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Dynamic Ticket Pricing in Sport: An Agenda for Research and Practice

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Abstract

For decades, the airline and hotel industries have regularly changed prices to keep pace with fluctuating levels of consumer demand. This demand-based approach to pricing is referred to as revenue management. Meanwhile, the sport industry has traditionally underpriced tickets using a cost-based approach in order to maximize attendance and promote fan satisfaction. However, as operating costs have grown, sport organizations are now forced to reconsider these conservative pricing practices. Subsequently, in 2009, the San Francisco Giants were the first team to utilize dynamic pricing, which is a strategy that mirrors the revenue management approach. While data supporting or refuting the reported benefits of this approach in sport remains sparse, the current paper utilizes the research on revenue management to develop an agenda of considerations regarding the use of demand-based ticket pricing strategies in sport. The paper is designed to guide researchers as they begin to explore the strategy's myriad of critical (and yet unexplored) issues. Additionally, practical implications of adopting this pricing strategy in sport are considered.

Introduction

Throughout much of the 20th century, the vast majority of sport managers employed one of two pricing strategies for their tickets: (1) the "one-size-fits-all" approach where prices for every ticket and every game are exactly the same and (2) a seat location-based approach where prices are mostly correlated to proximity to the field of play but do not vary from game to game. However, continually increasing revenue needs and evolving technology are slowly changing these organizational approaches to pricing. Indeed, as player salaries and other operational expenses continue to increase, sport organizations have been forced to aggressively pursue other sources of income. The growth of sport sponsorship and stadium naming rights deals are examples of previously untapped revenue streams that have helped offset some of these increasing costs (Howard & Crompton, 2005). However, stadiums can only have one name, and sponsorship categories and sponsorship inventory are not limitless, so organizations wishing to maximize their revenue have begun to reconsider their ticket pricing strategies.

Concurrently, the standardization and legitimization of online transactions have led to the growth of the secondary ticket market. In this market, ticket prices fluctuate regularly based on varying levels of consumer demand. Subsequently, ticket brokers who contribute little to the production of the sporting event are capitalizing on pricing inefficiencies in the primary market (Drayer, Stotlar, & Irwin, 2008; Happel & Jennings, 2002; Rascher, McEvoy, Nagel, & Brown, 2007). However, knowledge of secondary market prices can provide valuable information to sport organizations in the primary market regarding demand for sport event tickets (Drayer & Shapiro, 2009). An understanding of consumer demand can help teams increase attendance and ancillary revenue for low-demand games and maximize ticket-related revenue for high-demand games.

By examining their own demand indicators (i.e., attendance) and studying secondary market transactions, sport organizations in the primary market now have the ability to understand consumer preferences in the days and hours leading up to an event. As a result, teams have started to expand upon the traditional seat location-based approach to ticketing and are charging different prices for different games based on anticipated levels of demand. The first of these demand-based approaches, referred to as variable ticket pricing (VTP), was introduced by the Colorado Rockies of Major League Baseball (MLB) in 1999. Using VTP, sport organizations may choose from a variety of factors (most often day of the week and opponent) on which to differentiate prices. However, as these prices are set long before the season starts, pricing inefficiencies may still exist.

Subsequently, in 2009, the San Francisco Giants became the first professional sports team to experiment with dynamic ticket pricing (DTP), where ticket prices fluctuate from day to day based on factors that include situational aspects previously unconsidered in pricing strategies such as team performance, player performance, and even weather. In 2010, DTP was used for all San Francisco Giants tickets throughout the season which resulted in a 7% ticket revenue increase ("Forty under 40: Barry Kahn," 2011). Despite what seems like an innovative and potentially lucrative approach to pricing, the sport industry has been slow to adopt this new strategy as there is little precedent on which to base the anticipated success of this approach.

However, a similar approach has been used for decades in the tourism and hospitality industries under the label of revenue management or yield management. Airline and hotel pricing strategies have long been accepted as an industry standard, and prices for products in both sectors fluctuate often, mostly based on demand level and product availability (Cross, 1997; Kimes, 2003). These pricing strategies have recently extended or been suggested to extend to other fields, such as restaurants (Heo & Lee, 2011), cruise lines (Maddah, Moussawi-Haidai, El-Taha, & Rida, 2010), golf courses (Kimes & Schruben, 2002), spas (Kimes & Singh, 2009), and theme parks (Heo & Lee, 2009). However, the ticket pricing literature focused on VTP is limited (Rascher et al., 2007) and research involving DTP in sport is even more scarce. By examining the successful implementation of these strategies in the airline and hotel industries, as well as the existing literature in pricing and other related fields, the purpose of the current paper is to examine whether DTP is indeed a viable approach for sport managers from both a theoretical and practical perspective. In other words, the current paper provides an agenda for research and practice regarding the use of demand-based ticket pricing strategies in sport based on revenue management theory.

