

THE DETERMINANTS OF ATTENDANCE AT PGA AND PGA TOUR  
TOURNAMENTS

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# THE DETERMINANTS OF ATTENDANCE AT PGA AND PGA TOUR TOURNAMENTS

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## **Abstract**

Previous research has examined factors influencing attendance at various sports leagues, but very little attention has been focused specifically on the PGA and PGA Tour. This study examines the potential factors influencing a fan to attend PGA and PGA Tour tournaments from the 1998-2007 seasons. This study incorporates a regression analysis along with qualitative research to analyze the data. The regression results suggest that income, the type of course the tournament is played on, and the tournament number are all important factors influencing attendance at PGA and PGA Tour tournaments. However, the qualitative research results suggest that Tiger Wood's participation and the strength of the field competing in the tournament are the most important factors impacting attendance.

KEYWORDS: (PGA, PGA Tour, Attendance)

ON MY HONOR, I HAVE NEITHER GIVEN NOR RECEIVED  
UNAUTHORIZED AID ON THIS THESIS

A handwritten signature in black ink, consisting of several fluid, overlapping strokes, positioned above a horizontal line.

Signature

## ACKNOWLEDGMENTS

I would first of all like to acknowledge and thank Julie Chesley for all of her support and guidance throughout this entire project. Without your advice and expertise this thesis would not have been remotely close to the level of quality it has become.

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## CHAPTER I

### INTRODUCTION

The Professional Golfers Association (PGA) has seen a steady increase in popularity and revenues over the years. The PGA relies heavily on the players, the sponsors for prize money, the association to coordinate the events, and fan interest to purchase tickets and produce revenues. The 2008 U.S. Open featured one of the game's most popular and greatest athletes, Tiger Woods, winning the championship in a playoff. The final round coverage for the tournament experienced a 21 percent increase in television rating from the previous year and earned the best overnight television rating in six years.<sup>1</sup> It also happened to be Tiger's last event of the season because of an injury requiring knee surgery. The AT&T National, which took place after Tiger's surgery, reported a four-day attendance of 107,120, which was a drop of 32,269 from the previous year's four-day attendance.<sup>2</sup> Is this coincidence or are other factors influencing attendance? Should companies take into consideration whether or not Tiger or other star players will be present at an event before signing sponsorship deals? Exploring various factors affecting attendance may produce answers to these questions. Therefore, this

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<sup>1</sup> "Sunday's Fourth Round from Torrey Draws Big Ratings," available from [http://www.pgatour.com/company/about\\_us.html](http://www.pgatour.com/company/about_us.html); accessed September 22, 2008.

<sup>2</sup> "PGA Proves It: Without Tiger, TV Golf is in a tailspin," available from [http://www.golf.com/golf/tours\\_news/article/0,28136,1831670,00.html?cid=staf-email-1831670](http://www.golf.com/golf/tours_news/article/0,28136,1831670,00.html?cid=staf-email-1831670); accessed September 23, 2008.

study investigates the determinants of PGA Tour attendance by analyzing factors that may have a significant influence on attendance.

The Professional Golfers Association was founded in 1916 and is recognized as the oldest and well-known Tour to this day. In 1968 the PGA Tour was established and has experienced a steady increase in popularity ever since. In the early years of the PGA Tour, there were not many tournaments aired on television. It was not until the mid 1990's when many of the events began to be televised and now there is a tournament televised almost every weekend of the season. Television time has been an important component of the increased popularity of the sport. Table 1.1 illustrates the more recent growth in PGA Tour single event average estimates from 1996 and 1999.<sup>3</sup>

TABLE 1.1<sup>4</sup>  
PGA Tour Single Event Average Estimates

<b>Year</b>	<b>Attendance</b>	<b>Ticket Price</b>	<b>Gate Revenue</b>
1996	106,667	\$15.29	\$1.6 Million
1999	148,809	\$20.87	\$3.1 Million
<b>Growth</b>	<b>28.3 %</b>	<b>26.7 %</b>	<b>48.3 %</b>

Table 1.1 suggests that the PGA Tour increased attendance and revenues significantly from the 1996 to the 1999 seasons. Part of the growth can be explained by television time, but sponsorships have played a significant role as well. Sponsorships are a vital

<sup>3</sup> It is difficult for the PGA Tour to track attendance figures because of all the different entrances at golf courses and not every ticket is always scanned.

<sup>4</sup> "The Business of Golf," available from <http://www.loc.gov/rr/business/BERA/issue3/golf.html>; accessed September 22, 2008.

aspect of the PGA Tour because they pay for the size of the purse that players can win. The 2008 purse sizes ranged from \$3 million dollars to \$9 million dollars depending on the tournament and sponsors. The large purse sizes allow the players to make very respectable salaries for placing well at tournaments they participate in.

The PGA Tour not only benefits the individual players' financial well-being, but also generates revenues for charitable causes in the communities as well.<sup>5</sup> Charities like the Alzheimer's Foundation, the American Cancer Society, Big Brother/Big Sister, the YMCA and many more benefit from PGA Tour revenues.<sup>6</sup> Ticket sales are a driving source of revenue for the PGA Tour making attendance an important area of examination. If the PGA Tour can maximize attendance it will benefit their revenues and the many charities that they support as well.

The PGA Tour is a captivating sports league to research because of the individuality of the sport. Many professional sports rely on the performance of a number of individuals working towards a common goal, but golf is very different. There is very little interaction or team play between golfers, making it important for each individual golfer to maximize their output and perform at their very best. Most professional athletes are paid based on predetermined contracts, but golfers on the PGA Tour earn their money based on individual performance. They must play well to qualify for tournaments and must place well at the tournaments in order to earn more money.

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<sup>5</sup> "About PGA Tour," available from [http://www.pgatour.com/company/about\\_us.html](http://www.pgatour.com/company/about_us.html); accessed September 22, 2008.

<sup>6</sup> Ibid.

As a result of the PGA Tour's format, most of the existing empirical research is devoted to the behavior of contest organizers and how golfers perform to variations in the total prize pool.<sup>7</sup> Previous research done by Shmanske (2004) indicates that the size of the purse has a direct correlation with players' individual performance. The research highlights that players scored better with higher purse values because the potential earnings were larger.<sup>8</sup> Another study done by Farrell, Karels, Monfort, and McClatchey (2000) examines the impact of Tiger Woods performance on an endorsing firm's value after signing a contract. It was found that there is a positive and significant impact on Nike profits when Tiger Woods is in contention for a tournament.<sup>9</sup>

The research done on the PGA Tour and on other sports leagues offers a foundation of ideas regarding attendance that can be further explored. One of the important factors examined will be Tiger Wood's and other star players' influence on the PGA Tour. The location of the tournaments played, personal per capita income from the location, and the purse sizes of the tournaments will also be looked at. It is intended that analyzing these factors and using qualitative research will bring a better understanding of what drives fans to attend PGA tournaments.

This chapter has introduced the importance of studying PGA Tour attendance. The next chapter will examine the relative literature on the topics of attendance at major sporting events. More specifically, it will include studies done on attendance in the National Hockey League, Major League Baseball, the National Basketball Association,

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<sup>7</sup> John Fizel, Peter Von Allmen, Handbook of Sports Economics Research: (2006) 149.

<sup>8</sup> Stephen Shmanske, Golfonomics: (2004) 237-257.

<sup>9</sup> Kathleen A. Farrell, Gordon V. Karels, Kenneth W. Monfort, Christine A. McClatchey, "Celebrity Performance and Endorsement Value: The Case of Tiger Woods," Managerial Finance Volume 26, Number 7, 2000: 1-15.

the National Football League, and the Professional Golf Association Tour. Chapter three will describe the model and methods used in this study on PGA Tour attendance. The final chapter will explain the results of the study and offer some possible direction for further research on PGA Tour attendance.

## CHAPTER II

### LITERATURE REVIEW

The purpose of this chapter is to review literature on factors affecting attendance at various sporting events. The Professional Golf Association Tour (PGA Tour) has experienced a lot of growth and popularity in the United States. The PGA Tour does not release attendance figures publicly, thus prohibiting potential research regarding attendance at various events. Therefore, previous attendance studies on the National Hockey League (NHL), Major League Baseball (MLB), the National Basketball Association (NBA), the National Football League (NFL), the European Soccer League (ESL), and other sports leagues will be analyzed to assess potential factors that impact attendance. Professional sports place heavy value on ticket sales as a source of revenue, making it important to understand potential factors that may affect attendance. After examining literature surrounding the various sports leagues, the studies done on the PGA will be further reviewed. Many concepts affecting attendance will be discussed in this chapter and will be later explored in the development of the PGA Tour attendance model. Figure 2.1 is a flow chart that highlights the major factors influencing sports attendance that will be discussed throughout this chapter.

