists in the same prefecture. This reflects the fact that JPFL teams are more likely to be rooted in the communities of suburban areas.

According to Putnam (2000), considered a pioneer in social capital research, social capital is defined as the features of a social organization such as networks and norms, and that social trust facilitates coordination and cooperation. Therefore, social capital is thought to play a critical role in resolving the problem of the market failure to deter free riding. Social capital can be accumulated by frequent interactions between community members through various community events. For example, in terms of sports economics, it is important to play sports to form social capital.

According to Putnam (2000, p. 113), "While Americans are spending less time *doing* sports, we are spending more time and money *watching* sports now than we were only a few decades ago." The JPBL seems to possess the same characteristics as found in US sports, partly because the JPBL has been commercialized to garner large profits (Szymanski and Zimbalist 2005). Giant fans exist in all parts of Japan, even though the team is located in Tokyo (Yamamura and Shin 2008). This suggests that JPBL teams are not deeply connected to their home cities. Hence, if the city in which people live has a JPBL team, they are not necessarily attached to that team. People become less likely to interact with their neighbors, for example playing sports together, because they stay at home to watch professional sports games on television, even when there are professional sports teams located in their city (Putnam 2000).

In contrast, the JPFL is less commercialized, and therefore local people support the football teams rooted in their community. People are more likely to be strongly attached to their local team. Where people become fans of their local team, it increases the likelihood of interactions with other people in the community. As a result, people play football together because football is thought to be a community-based activity. The emergence of a JPFL team can lead residents to form social networks and result in community development by playing football with neighbors.

Thus, the following hypothesis can be proposed: The presence of a JPBL home team does not increase people's incentives to play baseball with neighbors while the presence of a JPFL home team does increases people's incentives to play football with their neighbors. This paper attempts to examine the hypothesis based on individual level data.

The remainder of this paper is organized as follows. The next section explains the data and estimation method used in this research. Estimation results and their interpretation are provided in the following section, and a conclusion rounds out the chapter.

Data and Methods

Data

In this study, data from the "Survey of Time Use and Leisure Activities" (STULA) was used for the statistical analysis. The Japanese Government (Ministry of Internal Affairs and Communications, Statistical Bureau in Japan) conducts the STULA every 5 years with the aim of obtaining information regarding Japanese people's social behavior in daily life[7]. For the purposes of this research observations were randomly chosen from all regions throughout Japan. STULA includes information regarding people playing football (and baseball) with other community members within the previous year. However, such data are only available for 1996, which was

[7] This is actually the social behavior of people currently living in Japan, not Japanese people as a whole.

3 years after the launch of the JPFL[8]. Using the 1996 data, the determinants of playing football (and also baseball) with other community members can be ascertained. The number of observations used in the regression estimations was over 250,000, which is considered a large sample size able to provide reliable estimation results.

The key dependent variable, the proxy for the formation of social capital through playing football (baseball), was defined as follows. In the STULA questionnaire, respondents were asked "Did you play football (baseball) within the previous year?" The possible responses to this question were "Yes" or "No." Where respondents chose "Yes," they were asked "Whom did you play with?" There were several possible responses, including "Neighbors." Hence, those who chose "Yes" in the first question and then chose "Neighbors" in the second can be defined as those who made a contribution to the formation of social capital. Based on this response, the dummy variable of playing football (baseball) with neighbors was constructed. Furthermore, the respondent's residential location was recorded in the STULA data, which enabled the identification of the respondent's residential prefecture. Based on this information, the prefecture of the JPFL (JPBL) team's home city can be identified. Furthermore, the number of JPFL (JPBL) teams in the respondent's residential prefecture can be obtained. This is the key independent variable to examine the effect of the existence of JPFL (JPBL) teams on social capital formation.

To capture various individual factors, various control variables were incorporated as independent variables, such as age, schooling years, annual household income, and marital status dummy.

Method

The function to examine the hypothesis takes the following form:

$$\begin{aligned} Football\ play_{im}\left(or Baseball\ play_{im}\right) = {} & \alpha_0 + \alpha_1 Football\ team_m + \alpha_2 Baseball\ team_m \\ & + \alpha_3 Region\ income_m + \alpha_4 Age_{im} + \alpha_5 Male_{im} \\ & + \alpha_6 Marry_{im} + \alpha_7 School_{im} + \alpha_8 House\ income_{im} \\ & + \alpha_9 Home\ owner_{im} + u_{im}, \end{aligned}$$

where *Football play*$_{im}$ (or *Baseball play*$_{im}$) represents the dependent variable for individual *i* and prefecture *m*. Regression parameters are represented by α. Values for *Football play* and *Baseball play* take 1 or 0. Hence, a probit model is appropriate for the estimations. The error term is represented by u_{im}[9]. Furthermore, distur-

[8] Questionnaires vary slightly according to the year. Therefore, some questions were not asked in following years. This question was only included in 1996.

[9] People are likely to behave similarly under the same institutional condition. For instance, institutions differ between residents' prefectures. Hence, it is reasonable to assume that the observations may be spatially correlated within a prefecture, as the preference of one agent may well relate to

bances in the equation when *Football play* is a dependent variable may correlate with disturbances when Base*ball play* is a dependent variable. Both *Football play* and *Baseball play* should be jointly estimated because of correlations between disturbances. In this case, a bivariate probit model is preferred (Greene 2008, pp. 817-826). Hence, a bivariate probit model was used for the estimations. Based on the hypothesis, it is anticipated that the coefficient of *Football play* will be positive, whereas that of *Baseball play* will be negative.

The following control variables were used: a prefecture's per capita income level and a respondent's individual characteristics such as age, marital status, gender, schooling years, household income level, and home owner dummy. Some of these control variables are related to social capital formation. In general, married people seem to have greater social recognition and hence, are inclined to mingle with other community members (Yamamura 2011). Therefore, *Marry* is predicted to be positively associated with the dependent variables. The homeowner dummy is included because homeowners are less likely to change their residential home and so the importance of relationships with neighbors increases (DiPasquale and Glaeser 1999; Yamamura 2011). Consequently, homeowners are inclined to invest in social capital (DiPasquale and Glaeser 1999; Yamamura 2011). Hence, *homeowner* is expected to be positively associated with the dependent variables. Furthermore, this paper incorporates other control variables that are commonly used in the existent works of social capital formation (DiPasquale and Glaeser 1999; Yamamura 2011).