Revenue Management

Revenue management systems involve "determining prices according to predicted demand levels so that price-sensitive customers who are willing to purchase at off-peak times can do so at favorable prices, while price-insensitive customers who want to purchase at peak times will be able to do so" (Kimes, Chase, Choi, Lee, & Ngonzi, 1998, p. 33). It was the airline industry that originally developed the dynamic pricing concept based on forecasted demand and inventory availability, and they called it 'yield management' (Cross, 1997). Later, the hotel industry and others adopted the yield management model and changed the name to revenue management because 'yield' is an airline term (Cross, 1997). Some view yield management as dynamic pricing heavily focusing on inventory control specifically in an airline context (Hayes & Miller, 2011). Therefore, we use the term 'revenue management' (RM, hereafter) throughout this study.

In 1989, Kimes published the seminal article outlining the process of implementing a RM system in the hotel industry. She identified the following six prerequisite circumstances for this pricing strategy to work most effectively:

1. The ability to segment markets – By separating consumers into different groups, managers can have different marketing strategies and varying prices across groups.
2. Perishable inventory – This is a common issue faced by several facets of the tourism and hospitality industries (hotels/motels, airlines, and car rental agencies) that prevents managers from ever being able to sell unused inventory.
3. Product sold in advance – This issue deals specifically with time and uncertainty of sales. The ability to make effective pricing decisions over time helps overcome some of these concerns.
4. Low marginal sales costs – In circumstances where servicing additional customers will not cost the firm a large amount of money, changing prices to entice new guests may be appropriate.
5. High marginal production costs – This criterion suggests RM is most appropriate when it is difficult for a manager to create additional inventory. It is practically impossible for a hotel to quickly add rooms or an airplane to quickly add seats. Therefore, as inventory runs

low, managers may have the opportunity to increase prices.

6. Fluctuating demand – The ability of a RM system to adjust price based on fluctuating levels of demand is perhaps its greatest advantage. The hotel industry, in particular, experiences frequent fluctuations according to season and day of the week. RM systems rely on managers' ability to effectively identify when these peaks and valleys occur.

In 1998, Kimes et al. added an additional criterion:

7. Predictable demand – This is related to the previous factor. Fluctuating demand makes it appropriate to charge different prices, while predictable demand makes it easier to identify when these fluctuations occur.

Kimes' theories on RM have been widely accepted in both academic and practitioner circles; however, they were written for the tourism and hospitality industries. The following sections will examine the applicability of these factors within a mainstream spectator sport context.

DTP and Sport Tickets: A Good Fit?

Using the criteria set forth by Kimes (1989) and Kimes et al. (1998), it appears that the sport industry may be an appropriate platform in which to implement an RM system.

1. The ability to segment markets – There have been many studies within the sport management literature which have suggested that market segmentation can be done across a variety of different characteristics such as gender (James & Ridinger, 2002), education level (Zhang, Pease, Hui, & Michaud, 1995), and season ticket status (Lee, Trail, & Anderson, 2009).
2. Perishable inventory – One of the primary attributes of the sport product is its perishability. Any unsold ticket cannot be sold once the game is over. In their study of the secondary market, Drayer and Shapiro (2009) illuminated the significance of time in the price consumers are willing to pay for tickets.
3. Product sold in advance – While tickets are sold in the days and hours leading up to many sporting events, the initial on-sale date for most sporting event tickets is months before the season starts, meaning that fans have a large window of opportunity for buying tickets.
4. Low marginal sales costs – Given that most professional sporting events already attract crowds in the tens of thousands, servicing of additional patrons does not require a large shift of day-of-game operations. As this additional cost is relatively small, sport organizations do have the opportunity to profit from additional fans who, despite the fact that they may be charged a cheaper price for a ticket, often spend significant amounts of money on concessions, parking, and merchandise.
5. High marginal production costs – Similar to adding seats to an airplane or rooms to a hotel, creating additional stadium seating is often an unrealistic proposition for sport organizations.
6. Fluctuating demand – Given the large window of opportunity for fans to buy tickets, demand may shift significantly from the initial on-sale date to the actual day of the event. Factors such as team and player performance change regularly, causing changes in consumer demand (Drayer & Shapiro, 2009). Further, the implementation of VTP by many professional sports franchises represents their acknowledgement that demand may fluctuate from one game to the next.
7. Predictable demand – Given the statistical orientation of many professional sports and the ease of access to other quantifiable demand factors, estimating demand in this setting is a manageable task. Within academic literature, several researchers have conducted studies on the subject of demand for sporting events. They have explained variance in demand for professional sport tickets considering factors such as home field advantage (Boyd & Boyd, 1998), outcome uncertainty (Falter & Perignon, 2000; Forrest & Simmons, 2002; Rascher, 1999), and labor strikes (Matheson, 2006). More recently, Drayer and Shapiro (2009) and Drayer, Rascher, and McEvoy (2012) examined more traditional game-related variables, such as team and player performance, to successfully explain fluctuations in consumer preferences for sport event tickets.