FIGURE 2.1  
Sports Attendance Literature

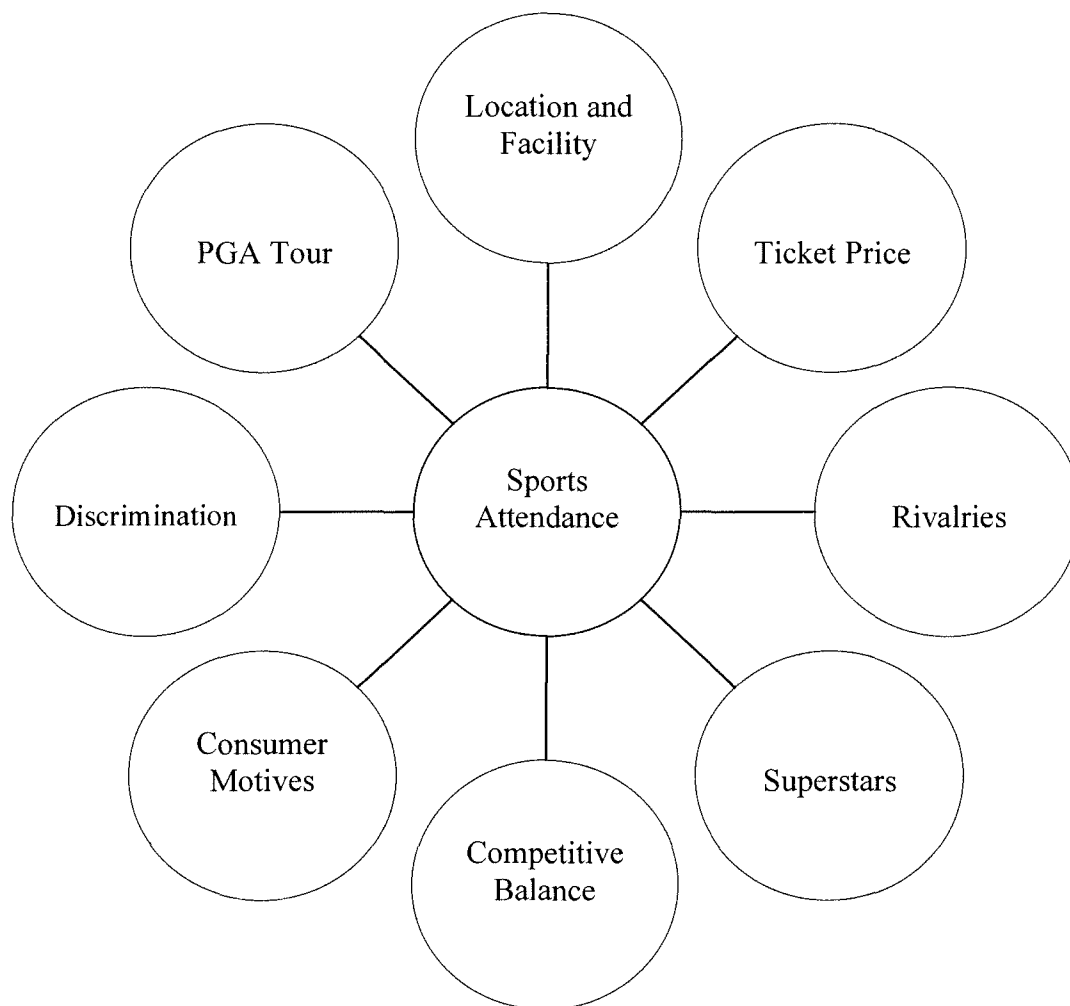


TABLE 2.1

## Chapter Outline and Summaries

Sections	Summary	Sources
Ticket Price	The price of tickets is a significant variable determining attendance	Hansen and Gauthier (1989), Donihue, Findlay, and Newberry (2007), Welki and Zlatoper (1999), Krautman and Berri (2007)
Location and Facility	The facility and location of the facility impacts attendance.	Leadley and Zygmunt (2006), Jones and Ferguson (1988), Winfree, McCluskey, Mittelhammer, and Fort (2004), Donihue, Findlay, and Newberry (2007), Jewell and Molina (2005), Paton and Cooke (2005), Burger and Walters (2003), Lertwachara and Cochran (2007), Coates and Depken (2008), Quinn, Bursik, Borick, and Raethz (2003), Coates and Humphreys (2005)
Rivalries	Regional rivalries increase attendance.	Paul (2003), Butler (2002), Welki and Zlatoper (1999), Forrest and Simmons (2006), Owen and Weatherston (2004)
Superstar Players	Superstars attract a lot of fans and revenues for teams.	Hausman and Leonard (1997), Jewell and Molina (2005), Lucifora and Simmons (2003), Berri, Brook, and Schmidt (2004), Berri and Schmidt (2006), Rivers and DeSchrive (2002), Kahane and Shmanske (1997)
Competitive Balance	The more competitively balanced a league is the larger the attendance.	Welki and Zlatoper (1999), Miller (2007), Meehan, Nelson, Richardson (2007), Lewis, Sexton, and Lock (2007), Krakel (2007), Crooker and Fenn (2007), Peel and Thomas (1992), Hansen and Gauthier (1989), Jones and Ferguson (1988), Donihue, Findlay, and Newberry (2007)



Consumer Motives	Advertising and motivation of fans to attend sporting events impact attendance.	Putsis and Sen (2000), Donihue, Findlay, and Newberry (2007), Jewell and Molina (2005), Kahn (2007), Melnick (1993), Boyd and Krehbiel (2006), Zhang, Pease, Hui, and Michaud (1995), Kahane and Shmanske (1997), Price and Sen (2003), Forrest, Simmons, and Buraimo (2005), Narayan and Smyth (2004)
Discrimination	Discrimination is capable of altering attendance. Racial ideologies can be communicated through media relative to sports coverage.	Primm, DuBois, and Regoli (2007), Burdekin, Hossfeld, and Smith (2005), Jewell and Molina (2005)
PGA Tour	<ul style="list-style-type: none"> <li>• Incentive Effects</li> <li>• Putting</li> <li>• Tiger Woods</li> </ul>	<p>A player's performance increases with higher potential winnings.</p> <p>An important determinant of analyzing PGA Tour earnings.</p> <p>Television ratings increase when Tiger is in contention of a championship.</p> <p>Ehrenber and Bognanno (1990), Shmanske (2004), Hood (2006)</p> <p>Alexander and Kern (2005), Callan and Thomas (2007)</p> <p>Farrell, Karels, Monfort, and McClatchey (2000)</p>

Table 2.1 summarizes the important sections of research relating to sports attendance and provides structure for the chapter. First, ticket price will be examined to understand the impact it has on attendance. Second, the location of a facility and the age of the facility will be looked at to see its impact on attendance. Next, rivalries between teams and their effects on attendance will be discussed. Following, superstar players and their importance to attendance and team revenue will be analyzed. After that, the research on competitive balance and team success will be viewed to see how it can influence attendance. Next, consumer motives and advertisement will be discussed to see

the motivation driving fans to attend live sporting events. Following this, discrimination and its role will be addressed to see how it relates to attendance. Lastly, there will be a section analyzing some of the existing research on the PGA Tour and its relation to attendance.

### **Ticket Price**

Ticket price has been a popular area of emphasis for sports economists over the years. The prices of tickets are constantly rising as sports teams and owners try to maximize their profits. The Team Marketing's annual survey of the cost of attending a professional sporting event reported that the average ticket price for a MLB game more than doubled between 1991 and 2002.<sup>1</sup>

There has been a lot of literature on sports teams that identifies their ticket prices being in the inelastic range of demand, meaning that a large change in price has a small change in demand. Krautmann and Berri (2007) conducted a study that tries to understand the pricing of tickets in the inelastic range of demand. They found that sports teams are able to set their ticket prices lower because of the revenues generated from concession sales. MLB teams are able to discount their tickets around 56% because of concession revenues.<sup>2</sup> Fortunately, the complementary revenues generated at sporting events allow teams to lower ticket prices because of the impact it can have on attendance.

Hansen and Gauthier (1989) performed a study that examined factors that affect NHL attendance and compare them to the NBA, NFL, MLB, Canadian Football League

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<sup>1</sup> Anthony Krautmann and David Berri, "Can We Find It at the Concessions?" Journal of Sports Economics Volume 8, Number 2, 2007: 183-191.

<sup>2</sup> Ibid.

(CFL), and the Major Indoor Soccer League (MISL). It was hypothesized that there were no significant differences between the sports in factors affecting attendance. They constructed a survey containing forty questions that were thought to have an impact per game and per season on attendance. The analysis found that fans placed much value on convenience, price of ticket, and team roster quality. It also found that the price of tickets was most significant for the MISL and the NHL, both of which are indoor sports that use smaller facilities.<sup>3</sup> Welki and Zlatoper (1999) also note the significance of ticket prices. They looked at determinants that could impact attendance in the NFL and found that an increase in ticket price would decrease attendance.

### **Facility and Location**

The location and facility of a sports team has a direct influence on attendance. Teams that are located in highly populated areas, especially with interest in the sport, will have a larger market size to attract from. The ideal location for a sports team may vary depending on the sport. Sports that are played indoors like hockey and basketball can afford to locate themselves in environments that may not be suitable for sports played outdoors because of potential weather permitting conditions like snow and extremely cold weather. Older facilities may become outdated and not draw as well as newer facilities.

Jones and Ferguson (1988) offer another study on the NHL that examines location and other determinants of attendance. They single out the 1977-1978 season and observe

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<sup>3</sup> Hansen and Gauthier, "Factors Affecting Attendance at Professional Sporting Events," Journal of Sports Management, Volume 15, Number 1, 1989: 15-32.

632 games for 16 different teams. Jones and Ferguson hypothesize location to have a positive correlation on attendance especially for Canadian teams because of the overall popularity of the sport in Canada.<sup>4</sup> A model is used to examine locational profitability and explain events that have happened in the NHL with the location and relocation of different teams. They found that locational attributes such as if the game is played in a Canadian city, the cities population and per capita income, certain league rules, and team success are all important aspects of determining attendance.<sup>5</sup> Ultimately, teams tend to do better in the long run in higher quality of locations. This study also uses cost estimates and revenue estimates to simulate potential locations for NHL teams. It is revealed that there are a number of available locations for teams to emerge or relocate, which could increase the quality and popularity of the sport.

Winfree, McCluskey, Mittelhammer, and Fort (2004) also value the importance of location, but take into account other potential variables that may influence attendance. This study uses a travel-cost model to analyze the attendance impacts on Major League Baseball of the closest substitute team. They hypothesize that the closer the teams are to one another, there will be a decrease in fans because of the substitution effect. They examined regular season games for teams over the years of 1968 to 1998. They found that at the sample average variable values, a one-mile increase in distance to a substitute MLB team would increase attendance by about 1544 fans.<sup>6</sup> They propose that the MLB

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<sup>4</sup> J.C.H. Jones and D.G. Ferguson, "Location and Survival in The National Hockey League," The Journal of Industrial Economics Volume 36, Number 4, 1988: 443-457.

<sup>5</sup> Ibid.

<sup>6</sup> Jason Winfree, Jill McCluskey, Ron Mittelhammer, and Rodney Fort, "Location and Attendance in Major League Baseball," Applied Economics Volume 36, 2004: 2117-2124.

may be able to increase attendance by eliminating certain teams that are close to a substitute team.

Coates and Humphrey's (2005) study suggests that the MLB could maximize attendance by not only eliminating teams closely located to one another, but by removing the substitute team with the older facility. This study examines the effects of new facilities on attendance at professional sporting events. More specifically they look at new facilities in the MLB, NBA, and NFL from the 1969 to 2001 seasons and see if there are any novelty effects on attendance. They found that the MLB and NBA have the largest increase in attendance as a result of a new stadium and the effects can be seen up to seven or eight years.<sup>7</sup> In the NFL, the effects can be seen up to ten years, but are not nearly as strong as they are in the two other sports examined. This study also recognizes the previous research that was done on the novelty effects of a new stadium and concludes that the effects do not last as long as they once were believed to have lasted. There are indeed increases in revenues as a result of new facilities being built, but the extent to which the revenues are felt will vary upon the sport.

Leadley and Zygmunt (2005) further examine the effects of new facilities on attendance. They conducted a study on the honeymoon effect of a new stadium and looked for its presence in the NBA. This study used a pooled cross-section time series from 1971-2000. The initial increase in attendance demand for a new basketball arena is

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<sup>7</sup> Dennis Coates and Brad Humphreys, "Novelty Effects of New Facilities On Attendance at Professional Sporting Events," Contemporary Economic Policy Volume 23, Number 3, 2005: 436-455.

15 to 20 percent, but it will diminish after the fifth year of existence.<sup>8</sup> After the tenth year, the effect of the new stadium is almost non-existent.

These two also performed a similar study in 2006, using a Tobit analysis to test for the presence of the honeymoon effect in the NHL. Pooled cross-section time series samples from 1970 to 2003 are used to identify if there is a relationship between attendance and the age of the facility at which the event is held. They found that the opening of a new arena in the NHL would increase attendance significantly in the first five years. Specifically, the initial demand for attendance will increase 15 to 20 percent, but will begin to diminish after five years.<sup>9</sup> Also, it is found that the effects of actual attendance will be smaller than the increased demand because of the arenas capacity constraints.

Many sports teams want to have top of the line facilities and the nicest stadium available for them to use. It is believed that building a new stadium will have a positive economic impact on the city in which it is built. Lertwachara and Cochran (2007) examine this belief more closely and find that sports teams from the MLB, NFL, NBA, and NHL have an adverse effect on the local per-capita income level in the short and long run.<sup>10</sup> Sports team owners then argue that new stadiums will increase a team's performance and wins, which would ultimately increase attendance. Quinn, Bursik,

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<sup>8</sup> John Leadley and Zenon Zygmunt, "When Is the Honeymoon Over: National Basketball Association Attendance 1971-2000," Journal of Sports Economics Volume 6, Number 2, 2005: 203-221.

<sup>9</sup> John Leadley and Zenon Zygmunt, "When Is the Honeymoon Over? National Hockey League Attendance 1970-2003," Journal of Sports Economics Volume 32, Number 2, 2006: 213-232.