Estimation Results and Interpretation

Table 2 shows the definitions of the variables used for the estimations and their basic statistics. The average values for *Football play* and *Baseball play* are 0.003 and 0.012, respectively. This means that 0.3 % people played football with their neighbors and 1.2 % people played baseball with their neighbors. The data were collected only 3 years after the launch of the JPFL. As stated previously, baseball has a longer history than football, which is reflected in its value. However, the impact of the JPFL and JPBL on residents playing sports with neighbors is not known from the values.

Table 3 shows the results of the bivariate probit estimation. The coefficient of *Football team* is positive and statistically significant in all columns. This is consistent with the hypothesis and therefore the presence of football clubs encourages neighbors playing football together. In contrast, the coefficient of *Baseball team* is negative in all columns. Furthermore, it is statistically significant in columns (2) and (3). It follows then that JPBL teams have a detrimental effect on the

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the preference of another in the same prefecture. To consider such spatial correlation in line with this assumption, the Stata cluster command was used and z-statistics were calculated using robust standard errors. The advantage of this approach is that the magnitude of spatial correlation can be unique to each prefecture.

Table 2 Definitions and basic statistics

	Definitions	Mean	Standard Deviation	Maximum	Minimum
Regional Characteristics					
Football team	Number of football teams within the prefecture where respondent resides	0.44	0.90	4	0
Baseball team	Number of baseball teams within the prefecture where respondent resides	0.34	0.69	3	0
Region income	Per capita income within prefecture where respondent resides (10 thousand yen).	302	42	433	219
Individual characteristics					
Football play	Takes 1 when respondent played football with neighbors within the last year, otherwise 0.	0.003	–	1	0
Baseball play	Takes 1 when respondent played baseball with neighbors within the last year, otherwise 0.	0.012	–	1	0
Age	Age of respondents	43.5	19.9	99	10
Male	Takes 1 if respondents are male, otherwise 0.	0.47	–	1	0
Marry	Takes 1 if respondents are currently married, otherwise 0.	0.59	–	1	0
School	Years of schooling	11.6	2.48	16	6
House Income	Individual household income (10,000 yen)	660	423	2000	50
Home owner	It takes 1 if respondent is a home owner, otherwise 0.	0.72	–	1	0

All observations are used

formation of social capital. This is in line with the hypothesis. Concerning control variables, the coefficient of *Marry* is positive and significant when *Football play* and *Baseball play* are dependent variables, which is congruent to the prediction from Yamamura (2011). Consistent with the prediction from DiPasquale and Glaeser (1999) and Yamamura (2011), the coefficient of *Homeowner* is positive. It is interesting to observe that *Homeowner* is statistically significant at the 1% level when *Baseball play* is a dependent variable, but not significant when *Football play* is a dependent variable. This can be interpreted as implying that *Homeowner* captures the length of time a resident has lived in an area. That is, homeowners are more likely to reside in a community for a longer period and hence, interact with their community members. However, as explained earlier, the JPBL has a distinctly longer history than the JPFL. When the 1996 survey was conducted, the JPFL had been in existence for only 3 years. Thus, the JPFL was unlikely to be recognized by

Table 3 Determinants of playing football with neighbors and playing baseball with neighbors (bivariate ordered probit model)

	(1)		(2)		(3)	
	Dependent variable: Football play					
Regional characteristics	*Coefficient*	*z-value*	*Coefficient*	*z-value*	*Coefficient*	*z-value*
Football team	0.03[a]	1.79	0.03[a]	1.94	0.03[a]	1.94
Baseball team	0.05	1.51	0.04	1.27	0.03	1.11
Region income	0.64×10^{3}	1.13	0.91×10^{3}	1.54	0.88×10^{3}	1.47
Individual characteristics						
Age	−0.02[c]	−27.4	−0.02[c]	−28.7	−0.01[c]	−22.9
Male	0.63[c]	17.6	0.62[c]	17.5	0.60[c]	17.3
Marry	0.47[c]	12.2	0.45[c]	12.9		
School	−0.01[b]	−2.30	−0.01[c]	−2.09		
House Income	0.14×10^{3}[c]	4.29				
Home owner	0.01	0.20				
		Dependent variable: Baseball play				
Regional characteristics						
Football team	−0.01	−0.65	−0.01	−0.74	−0.01	−0.78
Baseball team	−0.04	−1.46	−0.06[b]	−2.17	−0.07[b]	−2.36
Region income	0.61×10^{3}	1.01	0.98×10^{3}	1.57	0.99×10^{3}	1.62
Individual characteristics						
Age	−0.02[c]	−26.3	−0.02[c]	−25.9	−0.01[c]	−21.8
Male	1.09[c]	25.2	1.09[c]	25.3	1.06[c]	25.4
Marry	0.56[c]	18.2	0.53[c]	18.5		
School	−0.01[b]	−2.16	−0.01[b]	−2.17		
House Income	0.07×10^{3}[c]	3.65				
Home owner	0.14[c]	6.19				
Wald chi-square	7298		6615		2945	
Observations	245,827		249,440		259,923	

Values are coefficients. Numbers in parentheses are z-values calculated using robust standard errors clustered in the prefecture. In all estimations, constant and dummies to capture size of residential area are included as independent variables but are not reported

[a] Significant at the 10 % level

[b] Significant at the 5 %

[c] Significant at the 1 % level

groups formed via long-term interactions. Therefore, the homeowner effect should be reflected in the JPBL, but not in the JPFL.

The findings of this paper are based on data from 1996. However, the popularity of JPBL did decline after the introduction of the JPFL (Yamamura and Shin 2008). Under competitive pressure, the JPBL reached out to local communities. In 1996, Tokyo was home to three JPBL teams (Giants, Swallows, and Fighters). The

Giants and Fighters also shared the same home stadium (Tokyo Dome). However, the Fighters then named Sapporo (located in Hokkaido Prefecture in the northern island of Japan) as its home city. The Fighters was the first JPBL team to locate to Hokkaido and by doing so obtained many new local fans and supporters.