In addition to these seven criteria, the presence of a vibrant secondary market would also indicate that a RM approach is appropriate in a sport context. Boyd and Boyd (1998) suggested that whenever secondary market sellers can resell tickets for a profit, it indicates that tickets are not priced optimally. Conversely, other events have high numbers of unsold seats, indicating that tickets are priced too high (Howard & Crompton, 2004). Indeed, Rascher et al. (2007) and Drayer and Shapiro (2009) found that teams could earn millions of additional dollars through more efficient pricing practices. This unrealized revenue is currently being cap-

tured by sellers in the secondary market who actively adjust prices based on fluctuations in demand.

Managerial Considerations of DTP in Sport

Based on the previous section, it appears, in theory, DTP and mainstream spectator sports are a good fit. However, before implementing an entirely new pricing strategy, sport managers must consider an array of issues which may ultimately influence their decision. These factors are outlined in the following section.

Data Management and Pricing Decisions

The company that administers the Giants' pricing decisions, QCue, utilizes an algorithm which, according to their website, is based largely on historical data. While this information will be largely accurate in predicting demand for future events, the nature of the sport product is such that it is constantly changing. From one year to the next, the situational factors surrounding a team, which can be difficult to quantify, can be substantially different. For example, although team and player performance is easy to quantify, factoring in fan expectations of team performance and identifying which player statistics are most important to consumers may be rather difficult and could significantly affect demand. Sam Gerace, chief executive for Veritix, a company working in digital ticketing, highlighted the importance of this challenge: "Everybody's experimenting to understand the science and figure out the algorithms, as nobody wants to damage their pricing models with haphazard processes" ("Ticketing's changeup," 2010, para. 39). While this process is equally important in the hotel and airline industries, variables that influence demand in those two industries may be comparatively fewer or less short-term in nature compared to the sport industry. For example, typical variables that affect hotels' future demand are demand generators such as an event of 'spring graduation' in a college community, demand drains such as holidays for hotels that mainly serve business travelers, economic conditions (local, state, and national), the opening or closing of competitive hotels, and so on (Hayes & Miller, 2011). While some of these variables (e.g., economic conditions) may be applicable to the sport industry, it is not difficult to see that certain aforementioned factors that impact demand in the sport industry seem more peculiar and challenging to deal with. Other unique variables such as roster changes throughout the season via trades and signings, team and player performance, and player injuries create constant shifts in demand that differ from other industries.

An additional consideration in price setting is the frequency of price changes. As demand indicators change by the hour and even by the minute, teams could potentially elect to change prices in real time. However, the Giants elected to change prices once daily. By only changing prices daily, sudden changes in weather forecasts, player injuries, starting lineups, and other factors may not be accounted for. Of course, more frequent price adjustments may lead to other unforeseen consequences such as consumer confusion or perceptions of price unfairness.

Whatever price-setting process an organization chooses, mistakes are certainly possible, particularly when prices are changing frequently, and these mistakes may lead to undesired outcomes. Even when demand is inelastic, increasing ticket prices may result in decreasing attendance (Welki & Zlatoper, 1994). Conversely, teams and leagues do not want to give the perception that some games are of lesser quality than others. Regarding changing prices using VTP, Dean Bonham, a sports business consultant, stated: "When you try to determine what is a premium or non-premium game, you're basically trying to decide when to devalue your product. That's a very dangerous economic decision" (Kroichick, 2002, para. 18). In the National Basketball Association (NBA), Commissioner David Stern stated that charging different prices for different games "raises questions about the fairness of your pricing and the value of your product" (Lefton & Lombardo, 2003, para. 17). Stern also claimed "there is no such thing as a bad NBA game" (Lefton & Lombardo, para. 17).