<sup>10</sup> Kaveephong Lertwachara and James Cochran, "An Event Study of the Economic Impact of Professional Sport Franchises on Local U.S. Economies," Journal of Sports Economics Volume 8, Number 3, 2007: 244-254.

Borick, and Raethz (2003) test this theory with their study that looks at the relationship between new stadiums and how it translates to sports teams success. They look at the effect of new stadiums on winning percentages in the MLB, NFL, NHL, and NBA. They concluded that competitive quality and venue quality are insufficiently complementary in production of game ticket, media, and venue sales in the NBA, NFL, and NHL.<sup>11</sup>

However, it was found that a new ballpark in the MLB could increase gate and venue revenues.

It is evident that the facility and location of a sports team can influence attendance. Newer stadiums increase attendance, but after a period of time its effects are not as strong as they once were. The location of a sports team can also impact attendance depending on the size of the population where it is located and the popularity of the sport among that population. Also, it can be concluded that a sports team located to close to a substitute team will negatively effect attendance. Sports teams would benefit by taking these studies on location and facility into consideration before moving or starting a sports franchise.

### **Rivalries**

Rivalries often bring out the best performance of athletes and make for close and exciting games to watch. Butler (2002) looks at interleague play and the implications on baseball attendance. He uses a model of daily attendance from the 1999 season and found that interleague play results in about a seven percent increase in attendance over a

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<sup>11</sup> Kevin Quinn, Paul Bursik, Christopher Borick, Lisa Raethz, "Do New Digs Mean more Wins? The Relationship between a New Venue and a Professional Sports Team's Competitive Success," Journal of Sports Economics Volume 4, Number 3, 2003:167-182.

comparable intraleague game.<sup>12</sup> Along with the increase in attendance there was also an increase of one half of one percent in revenues from ticket sales. Butler proposes that the small increase in revenues may be due to having too many interleague games scheduled and therefore decreasing the demand for them.<sup>13</sup>

Welki and Zlatoper use a model of potential determinants of attendance to explain game-day attendance figures for 392 regular season NFL games played from the 1986-1987 seasons. They examine the point spread at each game, week of the season in which the game is played, divisional rivalries, if the game is played indoors or outdoors, the real per capita income in 1967 dollars, ticket price, weather conditions, and other dummy variables potentially having an effect on attendance figures. It was found that the quality of the game has the largest impact on fan attendance at NFL regular season games. Games that are expected to be of a higher quality and games expected to have a close score draw the most fans.<sup>14</sup> They found that games played between divisional rivals increased attendance.

Owen and Weatherston (2004) have similar findings when they look at the determinants of attendance for New Zealand Rugby Union (NZRU) matches in the Super 12 league. They created a model that accounts for potential economic and sporting demand determinants. They found that the most prevalent determinants of attendance were if the game was played between traditional rivals and the quality of previous

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<sup>12</sup> Michael Butler, "Interleague Play and Baseball Attendance," Journal of Sports Economics Volume 3, Number 4, 2002: 320-334.

<sup>13</sup> Ibid.

<sup>14</sup> Andrew Welki and Thomas Zlatoper, "U.S. Professional Football Game-Day Attendance," Atlantic Economic Journal: Volume 27, Number 3, 1999: 285-298.



matches by the home team.<sup>15</sup> They do note that there was little data available to them regarding the effects of match attendance and ticket price and suggest there is plenty of opportunity for further studies to be done on the NZRU.

Forrest and Simmons (2006) conduct a study that does not necessarily look at rival teams directly, but analyzes the impact of English Premier League (EPL) soccer games being played at the same time as lower tier soccer leagues. The EPL is known as one of the best soccer leagues in world and often attracts the best players. Much like rival games played in other leagues, EPL teams have the best players around and offer an entertaining and exciting game to watch. This study looks at more than 4,000 games to analyze the effects the EPL has on attendance. It was found that televised, midweek Champion League matches involving EPL clubs have significant adverse impacts on lower division gate attendance.<sup>16</sup> They suggest that scheduling changes are required to increase gate revenues.

Each of these studies suggests that rivalries are a major factor influencing fans to attend a particular sporting event. Whether it is intraleague games played in the MLB, games between divisional rivalries in the NFL, or a traditional rivalry game being played in the NZRU, each are capable of increasing attendance because of the expected quality of the game. These studies demonstrate that fans do not value games that are projected to be blowouts. They want to attend sporting events that are expected to be high quality and

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<sup>15</sup> P. Dorian Owen and Clayton Weatherston, "Uncertainty of Outcome and Super 12 Rugby Union Attendance: Application of a General-to-Specific Modeling Strategy," Journal of Sports Economics Volume 5, Number 4, 2004: 347-370.

<sup>16</sup> David Forrest and Rob Simmons, "New Issues in Attendance Demand: The Case of the English Football League," Journal of Sports Economics Volume 7, Number 3, 2006: 247-266.

exciting games. Rivalries can offer reassurance to the fans that it is going to be an exciting game based on the previous results of games played between the two teams.

### **Superstars**

Similar to the concept of rivalries, super star players have the ability to make games more exciting to watch. Superstar players are often the best players in their leagues for their respective sports. Superstars are required to have a high level of talent and must have an effect on fan interest other than their talent.<sup>17</sup> Many times superstars are invited to play in All-Star games or receive other forms of recognition that recognizes their outstanding performance. Hausman and Leonard (1997) examine the effects of superstar players on television ratings and revenues. They hypothesize that the presence of a superstar will have a significant effect on television ratings of an NBA game. It was found that superstars have a large effect on revenues for their own team and other teams within the league. Hauser and Leonard estimate that a superstar like Michael Jordan can create \$50 million of revenues per year for other teams in the NBA.<sup>18</sup>

Another study performed on the NBA and its star players supports the findings of the previous study examined. Berri, Schmidt, and Brook (2004) look at four seasons of data in the NBA and use the number of All-Star votes received to identify the relationship star players have on teams. They found star players as statistically significant in their study, but place more emphasis on the win percentage of home teams as a major factor

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<sup>17</sup> Jerry A. Hausman and Gregory K. Leonard, "Superstars in the National Basketball Association: Economic Value and Policy," Journal of Labor Economics Volume 15, Number 4, 1997: 586-624.

<sup>18</sup> Ibid.

driving consumer demand for tickets.<sup>19</sup> However, a star player would definitely be a key factor involved with the success of a team and their overall win percentage. They suggest future studies examine star players' ability to increase attendance at games played on the road to understand the star players effects.

Berri and Schmidt (2008) take it upon themselves to further explore the impact of star players on road game attendance. Once again, they look at four seasons of data that could impact NBA attendance. They conclude that a super star externality does exist in the NBA, but the star positively impacts attendance and television ratings for the opposing team.<sup>20</sup> They also note that the ability of a star to generate revenue for the team employing them is limited.

Rivers and DeSchrive (2002) performed a study on the MLB to determine if there was a relationship between team payroll and attendance. They wanted to identify how teams could most efficiently spend their payroll and see if it was in a team's best interest to spend the majority of their payroll on getting one or two star players to maximize attendance. They looked at a number of factors pertaining to the demographics, the team quality, the facility, and the time to examine the impact on spectator attendance for every team in the MLB during the 1997-2000 baseball seasons. Similar to the findings of Berri, Schmidt, and Brook (2004), Rivers and DeSchrive realize that a star player needs to contribute to the team's on-field success in order to

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<sup>19</sup> David Berri, Martin Schmidt, and Stacey Brook, "Stars at the Gate: The Impact of Star Power on NBA Gate Revenues," *Journal of Sports Economics* Volume 5, Number 1, 2004: 33-50.

<sup>20</sup> David Berri and Martin Schmidt, "On the Road With the National Basketball Association's Superstar Externality," *Journal of Sports Economics* Volume 7, Number 4, 2006: 347-358.

positively influence attendance.<sup>21</sup> Also, it was found that there is a positive relationship between a team's payroll and attendance. They conclude that it is in a team's best interest to distribute their payroll evenly across their entire roster as opposed to spending large portions of it on one or two star players. However, other research done by Kahane and Shmanske (1997) found that the loss of an important player who constitutes about 10% of the team's total payroll will cost the team around \$540,000 to \$730,000 in lost revenue.<sup>22</sup> Obviously there are many views for the exact way in which teams try to divvy up the payroll and maximize attendance.

The research suggests that superstars are capable of increasing fan interest in the particular sport in which they play. It is seen that a star player is capable of increasing television ratings, but does not always translate directly to an increase in attendance figures. The studies found that the most important statistic influencing attendance is winning percentage. However, superstars are capable of adding a lot of value to a team and its win percentage. It is safe to conclude that star players are important to sports teams and can ultimately contribute to higher attendance figures.

### **Competitive Balance and Team Success**

It is believed that more competitively balanced leagues generate larger attendances. Competitive balance is when each and every team in a league is capable of beating the next team and their records are similar to one another. In most cases,

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<sup>21</sup> Dominic Rivers and Timothy DeSchrive, "Star Players, Payroll Distribution, and Major League Baseball Attendance," *Sport Marketing Quarterly* Volume 11, Number 3, 2002: 164-173.

<sup>22</sup> Leo Kahane and Stephen Shmanske, "Team roster turnover and attendance in major league baseball," *Applied Economics* Volume 29, 1997: 425-431.

competitive balance is achieved by distributing the player talent equally among each team in a league. Meehan and Nelson (2007) study change in competitive balance and the effects it has on attendance in the MLB. They look at game-day attendance data for the 2000-2002 seasons and examine the difference in winning percentage between the home and away teams to try and measure competitive balance in the MLB. Their findings illustrate that baseball fans do indeed respond to competitive balance and prefer to attend games where the outcome is not certain.<sup>23</sup>

Peel and Thomas (1992) look at outcome uncertainty relating to home team success in the English Football League during the 1986-1987 season. They observe that home fans like to see close, but high-scoring games that eventually is won by their team.<sup>24</sup> However, this notion of having a close and competitive game can be offset by having large-market teams outbid small-market teams for player talent. Crooker and Fenn (2007) believe that there is a relationship between competitively balanced leagues and fan interest. If large-market teams are able to outbid small-market teams the league will not be competitively balanced and fan interest could suffer. They suggest that if league competitiveness is an important determinant of fan interest, then a lump-sum payment and tax could result in higher revenues for the league.<sup>25</sup> Miller (2007) supports action to create more competitively balanced leagues. He offers a revenue-sharing

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<sup>23</sup> James Meehan, Randy Nelson, and Thomas Richardson, "Competitive Balance and Game Attendance in Major League Baseball," Journal of Sports Economics Volume 8, Number 6, 2007: 563-580.

<sup>24</sup> D.A. Peel and D.A. Thomas, "The Demand for Football: Some Evidence on Outcome Uncertainty," Empirical Economics Journal 17, Number 2, 1992: 323-331.

<sup>25</sup> John Crooker and Aju Fenn, "Sports Leagues and Parity: When League Parity Generates Fan Enthusiasm," Journal of Sports Economics Volume 8, Number 2, 2007: 139-164.

system as a way to improve competitive balance by redistributing key players among other teams.<sup>26</sup>

Jones, Schofield, and Giles (2000) examine the British Rugby League (BRL) and factors affecting attendance from the 1982-1991 rugby seasons. The results of the study show that there are significant and positive relationships between league attendance and team success and also between league attendance and the quality of the team.<sup>27</sup> Their study supports the notion that fans want to see their teams perform well. The authors suggest that using more recent and better data in the BRL to determine the affects of attendance can enhance future studies.