It was the strategy of the team's manager Junichi Fujii that led the Fighters to become a community-based team. Before becoming the Fighter's president (he was both manager and coach), Fujii was the president of a JPFL team, Cerezo Osaka. His experience in the JPFL team is thought to have influenced his decision to make the Fighters a community-based team (Harada 2012). His work with the Fighters resulted in the paradigm shift of JPBL team management (Harada 2013). Apart from the Fighters home relocation, other JPBL teams such as the Orions and Eagles relocated, and teams are now attaching greater importance to establishing ties with local communities[10]. Consequently, the Orions and Eagles have successfully increased their fan base (Harada 2013). These developments show that social capital accumulation triggered by professional sports teams can act to increase supporter numbers and thereby benefit the teams. Interactions between professional sports teams and local communities can lead not only to the formation of social capital but also create benefits for the teams[11].

Conclusion

The year 2013 marked the twentieth anniversary of the establishment of the JPFL. The JPFL was launched based on the following ideals: local community before corporations, and a home city has value and this should be nurtured. That is, the JPFL was anticipated to enhance social capital through social interaction within the home cities of football teams. In contrast, the history of the JPBL exceeds that of the JPFL by 50 years and is the most popular sports league in Japan. However, the JPBL is based on corporate sponsorship, with the aim to advertise and promote parent companies. This direction has resulted in weak relationships between JPBL teams and local communities.

Using extensive individual-level data from 1996, 3 years after the inauguration of the JPFL, this study investigated how the JPFL enhanced social capital formation compared with the JPBL. The key findings using bivariate probit regression estimation were as follows: in towns that were also a JPFL team home city, people were more likely to play football with their neighbors members. That is, JPFL teams

[10] The Orions relocated from Kawasaki to Chiba in 1992. The Eagles relocated from Osaka to Fukuoka in 1989. After their move they then began to increase their local ties.

[11] For example, the Matsumoto Sanga team was created when some young locals met in a café and formed a non-professional football club; the team was later promoted into the JPFL (Kurata 2013). In addition to the JPFL and JPBL, other community-based professional sports teams have gone on to enter Japan's professional basketball league (Kimura 2009) or as independent baseball teams (Murayama 2011).

enhance the formation of social capital. However, this tendency was not observed when the effect of the JPBL on social capital formation was examined.

The emergence of the JPFL played a critical role in the improvement of Japanese football, and Japan now regularly advances to the FIFA World Cup. Furthermore, the findings of this paper clearly show that the JPFL's aim to enhance formation of social capital through sports has been achieved. On this point, social communities have accepted the JPFL to a greater extent than the JPBL. The role of JPFL teams in this regard is similar to European football clubs.

However, the behavior of some of the fans is at odds with the community aims of club football. For example, as has been observed not only in Japan but also in other countries where club football is popular, there have been instances of drunken fans rioting when their team is defeated (Szymanski and Zimbalist 2005). Thus, such devotion to football and a team can be regarded as a double-edged sword. There are both benefits and disadvantages to having such a devoted fan base. Therefore, the positive and negative influences stemming from the emergence of professional and community-based professional teams must be considered. This remaining issue should be addressed in future research.

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Building Team Identity Through Place Attachment: A Case of a Korean Professional Soccer Club

Ki Tak Kim and Dae Hee Kwak

Abstract Professional soccer leagues in East Asian countries (China, Korea, and Japan) have a relatively short history compared to those in Europe. For instance, Korea's K-League was launched in 1983 as the first professional soccer league among East Asian countries (e.g., China's Super League in 2000 and Japan's J-League in 1992). However, dwindling fan attendance over the past decade has challenged K-League and severe damage from a devastating match fixing scandal that took place in 2011. Given that the league recently adopted a promotion and relegation system in 2012, clubs are now even more challenged to build a strong and sustainable fan base. From a social identity perspective, the present chapter examines how local and regional identity help construct team identification and team loyalty. The first part of the chapter briefly reviews K-League's 30-year history. The second part of the chapter applies the theory of social identity construction to explore the relationship between place attachment and team identification by conducting in-depth interviews with spectators of the first supporter-owned club in K-League history—*Daejeon Citizen*.

Introduction

Professional soccer leagues in East Asian countries (China, Korea, and Japan) have a relatively short history compared to those in Europe. For instance, Korea's K-League was launched in 1983 as the first professional soccer league among East Asian countries (e.g., China's Super League in 2000 and Japan's J-League in 1992). However, K-League has been challenged by dwindling fan attendance over the past decade and severe damage from a devastating match-fixing scandal which took place in 2011. Given that the league recently adopted a promotion and relegation system in 2012,

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clubs are now even more challenged to build a strong and sustainable fan base. From a social identity perspective, the present chapter examines how local and regional identity help construct team identification and team loyalty. The first part of the chapter briefly reviews K-League's 30-year history. The second part of the chapter applies the theory of social identity construction to explore the relationship between place attachment and team identification by conducting in-depth interviews with spectators of the first supporter-owned club in K-League history—*Daejeon Citizen*.

The results from in-depth interviews suggest that team identity development is a dynamic process that interacts with place identity. Our findings contribute to the development of literature for team identity and suggest that attachment can play a vital role in establishing fan–team relationship among franchises that has relatively short history. Positioning a local sport franchise as a unique way of demonstrating local residents' place identity could strengthen the relationship with fans. Considering the relative short franchise history, participants who lived in the city for a long period of time (e.g., at least 10 years) reported that they support the team because the team represent their community. In other words, they believe attending games is a way of demonstrating their local pride. In contrast, this motivation was not clearly evident among participants who lived in the city for a shorter period of time (e.g., less than 5 years). For them, interest in the game of soccer, rather than a strong bond with the community, was the major motivator in this case.

Brief History of the K-League System

Tour-System in the Early 1980s

The Korean professional soccer league was launched in 1983 with only five clubs. The league was first organized and operated by the Korea Football Association (KFA) until 1994, when the K-League was founded. Until 1987, K-League adopted a "tour-system" in which all teams visited one city at a time (e.g., Seoul, Busan, Daegu, Incheon, Gwangju, Masan, Cheongju, and Gangreung) and completed each round. After completing each round, all clubs then moved to the next hosting city. The concept of a home-and-away match system or of having each club represent a specific host city was not in place until 1987. Therefore, it was difficult for clubs to cultivate their fan base in a particular city or a region because clubs were not able to play on their home pitch on a regular basis during the regular season. The rationale behind adopting the tour-system at an early stage of the K-League was to alleviate regionalism (e.g., east versus west) in Korea, which ironically was one of the factors that contributed to the early establishment of the local franchise system for Korea Baseball Organization (KBO) (Lee and Kim 2013).