Additionally, some economists argue sport ticket prices are purposely set in the inelastic portion of the demand curve (Coates & Humphrey, 2007; Fort, 2004). This is done to provide opportunities for ancillary revenue such as parking, concessions and merchandise that would be limited if tickets are priced too high. To reduce the risk of these negative consequences, organizations may consider setting price ceilings and price floors. An in-depth discussion of this decision is provided later in this paper.

Most ticket operations are now conducted primarily online. With this change in distribution has come a new type of consumer with new responses to price, which illuminates the continued importance of careful price-setting strategies. The Internet allows customers to easily search for the product of their choice within their desired price range while allowing businesses to experiment with various pricing strategies and establish various market segments (Kung, Monroe, & Cox, 2002). As companies such as QCue and Digonex are illuminating, prices online are easily changed when the market indicates a necessary price shift. However, research in other web-based industries has indicated that consumers will respond negatively to paying dif-

ferent prices for the same product (Kung et al., 2002) as the Internet has increased consumers' sensitivity to price and changes in price (Kotler, 2003).

However, within the sport industry, the unique nature of the product may result in lower levels of price sensitivity. Nagle and Holden (2001) identified several factors that are associated with lower price sensitivity, including a distinctive product, a low awareness of substitutes, an expenditure that is a small part of consumer's income; an expenditure that is a small part of the total cost of the end product; a product that is assumed to have more quality, prestige, or exclusiveness; and a product that cannot be stored. Tickets to a professional sporting event satisfy most, if not all of these criteria. The notable exception to that is the expenditure's being a small part of the consumer's income. Professional sports draws from a diverse pool of consumers from very low income to very high income. However, while some fans feel that they can no longer afford to attend games, the economic theory on price sensitivity would seem to suggest that these consumers are not as price sensitive as expected (Howard & Crompton, 2004). Ultimately, price-setting has historically been deemphasized as a result of primarily cost-based approaches utilized by professional sport organizations (Drayer, Stotlar, & Irwin, 2008; Reese & Middlestaedt, 2001). A potential shift to DTP will highlight the importance of this facet of the marketing mix, and the consequences of this strategy must be carefully considered and examined by both practitioners as well as academics.

Revenue Maximization vs. Attendance Maximization

The hotel industry's implementation of revenue management has typically focused on maximizing revenue from room reservations without consideration for ancillary revenue streams from restaurants, gift shops, or others (Kimes, 1989). This issue, called the 'multiplier effect,' has challenged hotel revenue managers, and they currently revenue management more as a tool for enhancing the profitability of the entire property including not only the rooms, but other revenue generating departments as well (Kimes, 2010a). The sport industry, on the other hand, has traditionally maintained a focus on attendance maximization without consideration for the maximization of ticket revenue. Courty (2003) suggested that sport organizations are motivated to underprice tickets in an effort to maximize attendance. He argued that a full stadium or arena brings substantial benefits to a team in the form of ancillary revenue from parking, concessions, and merchandise and also provides an enhanced fan experience. As mentioned previously, this is supported by empirical evidence that sport event tickets are priced in the inelastic portion of the demand curve (Coates & Humphrey, 2007; Fort, 2004; Pan, Zhu, Gabert, & Brown, 1999; Siegfried & Eisenberg, 1980). The National Football League (NFL) is further incentivized to underprice as failing to sell out results in television blackouts in the local market. DTP takes a more aggressive approach and attempts to simultaneously maximize revenue and attendance. In theory, high-demand games have higher prices which increase ticket revenue without compromising attendance, and low-demand games have lower prices which can potentially draw more fans, albeit at a lower price, which can lead to ancillary revenue streams and an enhanced environment for fans. However, any time price is increased, organizations run the risk of decreasing attendance. Therefore, despite a more aggressive approach with a heightened emphasis on revenue generation, sport organizations are still primarily incentivized to underprice tickets in order to maximize attendance, even if those prices change regularly.