The studies show that competitive balance plays a major role and can impact attendance drastically. Each study suggests that fans prefer to see competitive and balanced teams play. As a result of a competitively balanced league, the outcome of each game becomes more uncertain and will increase attendance. However, the research acknowledges that it is difficult to achieve perfect competitive balance. It identifies that by having large-market teams and small-market teams, it can be difficult to maximize competitive balance because the large-market teams can outbid team for better players.

### **Consumer Motives**

There are many different forces and motives that can attract a fan to attend a particular sporting event. There are certain characteristics such as a team's roster compilation, the outcome uncertainty of the game, special promotions, league television

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<sup>26</sup> Phillip Miller, "Revenue Sharing in Sports Leagues: The Effects on Talent Distribution and Competitive Balance," *Journal of Sports Economics* Volume 8, Number 1, 2007: 62-84.

<sup>27</sup> J.C.H. Jones, J.A. Schofield, and D.E.A. Giles, "Our fans in the north: the demand for British Rugby League," *Applied Economics* Volume 32, 2000: 1877-1887.

blackout rules, or just the overall atmosphere of attending a live sporting event that all have ramifications on attendance. Putsis and Sen (2000) looked at the economic and policy implications of the NFL's blackout rule. The blackout rule prohibits local television channels to broadcast games that are not sold out at least 72 hours prior to the start of the game in hopes to attract more fans to attend the event live. The study looks at attendance from the 1996-1997 NFL season. It examines season ticket sales, game-day ticket sales, game-day no shows, the game-day cost of a ticket, the cost expense for a fan to attend the game, the records of the two teams playing, and other weather related variables to account for game-day attendance. It is found that the gain in on-site revenue from an increased number of tickets sold and concession revenues due to the blackout is relatively small in comparison to the loss of viewer ship rights that may result.<sup>28</sup>

A study done by Kahane and Shmanske (1997) looks at a team's roster turnover and the impacts it may have on attendance in the MLB. The percentage of players switching teams has increased from the 1970's to the point where teams will lose about 27% of their players each year.<sup>29</sup> The empirical data of the study identifies that sports fans prefer to see their team's roster stay the same from season to season. They test this idea by running a regression analysis that is controlled for price, income, population, team quality, league, year, and stadium effects for 26 baseball teams from the 1990-1992 seasons. It was found that for each percentage point increase in the turnover of the

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<sup>28</sup> Willaim Putsis and Subrata Sen, "Should the NFL blackouts be banned?" Applied Economics Volume 32, Number 12, 2000: 1495-1507.

<sup>29</sup> Leo Kahane and Stephen Shmanske, "Team Roster Turnover and Attendance in Major League Baseball," Applied Economics Volume 29, 1997: 425-431.

composition of the team, attendance would fall by about .7% meaning that there would be large losses in ticket revenues for teams.

Zhang, Pease, Hui, and Michaud (1995) studied the variables that may influence a fan to attend an NBA game. They developed a Spectator Decision Making Inventory (SDMI) that included 20 different decision making variables to identify the important variables that had an influence on fans. Random samples of 861 NBA spectators were surveyed to try and understand certain motives to attend a live game. They used a regression equation to analyze their data and found that special promotions did indeed have a positive effect on game day attendance.<sup>30</sup>

Forrest, Simmons, and Buraimo (2005) look at outcome uncertainty and the demand in the television market for the EPL. The study looks at the broadcasters decision-making tendencies when airing certain games and also the viewer's tendencies in watching certain games. They look at the size of each audience attracted to each game for games played during the 1993 and 2002 seasons. It was found that both the broadcaster and the viewer are interested in competitive balance.<sup>31</sup> Their results indicate that fans value the expected quality of games and specifically want to see close games.

A study done by Price and Sen (2003) also found emphasis on the quality of the game and the quality of each team playing in the game as important factors that influence fans to attend a live sporting event. This study looked at the demand for game day attendance in division 1-A college football for the 1997 season. It was found that fans

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<sup>30</sup> James Zhang, Dale Pease, S.C. Hui, and T.J. Michaud, "Variables Affecting Spectators Decisions to Attend NBA Games," *Sports Marketing Quarterly* Volume 4, 1995: 29-39.

<sup>31</sup> David Forrest, Robert Simmons, and Babatunde Buraimo, "Outcome Uncertainty and the Couch Potato Audience," *Scottish Journal of Political Economy* Volume 52, Number 4, 2005: 641-661.



value the recent success of the home team and their overall win-loss record. Along with the quality of the teams, this study found that the presence of a nearby professional football team by the college will lower attendance.<sup>32</sup> This suggests that there is a substitution effect and that fans will prefer to watch the professional teams play as opposed to the amateur sporting events.

Narayan and Smyth (2004) look at factors that affect attendance at the Melbourne Cup, which is a premier horse race in Australia. They looked at different economic, demographic, and race-specific factors of attendance from 1861 all the way to the 2002 race. Their findings suggest that real income and population size are the main determinants of attendance in the long run. However, in the short run it was found that the weather was the most important factor explaining attendance at a race.<sup>33</sup> These findings suggest that fans place much value on the atmosphere of the sporting event if it is going to be played outdoors and that poor weather will impact attendance.

The research done on consumer motives to attend sporting events reiterates the findings of many of the studies discussed about competitive balance. The studies show that fans prefer to attend games that are expected to be close games. It is also evident that fans take into consideration their team's overall win-loss record when determining to attend the event. A study done on the MLB shows that fans want to attend games when their team's roster remains the same from season to season. Another study shows that special promotions have a positive effect on game-day attendance figures. The studies show that in the short run the weather can be a major factor influencing a fan to attend an

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<sup>32</sup> Donald Price and Kabir Sen, "The Demand for Game Day Attendance in College Football: An Analysis of the 1997 Division 1-A Season," Managerial and Decision Economics Volume 24, 2003: 35-46.

<sup>33</sup> Paresh Narayan and Russell Smyth, "The Race that Stops a Nation: The Demand for the Melbourne Cup," The Economic Record Volume 80, Number 249, 2004: 193-207.

outdoor sporting event. Lastly, it is seen that consumers take into consideration their real income while determining to attend an event.

### **Discrimination**

Discrimination has come a long way since the day when Jackie Robinson broke the color barrier in Major League Baseball. But discrimination in professional sports is still around to the present day and can be seen in a variety of ways. One form in which discrimination can be seen is by fans preferring to watch athletes of their own race as opposed to athletes related of another race. For example, Burdekin, Hossfeld, and Smith (2005) examine the racial composition of NBA teams and identify if there are any relationships connected to their markets for the 1990-1991 through the 1998-1999 seasons. They look at the percentage of all the members on a team who are white, the percentage of just the bench players who are white, and the percentage of just the starters who are white in the NBA. They found that there is a tendency by teams to have more white athletes on their teams if their market is predominantly white and there are accompanying revenue gains seen because of their decision to have more white players on their roster.<sup>34</sup> The authors believe that the increase in black player participation and the increase in revenues from television contracts may make it difficult to identify if fans are becoming indifferent to race. They also found that white players were less likely to be traded away from teams with higher concentration of white players on their team or if they were playing in a market area that had a large number of whites.<sup>35</sup>

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<sup>34</sup> Richard Burdekin, Richard Hossfeld, and Janet Smith, "Are NBA Fans Becoming Indifferent to Race? Evidence from the 1990's" Journal of Sports Economics Volume 6, Number 2, 2005: 144-159.

<sup>35</sup> Ibid.

Similarly, Jewell and Molina (2005) look at the relationship between the potential yearly Hispanic fan base and yearly attendance in Major League Soccer (MLS). The MLS has tried to market the MLS towards the U.S. Hispanic market to increase the attendance for the league. This study attempts to identify how successful the MLS has been with its marketing efforts. They look at data for all the teams in the MLS from the 1996 to the 2001 seasons to understand the factors influencing attendance. They find that areas that have a higher number of U.S. Hispanics in them actually have lower attendance numbers than markets that have less Hispanics in them.<sup>36</sup> They also found that teams who have better players and are located in more populated regions, have the largest impact on attendance. Lastly, the authors of this study question the efficiency of the marketing in the MLS because of their failed attempt to market towards the U.S. Hispanic communities.

The media is capable of promoting discrimination and plays an important role with discrimination in professional sports as well. Primm, DuBois, and Regoli (2007) look at the role of media and the impact it has on discrimination in sports. They look at the participation levels of black and whites within professional basketball and football and the relationship between cover features on *Sports Illustrated* from 1954 to 2004. They found that there are signs of improvements being made with minority representation. However, they do not feel that their representation is in correlation to their participation rates. During *Sports Illustrated's* first decade of publication more than

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<sup>36</sup> Todd Jewell and David Molina, "An Evaluation of the Relationship Between Hispanics and Major League Soccer," *Journal of Sports Economics* Volume 6, Number 2, 2005: 160-177.

90% of the athletes featured on its covers were white.<sup>37</sup> The most intriguing finding of the study was that participation levels had little effect in determining the race of the athlete who would be featured on the cover of *Sports Illustrated*. The authors believe that there is still much room for further exploration of the role of media and its portrayal of discrimination in professional sports. They recommend that additional sources of media be examined other than just *Sports Illustrated* the magazine.

The research done on discrimination indicates that it is still a prevalent issue within sports leagues. It was found that there is a tendency by teams who reside in a more predominantly white market to have more white athletes on their roster. Also, sports teams located within this type of market would be less likely to trade away white players from their team. Another study found that the media plays an important role with discrimination and although discrimination in the media has improved over the years, it still has a long way to go. The study identifies minorities as being misrepresented by the media and not receiving adequate time on the cover of *Sports Illustrated* the magazine. The results of the studies suggest that fans may prefer to attend a sporting event where there is substantial representation of athletes from their own race competing.

### **Professional Golf Association Tour**

There has been very little research done on the determinants of PGA Tour attendance. Von Allmen states that the first research done on an individual sport was not until the 1990's when Ehrenberg and Bognanno (1990) studied incentive effects of the

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<sup>37</sup> Eric Primm, Summer DuBois, and Robert Regoli, "An Exercise in Subtleties and the Transmission of Racism: An Analysis of Sports Illustrated Covers," *Journal of African American Studies* Volume 11, Number 3-4, 2007: 239-250.

PGA.<sup>38</sup> He believes there was a lack of theoretical base for individual sports because it is just one individual trying to maximize their output and therefore there has been very little attention on the subject. Prior to their study, the research focused mainly on tournaments where an athlete's payment depended solely on the final standings or their rank compared among the other athletes who competed in the tournament with them.

### Incentives

Ehrenberg and Bognanno researched whether or not tournaments can have incentive effects before the event is completed. Their study used non-experimental data to test whether tournaments actually elicit effort responses. A strong correlation was found between the level and structure of prizes in PGA tournaments and players' performance.<sup>39</sup> Shmanske (2004) also supports these findings. His research shows that when there is extra money on the line, effort and concentration increase, and scores improve.<sup>40</sup>

Hood (2006) offers more literature on incentives and tournament participation. He believes that the purse size does have influence on attendance, but is not the only factor influencing golfers to participate in a tournament. Therefore, his study examines other potential factors that may influence a golfer to participate in tournaments. His study looks at the labor supply of the top golfers on the PGA Tour from 1997 to 2003. His findings show that the participation rate of one tournament is influenced by the

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<sup>38</sup> John Fizeal, Peter Von Allmen, Handbook of Sports Economics Research: (2006) 149-169.

<sup>39</sup> Ronald G. Ehrenberg, Michael L. Bognanno, Journal of Political Economy Volume 98, Number 6, 1990: 1307-1324.