Home-and-Away System in 1990s and 2000s

In the 1990s, K-League began to expand and adopted a more advanced league system to grow the business of professional soccer. For instance, the number of clubs increased to ten and the average attendance per game surpassed 10,000 for the first time in 1991. In 1987, club owners and league executives decided to adopt the home-and-away system and each club began to play more games in their home pitch than in other cities during the regular season. However, until 1996, clubs represented a relatively broad cluster of regions[1] (e.g., Gyeonggi province) as opposed to a specific city or region on a smaller scale (e.g., Suwon). Additionally, many clubs still continued using multiple stadiums when playing their home games, making it difficult for clubs to ingrain their team identity in particular locations.

Finally, in 1996, K-League fully established a community-based club system and each club began to represent a specific city or region on a smaller scale. As a result of the K-League's effort in the 1990s, more games are being played in designated home stadiums and the league reduced the number of games being played in neutral regions and cities. Another noticeable change in the 1990s is that for the first time, K-League decided to use both city names and corporate names in their official club names (e.g., Suwon Samsung Blue Wings) to help clubs build team identity in a respective region. Some clubs even decided to drop corporate sponsors' names while still receiving a large portion of financial support from their parent companies (e.g., FC Seoul, Pohang Steelers). Considering that professional baseball teams in Korea still adopt a parent company's name as their official team name (e.g., Samsung Lions, Kia Tigers, etc.), K-League's decision was a manifestation of the fact that the league wanted to firmly establish each club's identity as part of its respective community.

In the mid-1990s, average attendance grew slightly and peaked in 1998 with an average attendance of 14,673 per game. Table 1 lists clubs, current ownership, and their host cities and regions over the past thirty years of K-League history. In 2013, among 14 clubs, eight were corporate-owned and six were supporters or local governments owned. In the past decade, five supporter-owned clubs joined the K-League. Figure 1 shows the K-League clubs currently playing in the first division on the map of Korea.

Promotion and Relegation System in 2010s

By 2012, the number of clubs competing in the K-League had increased to 16. However, fan demand for professional soccer in Korea has steadily decreased over time. While the number of clubs increased from 10 in 2001 to 16 in 2012, average

[1] Gwang-yeok yeon-go system. In 1987, Pohang represented Gyeongbuk Province, Yugong represented Incheon and Gyunggi Province, Daewoo represented Busan and Geyongnam Province, Hyundai represented Gangwon Province, and LG represented Chungcheong Province.

Table 1 K-League's clubs, ownership, and host cities/regions

Clubs	Year joined the K-League[a]	Ownership	First cities/regions	Changes in cities/regions
Pohang Steelers	1983	Corporate (Posco)	Daegu and Gyeongbuk Province	Daegu and Gyeongbuk (1987) → Pohang (1988–current)
Jeju United	1983	Corporate (SK)	Seoul, Incheon, and Gyeonggi Province	Incheon (1987) → Seoul (1991) → Bucheon (2001) → Jeju (2006–current)
Busan I-Park	1983	Corporate (Hyundai Development Company)	Busan, Gyeongnam Province	Busan and Gyeongnam (1987) → Busan (1989–current)
Ulsan Hyundai	1984	Corporate (Hyundai Heavy Industries)	Incheon and Gyeonggi Province	Gangwon (1987) → Ulsan (1990–current)
FC Seoul	1984	Corporate (GS Group)	Chungcheong Province	Chungcheong (1987) → Seoul (1990) → Anyang (1996) → Seoul (2004–current)
Seongnam Ilhwa Cheonma	1989	City/Supporters[b]	Seoul	Cheonan (1996) → Seongnam (2000–current)
Jeonbuk Hyundai Motors	1995	Corporate (Hyundai Motors)	Jeonbuk Province	Jeonbuk (1995–current)
Jeonnam Dragons	1995	Corporate (Posco)	Jeonnam Province	Jeonnam (1995–current)
Suwon Samsung Blue Wings	1996	Corporate (Samsung)	Suwon	Suwon (1996–current)
Daejeon Citizens	1997	City/Supporters	Daejeon	Daejeon (1997–current)
Daegu FC	2003	City/Supporters	Daegu	Daegu (2003–current)
Sangju Sangmu Phoenix	2003	Government (Military team)	Gwangju	Gwangju (2003) → Sangju (2011–current)
Incheon United	2004	City/Supporters	Incheon	Incheon (2004–current)
Gyeongnam FC	2006	City/Supporters	Gyeongnam Province	Gyeongnam (2006–current)
Gangwon FC	2009	City/Supporters	Gangwon Province	Gangwon (2009–current)
Gwangju FC	2011	City/Supporters	Gwangju	Gwangju (2011–current)

[a] Club names and their host cities have changed over the years. We listed the year when the original club joined the league
[b] At the time of writing, Seongam City's Mayor announced that the city will take over Seongnam Ilhwa Cheonma and will rebuild the club as a supporter-owned club

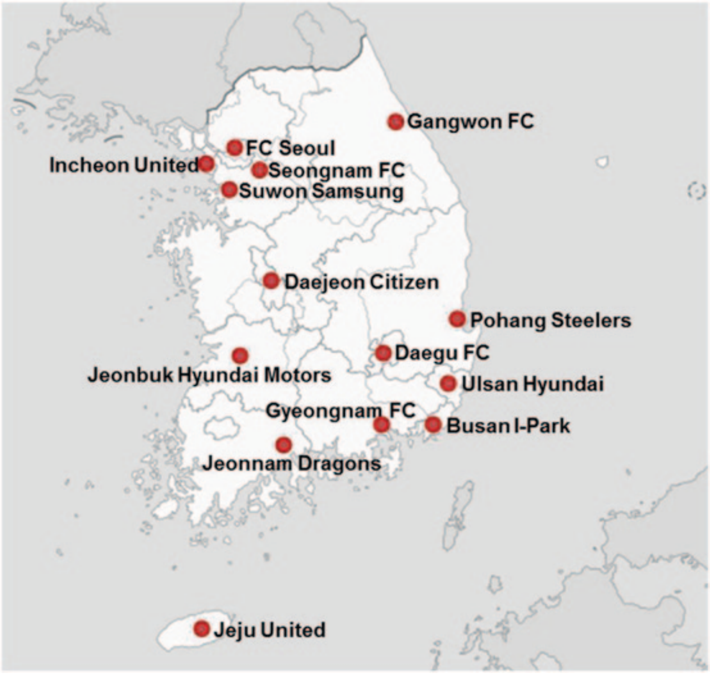

Fig. 1 K-League classic clubs on the map of the Republic of Korea. (Only includes clubs playing in the first division during the 2013 season (i.e., K-League Classic). After the end of 2013 season, Daejeon, Daegu, and Gangwon is relegated to the K-League Challenge and Sangju Sangmu Phoenix (military team) is promoted to the K-League Classic)