Secondary Market Sponsorships

Part of the rationale for VTP and DTP in sport is the idea that secondary market sellers were profiting from an event to which they contributed nothing. Sal Galatioto, Founder and Chairman of Galatioto Sports Partners, stated:

> We've done work with both the Jets and Giants, and you'd be amazed how many of those longtime ticket-holders go to a few games and then sell their other games for an enormous profit. That money belongs to the team owners, doesn't it? The transfer of that wealth away from the people creating it to the middlemen who do nothing is huge. ("How goes sports?," 2008, p. 20)

By charging higher prices for high-demand events, owners are essentially trying to recapture some of that lost revenue.

However, the growth and increased legitimacy of the secondary market has also led teams and leagues to partner with secondary market websites (Drayer & Martin, 2010). These deals often mirror the structure of standard sponsorship deals in which the sport property receives a flat fee and the secondary market website receives the right to be called "The Official Secondary Ticket Marketplace," signage, and other exploitable commercial assets. These deals are often worth millions of dollars annually (Fisher, 2005). If DTP is indeed successful in decreasing the profitability of the secondary market, fewer people, possibly including those long-time ticket holders referenced above, would engage in the practice. This would ultimately drive down the value of these sponsorships as secondary market websites earn money by taking a percentage

of each transaction. Of course, an incremental decrease in sponsorship revenue in this category is potentially offset by the increased revenue provided by the DTP approach.

Time

A team's season ticket base is often considered among its most valuable assets. Not only are these individuals the most dedicated fans, but they typically pay a majority of their costs before the season starts. This fixed revenue source is a significant benefit when the sport product is often very uncertain. Even among single game ticket holders, teams would likely prefer to have the majority of their tickets sold well in advance in order to effectively staff each event. Courty (2003) suggested that these "diehard fans" are more price sensitive and therefore purchase tickets ahead of time in order to get the best deal. On the other hand, Courty identified another consumer segment which he called "busy professionals." This group is less price sensitive and is willing to pay a higher amount in exchange for the convenience of being able to make decisions at the last minute. However, according to Drayer and Shapiro (2009), time works against prices for tickets. They found that as the event got closer, secondary market prices decreased. Should fans ever get truly organized, they could collectively wait to buy tickets as prices would fall over time. While a sport event ticket "flash mob" may not be a realistic scenario, sport managers must understand the increasing importance of time in price-setting. While DTP can control for a variety of other variables, it may never be able to account for time as a variable.

In a hotel setting, although it is typical that room rates increase as the stay night approaches, some heavy discounting may occur at the very last minute. However, Kimes (2010b) does not recommend it because such heavy discounting will likely damage customers' value perceptions about the hotel's product. According to the study, it is very difficult and takes a long time for hotels to recover from heavily discounted room rates to normal rates. Moreover, hotel guests may become dissatisfied when they have to purchase a room for a normal rate after they experienced heavy discounting for the same room before. Dissatisfied customers are less likely to be repeat purchasers and often spread negative words about the business, which can cause significant harm to the business. Therefore, it is recommended that hotels set floors (the floor concept will be discussed further in a following section) for their room rates and do not sell rooms for prices below them even when there are empty rooms at the end of the day. This practice may seem to reduce hotels' room revenues in the short run, but long-term rewards should be greater than costs.

The same practice may be applicable to the sport DTP setting. Teams may change the ticket price as days pass just like the hotel industry; the ticket price generally increases as the event day approaches. However, for the last day or minutes, to prevent a heavy discounting from happening, teams may establish floors for their ticket prices and refuse to sell tickets for prices below such floors even when there are still empty seats. This practice will help sport fans form their value perceptions about tickets at an appropriate level which, in the long term, will aid not only ticket sales, but also fans' satisfaction levels.

Season Ticket Holders

As stated above, an organization's season ticket base (both full and partial season ticket holders) is often among its most valuable assets. As such, the impact of DTP on their experience is critical. Sport organizations must carefully craft policies in order to incentivize consumers to purchase season ticket packages rather than have them monitor the market throughout the season and buy when they see a good value. The most obvious scenario is that in which a game has bad weather and two underperforming teams. Of course, the DTP algorithm would respond to these variables (or other similar demand-lowering factors) by lowering the price of tickets. This scenario raises the possibility that a season ticket holder might end up sitting next to another individual who actually paid a lower price for his/her ticket. John Walker, the senior vice president of business development for the Phoenix Suns, said: "Our season-ticket holders are paying an inordinate amount of money and I don't really want to piss them off by lowering prices" (Muret, 2010, para. 16). Sport organizations must carefully consider how to handle such a scenario. One possibility that exists is providing a price guarantee and crediting a season ticket holder's account once the price drops below their per-game cost. The money in this account could be used towards future ticket purchases or even day-of-game purchases such as concessions and merchandise. Additional value-added benefits provided specifically to season ticket holders, such as parking benefits or invitations to visit with players and coaches, may also continue to incentivize potential consumers to buy full or partial ticket plans. So while solutions do exist, sport managers must be aware of the need to monitor such circumstances and provide equitable solutions.