<sup>40</sup> Stephen Shmanske, Golfonomics: (2004) 237-257.

characteristics of tournaments surrounding it in the schedule. This means that if there is a really important tournament coming up in the schedule players may choose not to participate in a tournament scheduled close to it so they can properly prepare for the important tournament. He also found that a player's previous performance at a particular tournament influences future participation at that tournament.<sup>41</sup> If a player performs well at a tournament he is more likely to attend that tournament in the following year.

Each one of the studies confirms that players will react to incentives in the PGA. There is a correlation between prize money and player participation and performance. The studies show that larger purse values encourage stronger play from the golfers. However, studies indicate that scheduling and players' past performances at a tournament can alter the effects of these incentives by impacting a player's decision to participate in a tournament. By maximizing purse sizes and paying close attention to the scheduling of certain tournaments, the best players will be attracted and more fans will attend the tournament.

### Player Performance

Unlike many professional athletes, professional golfers earn their money based on personal performance. This places emphasis and pressure on each golfer to perform at their very best every tournament. Player performance is also very important for attendance because fans want to watch high quality play. In order for players to perform strongly, it is crucial for them to have a diverse skill set. The direct correlation between a

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<sup>41</sup> Matthew Hood, "The Purse Is Not Enough: Modeling Professional Golfers Entry Decision," Journal of Sports Economics Volume 7, Number 3, 2006: 289-308.

professional golfer's set of skills and their earning has made it the topic of some of the research on the PGA.

Alexander and Kern (2005) study the determinants of the earnings of PGA Tour golfers. They look at the different golf skills from the 1992-2001 seasons to try and identify which skills have the most important impact on earnings. It is often believed that being able to drive the ball the farthest off the tee or having lots of power with your irons are the most important skills to have as a golfer. This study attempts to understand if this is true in the present day. They found that putting is by far the single most important skill related to PGA Tour earnings.<sup>42</sup>

Callan and Thomas (2007) take a different approach while analyzing the determinants of a professional golfer's tournament earnings. They conduct a study that offers a multiequation framework to estimate the determinants of player's earnings and the value of marginal product for each skill. Callan and Thomas examine statistics for a cross-section of players from the 2002 PGA Tour season. The results conclude that a player must have a complete set of shot-making skills, but putting needs to be the strongest skill set.<sup>43</sup> They also note that experience is a big factor and that more experience positively affects the players average score.

Tiger Woods has many of the key skills previously discussed and has been at the top of the money earnings leader board for much of his career. Farrell, Karels, Monfort, and McClatchey (2000) explored the impact of Tiger Woods' tournament performance on

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<sup>42</sup> Donald Alexander and William Kern, "Drive for Show and Putt for Dough?" Journal of Sports Economics Volume 6, Number 1, 2005: 46-60.

<sup>43</sup> Scott Callan and Janet Thomas, "Modeling the Determinants of a Professional Golfer's Tournament Earnings: A Multiequation Approach," Journal of Sports Economics Volume 8, Number 4, 2007: 394-411.

the endorsing firm's value after signing the endorsement contract. They found that both Fortune Brands and American Express did not have a significant relationship with Tiger's performance at an event, but it was found that there is a positive and significant impact on Nike's excess returns when he is in contention to win a tournament.<sup>44</sup> The extra airtime and attention he receives at PGA and PGA Tour tournaments definitely helps Nike. During the CBS coverage of the Masters Tournament, it was found that the Nike-Logoed hat and shirt worn by Woods was on the television screen for 16 minutes and 31 seconds, which translates to around \$1,685,000 in on-air exposure that Nike receives courtesy of Tiger and CBS.<sup>45</sup>

The first two studies discussed recognize putting as the most important golf skill for professional golfers to have. It is obvious that you need to have a large set of skills to compliment your putting as well. More experience was found to have an impact on player's performance. Each of these attributes is important for players to have in order to perform at their best and maximize their earnings. The studies suggest that players should constantly work to improve their putting skills and, in the process, will maximize attendance at golf tournaments as well. The last study demonstrates how valuable a really strong skill set can be to a golfer, the PGA, and companies who sponsor the individual.

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<sup>44</sup> Kathleen A. Farrell, Gordon V. Karels, Kenneth W. Monfort, Christine A. McClatchey, "Celebrity Performance and Endorsement Value: The Case of Tiger Woods," Managerial Finance Volume 26, Number 7, 2000: 1-15.

<sup>45</sup> Bernard Mullin, Stephen Hardy, and William Sutton, Second Edition Sport Marketing (Human Kinetics 2000) 270.



## **Conclusion**

After examining the previous literature, it is evident that there are many similarities on determinants of attendance for the different sports examined. Although the previous literature on sports attendance proves useful for the PGA Tour, it is evident that more research needs to be done specifically on the determinants of attendance for PGA Tour tournaments. There are many factors that can effect attendance, but what are the ones that carry the most significance in the PGA? It was seen that superstar players attract a lot of attention in the NBA, but what is the significance of arguably golf's best player of all-time missing most of the season due to injury? Nike profits when Tiger Woods is in contention for tournaments, but if he is absent should companies retract their advertisement plans? There are many questions that can be answered by examining all the determinants of PGA Tour attendance.

## CHAPTER III

### METHODOLOGY

The research done on the PGA Tour does little to explain factors that may influence a fan's intention of attending a particular golf tournament. The purpose of this chapter is to explore in detail each of the variables that are used in the study and how they are predicted to impact attendance at tournaments. First, the dependent variable will be explained and then the independent variables and dummy variables will be examined. This thesis will also use qualitative research to further understand the determinants of attendance at PGA and PGA Tour tournaments.

Table 3.1 offers a brief description of the variables that are used in the study. The table also shows the abbreviation and name of each variable used, and where the data came from.

TABLE 3.1  
Variables Summary

Abbreviation	Variable	Description	Sources
ATTEND	Attendance	The total amount of people to attend the tournament	pgatour.com fbropen.com
YEAR	Year	A value given to each tournament if it was played in a particular year	pgatour.com
POP	Population	The population will examine the entire population of the metropolitan area that the tournament is closest to	bea.gov census.gov
INCOME	Per Capita Income	The per capita personal income from the metropolitan area in which the tournament is located	census.gov bea.gov
TOURN#	Tournament #	Tournament number is the point in the season in which the event takes place	pgatour.com
PURSE	Purse Size	The amount of money the players can win at a particular tournament	pgatour.com
STAR	Star Players	The amount of players ranked in the top ten from the previous years final money earning leader board who are present at a particular event excluding Tiger Woods	pgatour.com
PRECIP	Precipitation	The average amount of precipitation throughout the tournament	weather.org
TEMP	Temperature	The average temperature through the tournament	weather.org
COURSE	Course	Dummy variable that equals 1 in each tournament that was played on a stadium course	pgatour.com
TIGER	Tiger Woods	Dummy Variable that equals 1 in each tournament that Tiger Woods is present	pgatour.com

### **Dependent Variable**

#### Tournament Attendance

The dependent variable in this model will be the total tournament attendance for the FBR Open and the HP Byron Nelson Championship for the 1998-2007 seasons. It will also be the total tournament attendance for the AT&T Pebble Beach National Pro-Am and the U.S. Open for the 2001-2007 seasons.

### **Control Variable**

#### Year

The model contains a control variable, which accounts for the year that the data was collected. It is believed that this variable will be able to capture any variations in data due to a particular low or high year of attendance. The 1998 season receives a value of 1; the 1999 season gets a value of 2; the 2000 season gets a value of 3, and all the way until 10 in the year 2007.

### **Independent Variables**

The independent variables used in this study are a variety of factors that account for city demographics and tournament characteristics. The research done on sports attendance and the PGA Tour suggests that the independent variables used in the model should have a significant impact on attendance.

## Population

Courses selected for PGA tournaments are located in all sizes of cities. It is important to account for the size of the market surrounding each of the courses because some courses are not located close to large populations and may decrease the overall attendance because fans will have to travel further to attend the tournaments. Therefore, a population variable is used that looks at the size of the metropolitan area closest to where the tournament is played. This will give a more accurate display of the population of people potentially willing to attend a tournament near them. The Friedman, Billings, Ramsey & Co, (FBR) Open is played in Scottsdale, Arizona. Therefore, the metropolitan area that is closest to the course and will be used for examination is the Phoenix-Mesa-Scottsdale metropolitan area. The HP Byron Nelson Championship is played in Irving, Texas. The metropolitan area that is examined for this course is the Dallas-Fort Worth metropolitan area. The AT&T Pebble Beach National Pro-Am is played in Pebble Beach, California; therefore the closest metropolitan area that will be examined is the Salinas metropolitan area. The U.S. Open changes its location every year, so a total of five different metropolitan areas were examined for the 2001-2007 tournaments including the Tulsa metropolitan area, the New York metropolitan area, the Chicago metropolitan area, the Charlotte-Gastonia-Concord metropolitan area, and the Pittsburgh metropolitan area. It is predicted that courses located near larger metropolitan areas will have a positive impact on attendance.

### Per Capita Income

There is limited data available for past PGA tournament ticket prices so another variable is used to account for variations in prices. In other studies, price relationship to ticket prices is a factor examined, but this study will use the per capita income of each metropolitan area as a factor that may affect PGA Tour attendance. It is assumed that the higher the per capita income is in each metropolitan area, the more likely it will be for fans in the area to attend the tournaments. All of the data was collected from the U.S. Census Bureau and the Bureau of Economic Analysis using the same metropolitan areas that were used to gather the population data.

### Tournament Number

The tournament number variable will be used to see if there is a difference in attendance at different points in the season. In 2007, the PGA Tour introduced a 37-week long cumulative point competition called the FedExCup. Players accumulate FedExCup points based on how they place at the PGA Tour tournaments. There are 37 regular season events where golfers can earn points. The amount of points they have determines where they are seeded for the PGA Tour Playoffs for the FedExCup. This new system creates more competition and places more weight on events that may not have mattered that much in previous years. The value for the tournament number is calculated by dividing the number of tournament it is by the amount of tournaments played throughout the entire year. This gives a percentage value that tells you at what point the tournament was played in the year. The impact of the tournament number variable is unknown.

### Purse Size

The purse size is the total amount of money available for players to win at tournaments. The exact portion of money that players receive is determined by where they finish at each individual tournament. Previous research, like the study done by Shmanske (2004), indicates that larger purse values encourage more competitive play out of the players who are competing in the tournament.<sup>1</sup> The overall amount of purse will be used to see if larger purse sizes can increase attendance. It is hypothesized that larger purse values will positively impact attendance at tournaments.

### Star Players

The star players variable will examine the amount of players attending the event who are ranked in the top 10 from the previous year's money earnings leader board. It is assumed that players who have placed in the top 10 for the previous years final money earnings have consistently performed well at past tournaments because a players earnings is based on how well they finish at tournaments. The fact that they have performed so well makes them a star player. Similar to Berri and Schmidt (2008), this study examines if fans are more willing to attend a tournament if they know that there will be higher end players present at the tournament.<sup>2</sup> It is predicted that the star players variable will have a positive impact on attendance at tournaments. However, this variable excludes Tiger Woods, as he will be a variable of his own because of his dominant play and popularity in the sport.

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<sup>1</sup> Stephen Shmanske, Golfonomics: (2004) 237-257.

<sup>2</sup> David Berri, Martin Schmidt, and Stacey Brook, "Stars at the Gate: The Impact of Star Power on NBA Gate Revenues," Journal of Sports Economics Volume 5, Number 1, 2004: 33-50.