attendance per game decreased from 12,596 in 2001 to 7068 in 2012 (See Table 2). As seen in Table 2, although there were some fluctuations in attendance over the past decade, K-League does not seem to have gained any momentum in filling empty seats.

In the meantime, the K-league has been seriously considering adopting the promotion and relegation system. The initial attempt to adopt the system in 2005 resulted in failure since the league required each promoting club to pay US$ 3.9 million[2] (4 billion won) in total to be eligible to play in the K-League. None of the clubs in the second-tier division were financially viable to pay the league entry fee. Two teams (Goyang Kookmin Bank, Ulsan Hyundai Mipo Joseon) that were eligible to be promoted to the K-League in 2006 and 2007, respectively, rejected promotion mainly because they could not afford the fee imposed by the league. Given that most clubs even in the first division struggle with generating revenues, imposing

[2] If promoted to the K-League, each club must pay US$ 900,000 to join the professional league and an additional US$ 3 million for Soccer Development Fund to become an official K-League club. However, none of the clubs in the second-tier league could afford such an amount since most clubs' annual budget is about half that fee. As a result, K-League decided not to adopt the promotion and relegation system in 2008.

Table 2 K-League's average attendance per game between 1990 and 2012. (Source: www.kleague.com)

Year	Avgerage attendance per game	Year	Avgerage attendance per game
1990	5865	2002	13,203
1991	12,251	2003	9064
1992	11,886	2004	10,061
1993	8989	2005	11,844
1994	7791	2006	8717
1995	9246	2007	10,755
1996	9595	2008	11,642
1997	7141	2009	10,872
1998	14,673	2010	10,685
1999	13,283	2011	10,709
2000	10,132	2012	7068
2001	12,596	2013	7656

The significant drop in attendance in 2012 was in large part due to the large match-fixing scandal that took place in 2011, which involved more than 40 active players

entry fees did not seem to make economic sense in adopting the promotion and relegation system.

Recognizing that none of the clubs even in the first division were profitable, the K-league began to consider a more suitable "adapted" promotion and relegation system. The solution was to adopt the split system used in the Scottish Premier League. Finally, for the first time in K-League history, the league enacted the promotion and relegation system, beginning in the 2012 season. In the 2013 season, 14 clubs played in the "K-League Classic" (first division) and eight clubs played in the "K-League Challenge" (second division). The two lowest ranked teams from the K-League Classic will be relegated to the second division and the champion of K-League Challenge will play the playoff match against the twelfth ranked club in the first division. Beginning in the 2014 season, the lowest ranked club will be automatically relegated to the second division and the champion of the second division will be promoted to the first division. The second lowest ranked club from the first division will play against the second ranked club of the second division for the last spot in the K-League Classic.

However, there are still concerns among club owners as to why the K-League is trying to adopt the promotion and relegation system while few clubs are financially stable. In particular, supporter-owned clubs (e.g., Gwangju FC, Gyeongnam FC, Gangwon FC, Daegu FC, Daejeon Citizen, and Incheon United) are concerned that their financial deficits will be aggravated if they are relegated to the second division. Such clubs with limited financial resources are on the verge of being relegated since they struggle to recruit top players in the league. In fact, Gwangju FC, one of the supporter-owned clubs that joined the league in 2011, was relegated to the K-League Challenge after their first two seasons. Moreover, at the time of writing (October, 2013), the last four clubs in the K-League Classic standings are all supporter-owned clubs (www.kleague.com).

Now that the promotion and relegation system has finally been put into place in the K-League, all clubs, regardless of ownership structure, are challenged to build a strong fan base in their home cities. With the dwindling attendance over the past decade, it is imperative for the K-League and clubs to enhance fan interest in professional soccer. We contend that building strong team identification is vital for sustainable growth of a professional sports club (Matsuoka et al. 2003; Wann and Branscombe 1993). It has been extensively documented in the sport marketing literature that the notion of team identification is one of the main motivators of sport consumption behavior in the spectator sport context. For instance, Matsuoka et al. (2003) examined the direct and indirect effects of team identification on intentions to attend future soccer games, using 1256 J-League spectators as a sample. Among team identification and other game-related satisfaction variables (e.g., satisfaction with the final score, performance of the favorite team, and perception of game quality), team identification had the strongest influence on future game attendance intentions.

Therefore, developing strong team identification among local residents seems critical if K-League clubs are to increase attendance. Between 1997 and 2012, seven first division clubs were newly founded in new cities. Considering their relatively short club histories (less than 15 years), we contend that these clubs should identify ways to utilize a strong sense of local and regional identity to cultivate team identification. According to Light and Yasaki (2003), a community-oriented strategy to promote soccer as a way to cultivate a unique local and regional identity was a main factor for success of the J-League. The authors argued that J-League successfully integrated local clubs into community-based programs where clubs provided unique opportunities to express regional identities. As such, we take a social identity perspective (e.g., Stryker 1980; Tajfel 1981) in further discussing the influence of local identity or place attachment on the development of team identification (Tonts and Artherley 2010).

Place Attachment and Team Identity Development

Understanding Place Identity

Considerations of sense of place, feelings that people develop toward the places where they were born and brought up, have been receiving increasing attention from various perspectives such as tourism and leisure behavior (e.g., Alexandris et al. 2006; Ednie et al. 2010; Hidalgo and Hernandez 2001). In particular, studies have focused on the values and consequences of "place attachment" (e.g., Altman and Low 1992; Stedman et al. 2004), which is broadly defined as an emotional, physical, and cognitive connection of an individual to a particular place. Some studies have found that place attachment plays a pivotal role in influencing residents' support for symbolic entities (e.g., recreation places) that represent the place

(Alexandris et al. 2006; Jorgensen and Stedman 2001), suggesting that place attachment could impact one's evaluation of a local sport team.