Moreover, when considering the importance of loyalty that season ticket holders have for their teams in a long-term perspective, a careful DTP strategy should

be developed and implemented. A negative long-term impact from losing loyal fans (typically, season ticket holders) due to ill-managed DTP may be tremendous. According to the hospitality RM literature, Lindenmeier and Tscheulim (2008) suggested that customers' negative perceptions of RM practices with a short-term perspective may cause customers' satisfaction to decrease, and consequently damage the business in the long term, while Cross et al. (2009) recently argued that the future revenue management should evolve from the long-standing 'inventory-centric' approach to 'customer-centric' approach in that the long-term customer relationship development is emphasized.

Price Ceilings and Price Floors

Another solution that exists for the aforementioned scenario where a single game patron is paying less than a season ticket holder is to create a price floor. Besides potentially upsetting season ticket holders, pricing inventory too low has the potential to devalue your product in the eyes of consumers (Zeithaml, 1988). Subsequently, sport organizations could decide to set a price for each section in their facility that a ticket would never drop below. Of course, this pricing structure would not be completely dynamic. In a truly dynamic approach, if there is an empty seat once a game starts, tickets should essentially be given away in order to capitalize on the potential to earn ancillary revenues. Of course, most sport organizations are unlikely to give away tickets in such a circumstance.

Conversely, for truly high-demand events, teams may want to keep prices within a reasonable range and create artificial price ceilings. Giving consumers in the low and middle household income brackets an opportunity to attend the truly "premium" events is an important part of building a passionate and loyal fan base. Additionally and as mentioned previously, the risk of overpricing and subsequently decreasing attendance is a chance that few sport franchises are willing to take, particularly in the NFL where media blackouts loom as a significant consequence.

From a theoretical standpoint, if price floors and ceilings are implemented, price fluctuations based on demand would be restricted. DTP with these stipulations could provide a more optimal pricing strategy for sport organizations compared to standard differential pricing, which only considers proximity to the field, or VTP which cannot take into consideration factors that change throughout the season. However, for high-demand events, these prices would still be lower than secondary market prices which are completely based on demand without restriction. In this case, DTP could essentially close the pricing inefficiency gap between traditional pricing in the primary market and the secondary market while providing additional ticket revenue to the sport organization. However, by setting artificial price floors, teams may push consumers to buy tickets to very low-demand events from secondary market sellers, thereby denying themselves of that ticket revenue. In the end, sport properties considering the implementation of DTP must decide whether this structure is going to be truly dynamic and consider all price points or if the strategy is dynamic only within a preset range of prices. Although the Giants have not indicated whether or not they have introduced artificial price restrictions, the Nashville Predators of the National Hockey League, who were using DTP on a trial basis for the 2011 postseason, indicated they were implementing a price floor in order to protect season ticket holders (Muret, 2011).

Price Transparency

Sport managers also face key decisions with regards to informing the public about changing a pricing structure that has gone largely unchanged for over a century. For example, if an organization elects to place price ceilings and floors on their tickets, a manager must decide whether to provide that information to their consumer base. However, perhaps more important is the decision on whether or not to inform the public about the factors that are causing prices to change. Consumers feel entitled to pricing consistent with previous transactions, and if those "rules" are violated, they may conclude that the new price is unfair which may ultimately lead them to walk away from the transaction (Bolton, Warlop, & Alba, 2003; Kahneman, Knetsch, & Thaler, 1986). Obviously, this outcome is undesirable for sport properties. However, within the hospitality literature, Wirtz and Kimes (2007) claimed that perceptions of unfairness decline over time. According to Kimes' (1994; 2003) studies, customers' familiarity with dynamic pricing practices positively influences their negative perceptions about the practices. In 1994, Kimes compared customers' fairness perceptions about the RM practices between airline and hotel industries when airlines widely practiced RM practices while hotels were at their inception of practicing the RM. She revealed that customers perceived airlines' RM practices to be fairer than hotels'. About a decade later, Kimes repeated the same study, and found no difference in customers' fairness perception between the two industries, concluding that customers tend to accept the practice more willingly and are more likely to perceive the practice fair when they become more familiar with the practice (Kimes, 2003). This exact phenomenon may occur in the sport industry, that is, at the initial stage of practicing DTP, sport fans may resist the new

practice, but such resistance may be reduced as fans become more familiar with the practice.