## Precipitation

The precipitation variable is one of two variables used to examine the weather conditions during tournaments. This variable will examine the average amount of rain in inches that occurs throughout the span of a tournament. Previous research by Narayan and Smyth (2004) identifies the weather at horse races as a major short-term factor explaining attendance.<sup>3</sup> There was limited data available accounting for past weather complications at PGA Tour tournaments so the amount of precipitation in the closest metropolitan areas are used for examination of this variable. For example, at the HP Byron Nelson Championship, the amount of precipitation in the Dallas-Fort Worth area for each day of the tournament is added up and then divided by the total amount of days that the tournament is played to provide the data for this variable. This gives a number that accounts for the average amount of precipitation throughout the entire tournament. The same formula is followed for the FBR Open, but the data was available for the exact location where the tournament is played and therefore is used instead of the metropolitan area to give a more accurate representation of the weather. Each of the corresponding metropolitan areas was examined for the AT&T Pebble Beach National Pro-Am and for the U.S. Open tournaments. This variable should account for any variance in attendance due to rain that would alter a fans willingness to attend a tournament and is predicted to have a negative impact on attendance.

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<sup>3</sup> Paresh Narayan and Russell Smyth, "The Race that Stops a Nation: The Demand for the Melbourne Cup," The Economic Record Volume 80, Number 249, 2004: 193-207.



### Temperature

The temperature variable is the second of the two variables that is used to account for the weather. Based on Narayan and Smyth (2004) findings of weather being an important factor determining short-term attendance at outdoor horse races, it is assumed that the weather at golf tournaments will impact a fans willingness to attend a tournament. This variable follows the same formula as precipitation and offers an average temperature in degrees Fahrenheit over the entire course of the tournament. This variable is also predicted to have a negative impact on attendance.

### Dummy Variables

Two dummy variables will be tested to see if they have a significant impact on attendance. Not all of the factors believed to impact attendance have a numerical value and therefore the variables tested will be assigned either a value of one or a value of zero depending on if it has the required characteristics of the variable.

### Course

The first dummy variable is the type of course the tournament is played on. Some courses, like stadium course, are made with the intention of being able to host large amounts of fans for tournaments. Stadium courses should have better views and seating than normal courses making it more conducive to fans at the tournament. It is expected that if a tournament is played on a stadium course, then the attendance will be higher. Therefore, a value of one will be given to all stadium courses and courses that are not a stadium course will be assigned a value of zero.

## Tiger Woods

This variable is similar to the Star Players variable, but it has no numerical value. There have been countless articles identifying how valuable a loss Tiger has been for the remainder of the 2008 season.<sup>4</sup> In 2007, the television ratings for tournaments that Tiger Woods finished in the top five had a 171% increase in CBS' ratings over the tournaments that he did not play in or wasn't in contention to win.<sup>5</sup> Many consider Tiger Woods the most recognizable and exciting player to watch on the PGA Tour. The Tiger Woods variable will be tested to see if his presence at a specific tournament impacts attendance. If he is present at a tournament a value of one will be assigned to the variable and if he is not present a value of zero will be assigned to the variable. The Tiger Woods variable is expected to have a positive relationship with attendance.

Table 3.2 shows the predicted outcome for each of the variables previously discussed that are used in the model. The positive and negative symbols demonstrate the predicted relationship each variable will have with regards to attendance. If a symbol is not included next to a variable, the predicted outcome is uncertain.

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<sup>4</sup> Jason Sobel, "Tiger's Absence Will Reverberate Throughout the Golf World," available from [http://sports.espn.go.com/golf/columns/story?columnist=sobel\\_jason&id=3450888](http://sports.espn.go.com/golf/columns/story?columnist=sobel_jason&id=3450888), accessed November 14, 2008.

<sup>5</sup> Martin Fitzpatrick, "Tiger Woods' Absence Means the PGA Tour Will Suffer," available from <http://bleacherreport.com/articles/30895-tiger-woods-absence-means-the-pga-tour-will-suffer>, accessed November 11, 2008.

TABLE 3.2

## Predicted Outcome of Variables

<b><i>Variable</i></b>	<b><i>Predicted Outcome</i></b>
YEAR	
POP	+
INCOME	+
TOURN#	
PURSE	+
STAR	+
PRECIP	-
TEMP	-
COURSE	+
TIGER	+

Based on the literature review section of this thesis, the following model of PGA Tour attendance has been created. Model 3.1 and is used as the foundation for tests performed in this study.

#### MODEL 3.1

$$\text{ATTEND} = \beta_0 + \beta_1 \text{YEAR} + \beta_2 \text{POP} + \beta_3 \text{INCOME} + \beta_4 \text{TOURN\#} + \beta_5 \text{PURSE} + \beta_6 \text{STAR} - \beta_7 \text{PRECIP} - \beta_8 \text{TEMP} + \beta_9 \text{COURSE} + \beta_{10} \text{TIGER}$$

In theory, if this model was tested through a regression analysis on a large data set, some of the variables should have a significant impact on attendance. However, collecting all the data necessary to complete the regression was not possible with a large sample size because many tournaments do not have accurate attendance figures available. Therefore, a qualitative approach is included in this thesis to add more insight and strength to the variables that the regression, with a small sample size, may not be able to account for.

### **Qualitative Research**

To obtain the qualitative data for this study, five individuals affiliated with the PGA were interviewed. The subjects had a wide array of job positions and experience with PGA tournaments either with marketing, tournament coordination, finance, or player representation. Interviews were conducted over the phone or were sent via email to the individuals who had little time to spare. The phone interviews ranged anywhere from twenty to thirty minutes in length.

### Sample

By networking with faculty members from Colorado College and other personal contacts, I found five well-qualified individuals who have numerous years of experience with the PGA. They contributed different insights on the PGA and factors that impact attendance at PGA tournaments as well as future recommendations for improving the current attendance structure implemented by PGA and PGA Tour tournaments. Table 3.3 introduces the five contacts and highlights their involvement with the PGA and PGA Tour.

TABLE 3.3

## Contact Information

	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>
<b>Name</b>	R.T.	E.D.	M.K.	G.B.	J.S.
<b>Affiliation</b>	PGA Tour	PGA Tour- Heritage Classic	PGA Tour	PGA, PGA Tour, Interpublic Group, and Octagon Sports	PGA Tour- Wachovia Championship
<b>Job Position</b>	Vice President Sales and Marketing	Heritage Classic Foundations Vice President Finance & Administration and Board Member	Associate Producer at PGA Tour	Managing Director Golf and Outdoors	Tournament Assistant
<b>Years</b>	2006- Present (3 Years)	1987-Present (22 Years)	2006- Present (3 Years)	1996-Present (14 years)	2007-Present (2 years)

The five contacts have over forty-four years of combined experience with the PGA and PGA Tour. It is evident that they have a strong background and knowledge of the business. In addition, they all have different areas of expertise and can provide a wide range of relevant information towards factors that influence attendance at PGA and PGA Tour tournaments.

## Interview Questions

The initial part of the interview asked questions about the interviewee and their current job position (See Appendix A). The following section asked for the interviewee's opinion on factors that influence attendance at PGA and PGA Tour tournaments. They were then asked to rank variables that were provided and assumed to have a significant impact on attendance. The next section of the interview focused more specifically on star players like Tiger Woods and their impact on attendance. The final section of the interview focuses more on the current attendance system at PGA and PGA Tour tournaments and potential ways to improve it in the future. Table 3.4 identifies the themes that the questions were based on and displays the questions that were asked in the interviews.

TABLE 3.4  
Survey Questions

Themes	Survey Question
Background	<ul style="list-style-type: none"> <li>• What is your current job position?</li> <li>• What is your past work experience with the PGA and/or PGA Tour?</li> </ul>
Factors Influencing Attendance	<ul style="list-style-type: none"> <li>• What are the top 5 factors that influence attendance at PGA Tournaments? Why are these the most important?</li> </ul>
Ranking of Factors	<ul style="list-style-type: none"> <li>• Please rank the following variables in order of their importance to PGA attendance. (1=Most important and 10= Least important)</li> </ul> <p>Location, Ticket Price, Tournament #, Purse Size, Star Players, Weather, Course, Tiger Woods, Major, and the Year</p>
Star Players	<ul style="list-style-type: none"> <li>• Which super star players, other then Tiger Wood's, impact PGA attendance significantly? If any, how would you describe their impact?</li> </ul>
Tiger Wood's	<ul style="list-style-type: none"> <li>• How important is Tiger Wood's impact at golf tournaments with respect to attendance? Please provide examples to illustrate the impact.</li> <li>• How does Tiger Wood's or another stars presence at PGA tournaments impact other golfer's participation at tournaments? Why do you think there is this impact?</li> </ul>
Future Improvements	<ul style="list-style-type: none"> <li>• What 2 or 3 things can the PGA do to increase attendance in the future?</li> <li>• Why is it so difficult to get accurate data for PGA attendance?</li> <li>• What is the most effective way to monitor attendance at PGA tournaments? Where is this being done?</li> </ul>



The questions covered a wide range of themes that could potentially have an impact on attendance. They were designed to extract each of the contacts personal opinions on factors influencing attendance at PGA and PGA Tour tournaments. The following chapter provides the results of the regression analysis as well as a detailed write up of the qualitative research results.

## CHAPTER IV

### DATA AND RESULTS

This chapter will present the data and results from the regression analysis along with the results from the qualitative study. The Model (4.1) tested all ten variables believed to have an impact on PGA and PGA Tour attendance. The independent and dummy variables were tested against the dependent variable to see if there were any relationships.

Five different tables were created to help understand the data. First, Table 4.1 shows the summary statistics of the variables. Next, Table 4.2 displays the correlation matrix, which shows any values that are correlated to one another. Table 4.3 shows the regression analysis results from the test. Table 4.4 highlights the key points gathered from the qualitative study. Lastly, Table 4.5 identifies the average ranking each variable received from the qualitative research.

The model shown below is the final equation of all ten variables used in the study. The subtraction signs included in the model are for variables that are believed to have a negative impact on attendance.

#### MODEL 4.1

$$\text{ATTEND} = \beta_0 + \beta_1 \text{ YEAR} + \beta_2 \text{ POP} + \beta_3 \text{ INCOME} + \beta_4 \text{ TOURN\#} + \beta_5 \text{ PURSE} + \beta_6 \text{ STAR} - \beta_7 \text{ PRECIP} - \beta_8 \text{ TEMP} + \beta_9 \text{ COURSE} + \beta_{10} \text{ TIGER}$$

TABLE 4.1  
Summary Statistics

<i>Variable</i>	<i>Mean</i>	<i>Standard Deviation</i>	<i>Minimum</i>	<i>Maximum</i>
Attendance	299509.52	131583.95	127617.00	536777.00
Year	6.11	2.69	1.00	10.00
Population	86994971.74	243332858.90	406188.00	935177859.00
Income	34560.52	5267.24	25471.00	49789.00
Tourn #	0.27	0.18	0.06	0.53
Purse	4898529.41	1194652.56	2500000.00	6800000.00
Star Players	6.32	2.45	3.00	10.00
Precipitation	0.05	0.10	0.00	0.42
Temperature	62.61	10.26	45.25	78.75
Course	0.29	0.46	0.00	1.00
Tiger	0.50	0.50	0.00	1.00

Table 4.1 shows the variables used in the model as well as their corresponding individual statistics for the mean, standard deviation, minimum, and maximum values for the study. These statistics were gathered from the 34 tournaments that were examined.