Given that the attachment to a particular place accumulates through various experiences associated with that place (Smaldone et al. 2005; Stedman et al. 2004), it seems plausible that one's cognitive and affective commitment to a particular place would help develop a team-person relationship. This reasoning is based on the notion that sport teams represent symbolic boundaries and sense of uniqueness in culture and identity between neighboring communities (and countries) (Tonts and Atherley 2010). In this regard, following a local sport team could be considered as a substructure of social identity that contributes to the development of place identity. For instance, if a sport franchise is introduced to a new region, it is likely that residents who have a strong sense of community would view the franchise as a communicable and tangible means to express the underlying identity values of that place (Mueller and Schade 2012). Based on social identity theory (Stryker 1980; Tajfel 1981), the current study posits that a regional team can be considered as a social category that might heighten individuals' bonding with place. This is particularly true since supporting a regional sport team can facilitate and reinforce a sense of belonging to the community (Tonts and Atherley 2010). Therefore, one's place attachment may exert an important role in developing team identity and loyalty.

According to Ellemers et al. (1999), one's social identity is based on three main components: the cognitive component (a cognitive awareness of one's membership in a social group), the evaluative component (a positive or negative value connotation attached to the group membership), and the emotional component (a sense of emotional involvement with the group). In sport, such phenomena have been well evidenced in previous literature that found that people who belong to the same social group may exhibit differential responses, depending on the extent to which they feel committed to that group (cf. Branscombe and Wann 1992; Madrigal and Chen 2008). Therefore, place attachment, which is grounded in social identity theory, refers to a sense of cognitive and emotional involvement with a specific place.

From a broader social identity perspective, the concept of place attachment has been related to place identity, "a substructure of the self-identity of the person consisting of, broadly conceived, cognition about the physical world in which the individual lives" (Proshansky et al. 1983, p. 59). As such, place identity is a cognitive structure that contributes to global self-categorization and social identity processes (Pretty et al. 2003). The concept of place attachment is based on social identity theory. Social identity theory has evolved to explain how various social structures affect the structure of self (Stryker 1980). In particular, self is composed of the meanings that individuals attach to the multiple roles they play in respective environments (Stryker and Burke 2000). Our conceptualization of place attachment lays in the notion that salient identities function as cognitive schemas that affect individuals' identity-relevant behavior (cf. Stryker and Serpe 1994). In other words, one's strong attachment to a place can be extended to another symbolic structure (a local team), which reinforces his or her salient identity (Tajfel 1981).

The underlying premise here is that local sport teams create social boundaries that highlight distinctive local identities (Tonts and Atherley 2010). Therefore, from a social identity perspective, following a local sport team would be a manifestation of one's attachment to the community.

Development of Team Identity

Given that the concept of place attachment deals with a special feeling toward a specific place, the study of place attachment has the potential to provide valuable insight into the emotional connections individuals hold with a place and the way people within a place interact with a local sport team. According to Tonts and Atherley (2010), local sport franchises create symbolic boundaries and a sense of difference between neighboring towns, which reinforces differentiated social identities. Therefore, it seems plausible that place attachment might have a positive impact on the development of team identity.

In the present chapter, we contend that team identity consists of multiple team–fan relationship constructs—involvement, attitude, identification, and loyalty. According to a body of attitude research on marketing and persuasion (e.g., Boninger et al. 1995; Petty and Cacioppo 1990), overall subjective evaluation about an object (i.e., attitude toward a team) is an important predictor of individuals' information processing, decision-making, and behavior. Research suggests that personal relevance (i.e., involvement) and identification are two main antecedents that enhance attitude (Boninger et al. 1995). Thus, we propose that involvement and identification explained by place attachment will have direct effects on attitude toward a team, which in turn will lead to team loyalty.

Team Involvement The notion of involvement has long been an important topic for consumer researchers. Krugman (1965) defined involvement as the number of connections, conscious bridging experiences, or personal references. Later, Zaichkowski (1985) defined involvement as "a person's perceived relevance of the object based upon inherent needs, values, and interests" (p. 32). Based on this definition, it seems plausible that residents who strongly attach themselves to a community would find the local sport franchise more relevant and meaningful to them than those who are less committed to the community. This line of assumption is based on the notion that sport franchises promote distinctive local images, which help differentiate a local identity from others (Light and Yasaki 2003; Tonts and Atherley 2010). In an empirical study, Funk et al. (2004) found that community pride serves as one of various facets of team involvement. Specifically, they found that favorable connection with the community will facilitate one's motivation to become more involved with the team.

Identification If creating cognitive awareness and emotional bonds between people and place is a key concern for local government or public administrators, developing team identification would be a primary goal for spectator sport managers (cf.

Branscombe and Wann 1992; Madrigal and Chen 2008; Ross et al. 2008). Team identification is also derived from social identification theory and has been defined as the level of psychological attachment felt by a sport fan toward his or her favorite team (Branscombe and Wann 1992). Extensive research has well documented that team identification is a robust predictor of various spectators' consumption behaviors (e.g., Funk et al. 2002; McDonald et al. 2002; Robinson and Trail 2005; Trail et al. 2003). Further, Ross et al. (2008) found that identification plays a critical role in building spectator-based brand equity.

Therefore, understanding what contributes to the development of team identification is always an important question for both practitioners and sport consumer behavior researchers. Although place attachment has face validity with respect to its influence on the development of the fan–team relationship, little empirical research has examined the relationship between place attachment and cognitive and affective evaluations of a local professional sport team.

Recently, however, a handful of studies have examined the relationship between place and team identification. For instance, Light and Yasaki (2003) contended that Japan's professional soccer league's (J-League) remarkable success made a great contribution to regenerating local identity. In particular, Light and Yasaki noted, "… the JFA's strategy of promoting community-based support has begun to actuate local culture and highlight differences between regional cultures that have been suppressed for the past century and a half" (p. 38). Therefore, it seems conceivable that professional sport teams can promote distinctive local character and culture, which can help develop local identity and attachment (Light and Yasaki 2003; Tonts and Atherley 2010). In the leisure literature, Alexandris and colleagues (2006) found that place attachment significantly increased loyalty toward a participant sport facility (i.e., skiing resort). Based on the previous literature, it appears that a strong connection with a community would engender one's identification with a sport team that represents that community.