Table 4.2 displays the correlation matrix of all ten variables used in the model. This table shows the relationship between the dependent variable and both the independent and dummy variables. In order to achieve high correlation, the value must have an absolute value greater than 0.40. If the absolute value is less than 0.40, then it is assumed to not have any significant relationship. An asterisk (\*) has been inserted next to the values that show statistical significance with a 95% confidence level.

TABLE 4.2  
Correlation Matrix

	<i>Attendance</i>	<i>Year</i>	<i>Population</i>	<i>Income</i>	<i>TOURN #</i>	<i>Purse Size</i>	<i>Star Players</i>	<i>PRECIP</i>	<i>TEMP</i>	<i>Course</i>	<i>Tiger</i>
Attendance	1.0000										
Year	-0.1140	1.0000									
Population	-0.1865	0.1137	1.0000								
Income	-0.4580*	0.7145*	0.6173*	1.0000							
TOURN #	-0.3538	0.0516	0.4507*	0.5678*	1.0000						
Purse Size	-0.2942	0.8596*	0.3308	0.8253*	0.4518*	1.0000					
Star Players	-0.0201	0.0719	0.5308*	0.3566	0.6121*	0.4036*	1.0000				
PRECIP	-0.1802	-0.0660	0.0349	0.0928	0.3839	0.1507	0.3393	1.0000			
TEMP	-0.2020	-0.0361	0.1731	0.3814	0.8355*	0.2238	0.3772	0.3368	1.0000		
Course	0.9022*	-0.1502	-0.2247	-0.5688*	-0.6721*	-0.4325*	-0.1928	-0.3219	-0.5247*	1.0000	
Tiger	-0.3447	-0.3103	0.3501	0.1853	0.6836*	0.0287	0.4979*	0.3413	0.4990*	-0.5164*	1.0000

The correlation matrix produced a few results that are worth further examination. The first column in Table 4.2 displays the correlation between the dependent variable and the independent variables. *Income* ( $r=-.4580$ ) and *Course* ( $r=.9022$ ) show a strong relationship to the dependent variable *Attendance*. The income results show that the higher per capita personal income in the closest metropolitan area actually has a negative impact on attendance at tournaments. The strong correlation between the stadium course and attendance shows that tournaments played on stadium courses produce larger attendances. Another correlation worth discussing is the *Tiger* ( $r=-.3447$ ) variable, which is stating that when Tiger Wood's is present at a tournament, attendance will decrease. The stadium course variable may have contributed to the results found for this statistic because of the high attendance figures for tournaments played on stadium courses and the fact that Tiger Wood's has only played once over the ten years examined in tournaments played on stadium courses.

Each of the columns after the first displays the correlation between the independent variables used in the model. If there is high correlation found between the independent variables it means that there is multicollinearity between two of the variables. Table 4.2 shows that there are a few issues involved with multicollinearity between some of the independent variables used in the model. For example, the *year* and the *purse size* have a correlation value of ( $r=.8596$ ). This may be a result of a progression of increased purse sizes over the years examined in this model. The *income* and *year* also show high correlation with a value of ( $r=.7145$ ).

The results from the regression analysis are included below in Table 4.3. The T-statistics, coefficient values, and the P-values are listed for each variable in the model.

The F-statistic and R-squared values are also included in the table. The p-value is displayed with an asterisk (\*).

TABLE 4.3

## Regression Analysis Results

(Dependent Variable is Attendance; t-statistics are in parenthesis)

<b>Variables</b>	<b>Model 1</b>
Year	22431.683 (1.933)
Population	0.000 (1.100)
Income	-11.902 (-2.181)*
TOURN #	514877.678 (3.797)***
Purse Size	-0.009 (-0.451)
Star Players	-3632.106 (-0.882)
PRECIP	34214.510 (0.607)
TEMP	639.765 (0.469)
Course	331677.754 (13.019)***
Tiger	5792.363 (0.325)
R-squared	0.966
F-statistic	57.649
Observations	34
*p<.05; **p<.01; ***p<.001	

### Model 4.1

The data set included 34 observations of total tournament attendance at PGA and PGA Tour tournaments from the 1998-2007 seasons. The model tested all ten variables expected to have an impact on attendance. In order for variables to have statistical significance, the value for the t-statistic must be larger than 1.96 and the p-value must be less than .05. The model produced three variables that were statistically significant. The three variables were the per capita personal income (INCOME), the tournament number (TOURN #), and the type of course that the tournament was played on (COURSE). According to the R-squared value, the variables accounted for over 96% on the regression equation.

The closest metropolitan area per capita personal income produced a t-statistic of -2.181 and a coefficient of -11.902. It was believed that INCOME would have a positive significant impact on attendance, however the test results show that it actually has a negative impact on attendance.

The second significant variable, the point in the season in which the tournament is played (TOURN #) was hypothesized to have an unknown impact on attendance. The model produced a t-statistic of 3.796 and a coefficient of 514877.678 for the (TOURN #) variable, which implies that the tournament number has a positive impact on attendance.

The final variable that produced a significant t-statistic was the (COURSE) variable with a t-statistic of 13.018 and a coefficient of 331677.754. This was a dummy variable that accounted for the type of course the tournament was played on. It was predicted to have a positive impact on attendance because stadium courses are built to

host tournaments and accommodate more fans. It was found that for each tournament played on a stadium courses, attendance would increase by about 33,167 fans.

All of the remaining variables failed to produce statistically significant data affecting attendance levels at PGA and PGA Tour tournaments. The year in which the tournament was played (YEAR), the closest metropolitan area population (POP), the amount of money the players can win at a particular tournament (PURSE), the amount of players present at a tournament that finished in the previous years final money earnings leader board (STAR), the average amount of precipitation throughout the tournament (PRECIP), the average temperature throughout the tournament (TEMP), and if Tiger Woods is present at a tournament (TIGER), all had statistically insignificant data affecting attendance. The model produced a high R-squared value meaning that the variables discussed accounted for 96% of the factors affecting attendance. However, the observation size at 34 is too small to completely understand the variables' influence on attendance at tournaments. Therefore, the results of the qualitative study must be examined to further understand each of the variables impact on attendance.

Table 4.4 displays the results from the qualitative study. The table highlights key points and quotes from the five individuals who completed the survey on important factors affecting attendance.



TABLE 4.4  
Survey Quotes

Factors	Contact	Quotes
Top 5	M.K.	<i>"1. The field, if 20 of the worlds best golfers are playing in a tournament, attendance will be higher. 2. Ticket Prices 3. The Course 4. Location 5. Tournament History"</i>
	E.D.	<i>"From my point of view the top five factors that influence attendance at PGA tournaments are: 1. Field- you need good players 2. Community Involvement 3. Location 4. Tradition and Ceremony 5. Cost"</i>
	R.T.	<i>"The strength of field- this may be a combination of players in the top portion of the world golf rankings, as well as those players not that highly ranked, yet who have significant name recognition or celebrity appeal within the sport."</i>
Ranking of Factors	All	Everyone of the contacts rated Tiger Woods as the most important factor influencing attendance
	J.S.	<i>"It is referred to as the "Tiger Factor." We have been fortunate enough to have Tiger as a past champion of our tournament. Ticket sales the following year in 2008 (Tiger won the event in 2007) sold out earlier than any previous year."</i>
Star Players	R.T.	<i>"Phil Mickelson can single-handedly increase attendance. After him, it would probably take a combination of highly ranked players to spike attendance."</i>
	G.B.	<i>"Obviously you have guys like Ernie (Els), Phil (Mickelson), and Sergio (Garcia), who all attract larger crowds. Then you have the young guns like Jason Day and John Holmes who hits the ball 97,000 miles that attract fans as well."</i>
	M.K.	<i>"Camilo Vilegas, Mike Weir, Pdraig Harrington are all superstars that are representing their country- you would not believe how many people come out to see a fellow countrymen play."</i>
Tiger Woods	E.D.	<i>"There are many players who have had a positive impact on attendance, but not to the degree of Tiger Woods. He has only played once in our tournament and the crowds following him were extraordinary."</i>
	J.S.	<i>"He's a great role-model and arguably the most marketable athlete on the planet; everyone should respect what he has done for the game of golf."</i>
Future Improvements	E.D.	<i>"The PGA Tour should require all players on tour to play in new tournaments once every so often to ensure that the best players visit each venue and increase attendance."</i>

### **Top 5 Factors Influencing Attendance**

One of the first questions asked was to determine what each of the contacts believed were the top 5 factors influencing attendance at PGA and PGA Tour tournaments. The responses to this question varied, but the majority of the contacts viewed the field of golfers present at the tournament as one of the more important factors effecting attendance at tournaments. One contact explains that people want to watch players that they know. For example,

*...people know Tiger Woods, Phil Mickelson, Sergio Garcia and they want to see them in person, people know less about Justin Leonard, Rory Sabbatini and Ben Crane. Even though they are very good golfers there is always a draw to a big name.*

Other responses acknowledged the location of the tournament, the type of course, the history of the tournament and certain promotions as important factors influencing attendance. Ticket prices and the total value obtained from the ticket were brought up as a crucial variables affecting attendance. Another respondent identifies that certain tournaments, like the Verizon Heritage, only sell weeklong tickets that allow greater access to facilities for fans and may offer more value than a cheaper ticket, such as a single-day ticket, would provide.

### **Ranking of Factors**

Each individual was asked to rank all of the ten variables used in Model 4.1 in order of their importance. A value of 1 was assigned to the most important variable and a value of ten was assigned to the least important variable. A few of the contacts assigned

the same values to different variables; therefore a table was created to best interpret the results gathered. Table 4.5 shows the average value that each variable was assigned.

TABLE 4.5  
Average Variable Ranking

<b>Variable</b>	<b>Average Rank</b>
Year	9.4
POP	3
Income	3.6
TOURN #	6.8
Purse Size	3.4
Star Players	2.2
PRECIP	6.2
TEMP	6.4
Course	7.6
Tiger Woods	1

The table highlights Tiger Wood's presence at golf tournaments as the unanimous, highest ranked variable affecting attendance at tournaments. The next highest ranked variable was the amount of star players present at a tournament. The closest metropolitan area population size to the tournament was ranked the next highest with a value of 3. The size of the purse received an average value of 3.4 and was viewed as the next highest ranked variable. The fifth highest ranked variable was the closest metropolitan area to the tournaments per capita personal income. Ranked in sixth and seventh were the weather variables with values of 6.2 and 6.4. The point in the season in

which the tournament takes place was the only variable that produced significant results from the regression analysis, but was ranked seventh in this study with an average value of 6.8. The type of course the tournament was played on received a value of 7.6 and lastly, the year in which the tournament was played received an average value of 9.4.

### **Star Players**

The third section of the survey was designed to understand the respondents' personal opinions on which players are viewed as star players, other than Tiger Woods, and how they impact attendance at PGA and PGA Tour tournaments. The questions asked about star players extracted two types of responses from the contacts. The prominent theme from the responses identified the "already established" or "core players," like Ernie Els, Phil Mickelson, Vijay Singh and Sergio Garcia, as the players having a positive and significant impact on attendance. The next theme seen was the importance of the "young guns" and the excitement they are capable of generating among fans. One respondent identifies that

*...There are a lot of young, up and coming, players on TOUR that have a lot of talent, such as Anthony Kim and Camilo Villegas that attract a lot of fan interest. With that being said, my sister would still argue that the reason she attends PGA Tour events is to get a better view of Adam Scott.*

Star players both young and old have the capabilities of increasing attendance at PGA and PGA Tour tournaments. However, the interviews reveal that no star player has as big of an influence on attendance as Tiger Woods.