Attitude We also expect that place attachment would affect attitude toward the team. As Keller (2003) defines, (brand) attitude refers to "…summary judgments and overall evaluations of any brand-related information" (p. 596). An extant literature has well documented the importance of attitude in guiding consumers' behavior and decision processes (e.g., Ajzen and Fishbein 2005; Boninger et al. 1995). In the proposed model, attitude was conceptualized as a summary evaluation of the team (e.g., Ajzen and Fishbein 2005), determined by one's personal relevance and identification with the team (Boninger et al. 1995; Malhorta 2007). Boninger and colleagues (1995) conceptualized that personal relevance and social identification are two key antecedents that make an attitude more important to individuals. Previous research in communication and brand management also suggests that involvement is a key antecedent in developing identification and attitudes toward an object (e.g., O'Cass and Choy 2008). For example, the more one believes the team is relevant to one's self, the more likely he or she will develop a strong identification with and attitude toward the team. Additionally, increased identification may have a direct effect on attitude toward the team.

According to Barki and Hartwick (1994), while involvement and attitude represent two distinct psychological constructs, they are likely to be related. Specifically, they asserted that objects deemed to be important and personally relevant are likely to foster positive feelings or evaluative judgments. Persuasion theorists also highlight the predictive role of personal relevance in attitude formation. Personal relevance of an object serves as an important antecedent of information processing and attitude formation (e.g., Boninger et al. 1995). As such, involvement appears to be a proximal construct that motivates an individual to develop other target-based evaluative judgments.

Research Overview

We conducted a series of in-depth interviews involving spectators of a supporter-owned K-league club—Daejeon Citizen. The purpose of this exploratory approach was to better understand the relationship between place identity and team identity development. Daejeon Citizen was selected as the target of this study because of the following reasons. First, Daejeon FC joined the K-League as the first community-owned club in Korea. Unlike most other cases in Korean professional sport leagues, Daejeon FC became the first franchise in Korean professional sport history that is not owned by a particular company (e.g., Samsung, LG, Hyundai, etc.). Second, Daejeon FC joined the K-League in 1997 and has a relatively short franchise history compared to other clubs in the league. Therefore, the spectators of Daejeon FC were deemed appropriate for this study in that the team is community-based and has a relatively short franchise history.

In terms of the club's attendance trends, the average attendance of the club surpassed the league's average immediately after the 2002 FIFA World Cup Korea–Japan and continued the pattern until 2008. However, between 2009 and 2012, average attendance dropped more than 50% from 8514 to 4152 per game. Figure 2 shows a comparison of the average attendance per game between K-League and Daejeon FC from 2000 to 2012. Given the recent sharp decrease in fan attendance, both club executives and local administrators are keen on developing team–fan relationships to increase the fan base as well as a sense of belonging to the community through the soccer club.

Sample and Procedure

Participants were recruited from spectators of Daejeon Citizen's home game. Participants ($N = 14$[3]) were selected to reflect both genders, different age groups, and

[3] In theory-based studies that use semi-structured interviews, Francis et al. (2010) suggested a minimum sample size should be at least ten. Given that our conceptual categories (e.g., place identity, team identification) are predetermined from existing theory, we believe our sample size is appropriate for this study.

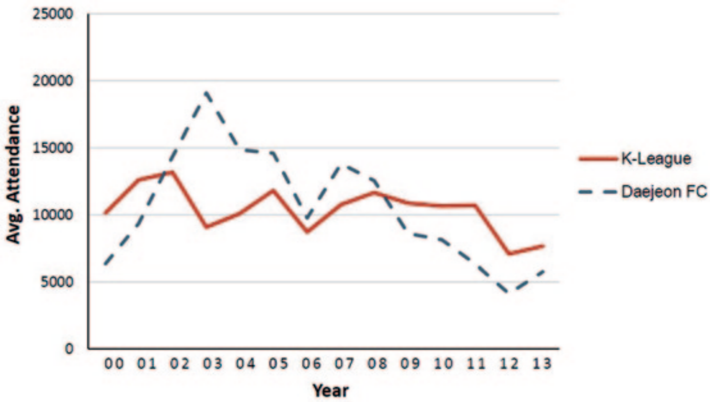

Fig. 2. Comparison of average attendance between K-League and Daejeon Citizen FC between 2000 and 2012

different lengths of residence in the city. Each participant was asked about his or her hometown and years lived in the city. Ages ranged from 18 to 53 years old and nine participants were male. Among 14 participants, five participants were born in and had always lived in the city; four participants were born in a different city but had lived in the city for more than 10 years; and five participants had lived in the city for less than 5 years. Nine participants were male and five participants were female. A researcher interviewed each participant before the game and on average the interview process took approximately 50–60 min. Based on the interviewee's consent, a digital voice-recording device was used to record each interview.

A semi-structured approach to questions was used, with the researchers employing a topic guide that allowed deviation into new areas as appropriate. Questions employed centered on the following areas: (1) image, attitude toward, and identification with the city, (2) involvement, identification with, and attitude toward the professional soccer team (i.e., Daejeon Citizen FC; DCFC), and (3) the process of how individuals developed place attachments and how those relate to team evaluations (i.e., involvement, identification, and attitude). In order to ensure a measure of standardization of interviewing and interpretation, both researchers analyzed each interview separately before agreeing on a joint interpretation and understanding. In addition, the conclusions were subjected to further discussion and validation in a meeting with three sport management faculty members and a marketing manager from the soccer team. This joint approach helped the consistency and coherence of the research (Rubin and Rubin 1995).

Results and Discussion

The results of the in-depth interviews revealed that participants who were born and had always lived in the city or had lived in the city for a longer period of time showed a greater place attachment. In addition, these participants reported that they had a genuine interest in the team because it represented their community.

> Well, I am supporting the team because I live in this town and I like Daejeon. If I don't live here, why would I be interested in this not-so-good performing team? Since I live here, I tend to think that the team is my team…. (53 years old, male, lived in the city for 18 years)
> I love living in Daejeon. Not too big or crowded but you can get almost everything you want. We even have a pro soccer team! I can't remember when I first began to like this team but I guess I became interested in them because they play for my town. So I have become naturally interested and came to watch their games more often. (27 years old, female, born and raised in the city)
> I think Daejeon citizens should be more passionate about our team. No matter what happens on the field, this is our team and we should be proud of. I have always lived in Daejeon and I once had thought about moving to Seoul when I was young, but decided to stay. Compared to Seoul, Daejeon is still a descent place to live in. (45 years old, male, born and raised in the city)

In turn, participants who had lived in the city for a shorter period of time reported a less strong commitment to the place and responded that they supported the team because they liked the sport itself. However, this pattern only emerged for respondents who had lived in the city for less than 5 years.

> I've always loved watching soccer. When I moved to Daejeon five years ago, I came to the stadium to watch some soccer action on weekends. That's how I became interested in DCFC. So now I root for both my hometown team and DCFC. (24 years old, male, lived in the city for five years)

Overall, the interview results showed that participants who had lived in the city for a long period of time (i.e., at least ten years) tended to demonstrate strong support for the city. This is in line with previous research that found that length of residence plays an important role in developing one's affinity with a place (Kasarda and Janowitz 1974; Knez 2005; Lewicka 2005). Place identity tends to develop over time as it generally involves a psychological investment in a place (Giuliani and Feldman 1993). Participants whose lengths of residence were longer than the team's history reported that they supported the team because the team played for their community, suggesting that strong community attachment could be a driving force in becoming a fan of a local sport team (Heere et al. 2011; James and Trail 2008). In contrast, participants who had lived in the city for a shorter period of time (e.g., less than 5 years) did not appear to have a strong connection with the community. These participants responded that they attended the stadium for the sheer enjoyment of the sport itself. Thus, it appears that a predisposed positive attitude toward the sport (soccer), rather than a strong bond with the community, was the major motivator in this case. In sum, the results from the interviews suggest that place attachment seems to have a positive influence on developing team-related identities (see Table 3).

Table 3 Summary of in-depth interview results

Description	Group A (N=5)	Group B (N=4)	Group C (N=5)
Hometown	Daejeon	Other places	Other places
Length of residence in Daejeon	Lifetime	More than 10 years	Less than 5 years
Primary reason for attending game	Rooting for the team's success was a commonly reported reason for attending games across groups. Other reasons included entertainment (pleasure, fun, excitement) and escape from daily routine		
Place attachment and team identity development	The emerging results showed that individuals who lived in the community for a longer period of time (i.e., longer than the franchise history) demonstrated strong attachment to the place		
	The strength of place attachment were stronger among participants in Groups A and B than participants in Group C. Participants who had lived in Daejeon for more than 10 years reported that they have some level of place attachment. Some participants in Group C refused to comment whether they are feel attached to the city. One responded that she lives in Daejeon because of her new job		
	Participants generally agreed that rooting for DCFC is a way of showing community identity and pride. However, the link between place attachment and team identity were most salient among participants in Groups A and B. However, this link was not evident among participants in Group C.		
	Participants in Group C reported that their interest in soccer helped build their interest and identification with DCFC		
	Level of team involvement, identification, and attitude toward the team varied across participants		

Implications

In June 2013, K-League celebrated its 30th anniversary and announced its new vision, "B-E-Y-O-N-D 11" (www.kleague.com). The vision aims to put K-League among the top ten leagues globally and have it become Asia's number one league by 2022. In order to achieve its ambitious objectives, the league will focus on the following six tasks: becoming best in class, delivering excellent service, cultivating a youth club system, fulfilling obligations to community, generating new business, and developing industry specialist. Among the six priorities set by the league, we believe "fulfilling obligations to community" and "cultivating a youth club system" should be integrated to strengthen the relationship between the club and the host community. Results from our interviews suggest that place attachment plays an important role in supporting the local team. Clubs should implement more community-based programs to show their commitment to supporting the community and its residents. Cultivating a youth club system is a good way of harnessing the relationship between the local club and the community. According to Light and Yasaki (2003), J-League clubs were able to regenerate community identity and culture through community-based sports programs. Likewise, we suggest that K-League and its clubs should continue to develop various community-oriented programs to ingrain clubs as parts their communities.

As discussed earlier, developing regional team identity was difficult in the early stage of K-League, as the league was using a tour system. Now that more new clubs have launched over the past decade (see Table 1) and the league has adopted the promotion and relegation system, clubs should strengthen their relationship with local communities to maintain fan interest and support. For instance, the National Basketball Association (NBA) has launched several league-wide community engagement programs such as "NBA Cares" and "Project Rebound," which allowed NBA teams to get involved deeply with their own communities (Lombardo 2008). Through a close relationship with the local community, sport teams can achieve more than just ticket sales, including revitalizing the local image, building grassroots interest, and stimulating the local economy. Therefore, we recommend that managers strengthen community engagement programs in a way that boosts local identities and cultures.

Conclusion

K-League, founded in 1983, celebrated its 30th anniversary during the 2013 season. Although the league was among the first professional soccer leagues established among East Asian countries, the league struggles with decreasing attendance and is faced with new challenges. Now that the league has finally adopted the promotion and relegation system, clubs with limited financial resources are on the verge of being relegated. Furthermore, clubs are concerned about whether the parent companies will continue to support them even if they are relegated to the second division. Therefore, clubs in the K-League are now even more challenged to build sustainable and strong fan bases to increase revenue.

Extant literature in sport marketing has consistently documented the importance of team identification on fan behavior. Strong team identification leads to favorable team-supportive behaviors (e.g., ticket purchases, merchandise consumption, media consumption, etc.). We take a social identity perspective which posits that local and regional identity will have a positive influence on building strong team identification. From a series of in-depth interviews involving spectators of a supporter-owned club (i.e., Daejeon Citizen), we found that strong place identity helps build interest in a local club. Considering that clubs that joined the K-League over the past decade are all supporter-owned clubs, we contend that club managers should utilize various community-based programs to ingrain their clubs as part of their community. Community engagement programs or grassroots programs will provide opportunities to develop an affective bond between fans and team (and the local community).

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