## Tiger Woods

Each of the contacts ranked Tiger Woods as the single most important factor influencing attendance at tournaments. The contacts identified Tiger's complete set of shot making skills, consistency, and the overall energy he brings to the game as the main factors that set him apart from the other star players. His presence at tournaments is capable of encouraging other high-end golfers to participate in those tournaments as well. A respondent explains the attraction of Tiger Woods

*...If Tiger is playing, other golfers will want to play. All golfers recognize that he is a once in a lifetime opportunity to play with and they want to play against the best. They are forced to elevate their game and they know there will be more cameras on them and more people watching.*

Tiger's capabilities of strengthening tournament fields by not only his presence, but influencing other star players to participate as well, makes him the most important variable influencing attendance at tournaments at PGA and PGA Tour tournaments.

Another respondent explains

*...Tiger significantly spikes attendance for the events that he participates in. Actual figures are not available, but anecdotally his own event- The AT&T National- realized a double-digit drop in attendance from '07 to '08, due primarily to the fact that he didn't play while recovering from knee surgery.*

If attendance figures were readily available, it is expected that a regression analysis would produce statistically significant results that would support the qualitative results found in this study.

### **Future Improvements**

Gathering attendance figures for the 34 observations used in the regression analysis proved to be a difficult task and was the driving force behind many of the questions asked in this section of the qualitative study. The first part of this section will look at potential ways to improve attendance at PGA and PGA Tour tournaments and the second part will address why it is so difficult to find accurate attendance figures for these tournaments. One theme generated from the responses was the idea of lowering ticket prices during tough economic times. In theory, if prices were to go down, demand would be driven up and ultimately increase attendance. Another idea was for the PGA Tour to market to younger generations and create a growing interest in the game. This could increase the market size of potential golf fans willing to attend tournaments. The final theme generated from this question was for the PGA Tour to require top players to play in a large number of tournaments each year to create more interest. If top players had to play more often, it would strengthen the field of the tournaments and drive attendance up.

The next area of this section asked about the current attendance structure and the complications of finding accurate attendance figures. The contacts identified the open design of golf courses as a major issue in gathering accurate attendance figures because of all the entrance points available for fans to access the course. One contact uses the Verizon Heritage tournament as an example to explain some of these complications

*...If you have a gate and funnel all through the entrance to get on the course, it should be easy to get accurate figures. In our case, there are too many access points on the course for us to be sure what the numbers are. We know how many*

*badges we sell, but we are not able to count the amount of people who purchase other types of tickets.*

Another major theme revealed was that the PGA Tour does not have a successful unified policy monitoring attendance. Each tournament records their attendance figures differently. As a result, it is difficult to know if the attendance figures have been inflated or if they are precise numbers.

This chapter has presented the results of the regression analysis as well as the findings from the qualitative study. The observation size of the regression was limited so the qualitative study was incorporated to add further insight to the variables that could impact PGA and PGA Tour attendance at tournaments. In the next chapter, the final conclusions between the two studies will be examined. The upcoming chapter will also present the limitations of this thesis and identify potential suggestions for further research.

## CHAPTER V

### CONCLUSION

This chapter will provide a summary of the research and discuss the limitations of this thesis along with potential ideas for further studies. Attendance at sporting events has been the subject of much past research, but very little attention has been focused on factors that influence attendance at professional golf tournaments. Therefore, the focus of this study was on factors that influence attendance at PGA and PGA Tour tournaments. This thesis was designed to understand what variables influence fans to attend a particular golf tournament as opposed to another one.

The quantitative analysis tested ten different variables to understand their relationship to tournament attendance at PGA and PGA Tour golf tournaments over the 1998-2007 seasons. The ten variables used were the year, population, per capita personal income, the tournament number, purse size, star players, precipitation, temperature, the course, and Tiger Woods. Of these variables, only three were found to have significant results on attendance at PGA and PGA Tour tournaments. In addition to the analysis, a qualitative study was incorporated that produced important themes helping to account for variables that impact attendance that were not visible in the regression analysis.



## Findings

The first variable found to have a significant impact on attendance was the per capita personal income of individuals living within their respective metropolitan areas nearest the location of the tournament played. The larger per capita personal income of individuals living in the metropolitan area closest to where the tournament is played was hypothesized to increase attendance at tournaments. Fans who make more money are expected to be more willing to purchase tickets and attend tournaments and ultimately increase the attendance levels. Tournaments that are played next to large metropolitan areas with high per capita personal incomes would most likely generate the best attendance figures.

The point in the season in which the tournament was played was found to have an impact on attendance as well. The introduction of the FedExCup in 2007, the playoff type format currently used by the PGA Tour, created interest to understand what kind of implications this would have on attendance at tournaments that were played at different points throughout the season. It could be assumed that playoff type formats can place more value on tournaments at the end of the season because players would be competing to win the FedExCup. In theory, this should motivate more fans to attend a tournament held later in the season because of the higher expected quality of the tournaments. This study only examines one year of data since the formation of the FedExCup playoffs, making it difficult to determine the exact impact that the point of the season in which the tournament is played may have on attendance.

Both of these variables produced significant values, but were opposite of their predicted outcomes. The predictions were generated based on previous literature, but

were found in this analysis to have negative effects on attendance at PGA and PGA Tour tournaments. These results were most likely due to a small sample size and limited years examined since the introduction the FedExCup playoffs.

The final variable found in the regression analysis that produced significant results was the type of course that the tournament was played on. This was a dummy variable created to understand the relationship between tournaments played on stadium courses, courses designed to accommodate more fans, and tournaments that were not played on these types of courses. The design of the stadium course was hypothesized to generate higher attendance levels. The results of the analysis confirmed the hypothesis and found that for each tournament played on a stadium course; attendance would increase by around 33,167 fans over the span of the tournament.

The results of the qualitative research identified some other variables as having a significant impact on attendance at PGA and PGA Tour tournaments. The five contacts unanimously agreed that Tiger Woods was the most important factor influencing attendance. It was seen that his presence at golf tournaments encourages better players to participate in tournaments as well as influence more fans to attend them. Star players were the next most important variable found to motivate fans to attend tournaments. Fans are more willing to go to tournaments if they know that the best players in the world will be competing in them. Some other notable variables that were viewed to have a positive impact on attendance were the population of the closest metropolitan area nearest the tournament, the size of the purse, and the per capita personal income of individuals who live within the metropolitan areas closest to where the tournaments are played.

Many of the findings from the qualitative research are consistent with the literature examined on factors impacting attendance from various sports leagues. For example, Jones and Ferguson (1988) found that the cities population and per capita income were important variables impacting attendance in the NHL and the respondents also viewed these variables to have a positive and significant impact on attendance at PGA and PGA Tour tournaments. Similar to the Hausman and Leonard (1997) study where they found superstars have a large effect on revenues for the NBA, the respondents also valued the importance of star players in the PGA and PGA Tour to have a significant impact on attendance at tournaments they are competing. The qualitative results also support the findings from the studies done on incentive effects in the PGA and PGA Tour. These studies identify that there is a correlation between the size of the purse, tournament participation, and player performance. The respondents support these findings and believe they are all significant variable impacting attendance. However, one area that past literature has not examined and that the qualitative research revealed was the most important factor impacting attendance is the participation of Tiger Woods at PGA and PGA Tour tournaments.

### **Possible Limitations**

The most significant limitation in this study was the amount of observations used in the regression analysis. This study only used 34 observations over the 1998-2007 seasons for the PGA and PGA Tour. More observations may have resulted in more visible trends in the regression analysis. Another limitation of this study was that ticket price was not accounted for in the model. Although the per capita personal income

variable was used to account for some of the financial factors influencing fans to attend tournaments, the actual ticket prices could have added strength to the model. The next limitation was that only one year of data was used in the analysis to see the relationship the FedExCup playoff system may have had on attendance. Once again, more years of data would have been valuable to gain a better understanding of the impacts of this variable. Lastly, the current structure of recording attendance figures for the PGA Tour may not be the most effective and calls into question the accuracy of the figures used in this study.

### **Future Research**

There have been limited studies conducted on factors that influence attendance at PGA and PGA Tour tournaments. The variables used in this study and the results from the qualitative analysis should provide guidance for future studies completed on PGA and PGA Tour. After performing this study, it is clear that there are some questions with the current attendance monitoring structure, and a unified league wide policy would be helpful for more accurate attendance figures. Therefore, future research should address this issue and examine the most effective way for the PGA and PGA Tour to accurately record attendance at future tournaments. This would allow for more accurate studies to be completed on the PGA and PGA Tour. Another study could build on this thesis and include a larger amount of observations and years for the analysis. This would also be able to identify the impact the FedExCup playoff has had on attendance since only one year of data was included in this study. Also, it could account for the 2008 season when Tiger Woods had to miss most of the season due to injury. One study identifies that when Tiger Woods is in contention to win a tournament, Nike actually profits because of

the extra airtime received through sponsoring him. Another study could take this one step further and examine all of the PGA Tour players sponsored and examine their value to each of the companies who sponsor them to see what characteristics make a player worth sponsoring by a company.

### **Final Conclusion**

The intention of this study was to identify the factors that impact attendance at PGA and PGA Tour tournaments. There has been limited research on the PGA and PGA Tour; therefore, this paper offers a starting point for future research to be done. It is apparent that instituting a unified attendance policy will be beneficial. This would provide accurate data and open the door for more studies to be conducted on the PGA and PGA Tour. This study also highlights findings from previous studies that may assist in future attendance growth. By looking at the literature on rivalries and superstar players, the PGA and PGA Tour may want to further develop and promote rivalries among the top players like Tiger Woods, Vijay Singh, and Phil Mickelson to increase attendance. The literature on location could assist the PGA Tour when they are creating the upcoming year's schedule by not scheduling tournaments located near one another or that would take place simultaneously with other major sporting events and potentially create a substitution effect. There have been many factors identified in this study to have an impact on attendance, but more research needs to be completed so the PGA and PGA Tour can maximize attendance.

APPENDIX A

INTERVIEW QUESTIONNAIRE

1. Name:
2. What is your job position and affiliation with the PGA or PGA Tour?
3. What are the top 5 factors that influence attendance at PGA tournaments? (and why are these the most important?)
4. Please rank the following variables in order of their importance to PGA attendance. (1= Most important and 11= Least important)

Rank	Variable	Description
	Location	The population of the metropolitan area that the tournament is closest to
	Ticket Price	The average tournament single-day ticket price
	Tournament #	The point in the season in which the event takes place
	Purse Size	The amount of money the players can win in at a tournament
	Star Players	The amount of players ranked in the top ten from the previous years final rankings who are present at a particular event excluding Tiger Woods
	Weather	The type of weather over the course of the tournament
	Course	If the tournament is played on a stadium course
	Tiger Woods	If Tiger Woods is present at the tournament
	Major	If the tournament is a major
	Year	The year in which a tournament takes place
	Other?	Any other variable you feel is important that I may have left out

5. On a scale of 1 to 10, how important is Tiger Woods presence at golf tournaments with respect to attendance? Please provide examples to illustrate the impact.
6. Which other super star players also impact PGA attendance significantly? If any, how would you describe their impact?
7. How does Tiger Woods or another star players presence at a PGA tournament impact other golfer's participation at those tournaments? Why do you think there is this impact?
8. What 2 or 3 things can the PGA do to increase attendance in the future?
9. Why is it so difficult to get accurate data for PGA attendance?
10. What is the most effective way to monitor attendance at PGA tournaments? Where is this being done?

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