Further evidence from the hospitality industry suggests that providing more information on prices and pricing policies will immediately increase perceptions of fairness. In a study by Tanford, Erdem, and Baloglu (2011), price was the most important factor in choice of vacation packages; however, providing detailed information about the price of each component of the package (as opposed to a single price for the entire package) increased perceptions of fairness and value. Choi and Mattila (2005) also examined the effect of the level of information (of reservation factors that impact room rates) provided to customers on their fairness perceptions, and found that customers perceive revenue management practices as fair when more information is given.

Beyond the philosophical decision regarding how much information to provide to consumers, sport managers must also prioritize staff training in order to reduce incidences of customer confusion. The sales department and other staff will have the challenge of explaining this system, which is markedly more complex than traditional pricing strategies, to inquiring consumers without emphasizing the fact that this is primarily a strategy designed to increase organizational revenue. In addition to clearly understanding the DTP system, the staff should also completely buy into the system. It is possible that some staff may not perceive the DTP practice as fair and in such case it will be difficult for them to educate customers and convince them of the benefits of the system.

Face Value

As prices have the potential to change day to day or even minute to minute, the need for a printed face value comes into question. Removing face value may minimize the scenario where two patrons in adjacent seats are able to compare prices, which may lead to one side feeling slighted. However, removing the face value from a ticket is not a simple decision. Besides the fact that some states have laws that require event promoters to print the price on every ticket, the printed price also influences consumers' perception of the value of that ticket (Drayer & Shapiro, 2011). In some cases, the printed price may actually increase what a consumer considers the ticket to be worth. A consumer's perception of the value of the ticket in relation to the actual price is a primary determinant of the consumer's evaluation of price fairness (Drayer & Shapiro, 2011). Of course, sport properties would like to capitalize on any opportunity to increase perceived value of their inventory. Considering the hotel industry's practice of using 'rack rate'—that is, the highest possible room rate for each room type—the sport industry may adopt this same practice to its face value, setting face value as the highest possible price for each ticket type. Such practice may allow the sport industry to have more flexibility to give out various levels of discounts without damaging consumers' perceived value of the ticket.

Conclusion and Suggestions for Future Research

Renowned pricing expert Philip Kotler (2003) identified the common mistakes made by companies:

> Pricing is too cost-oriented; price is not revised often enough to capitalize on market changes; price is set independent of the rest of the marketing mix rather than as an intrinsic element of market-positioning strategy; and price is not varied enough for different product items, market segments, distribution channels, and purchase occasions. (p. 471)

DTP is the sport industry's solution to this common pricing problem. Despite a variety of critical decisions for sport managers considering the implementation of this strategy, it appears that, both in theory and in practice, this approach to pricing has the potential to ultimately benefit sport organizations. However, future research is critical in understanding the impact of each of the aforementioned managerial considerations. The following paragraphs will present ideas for future research to be conducted by both practitioners as well as academics.

The first criterion set forth by Kimes (1989) for the implementation of revenue management was the ability to segment markets. While there have been a variety of studies which have identified viable market segments within the sport industry, new research is needed to understand how consumers may be broken down into smaller segments based on their purchase habits. For example, the hotel and airline industries traditionally consider consumers based on their price sensitivity. Leisure travelers are price sensitive and thus tend to purchase the hotel or airline service in advance to take advantage of discounted rates, while business travelers are price insensitive and thus tend to purchase the service close to the event day (Kimes, 1989). This approach to segmentation may also apply to the sport industry; those fans (i.e., full and partial season ticket holders and corporate clients) who purchase tickets in advance of the season tend to receive some forms of discounting, while those who purchase tickets close to game days may be willing to pay some forms of premiums as Courty (2003) suggested. However, the research by Drayer and Shapiro (2009) suggested that prices actually decreased as the event drew nearer. So

it may be that there are also "bargain hunters" who prefer to wait until the very end in attempting to find the best available deal. This group of people may be considered as a distinguishable market segment that researchers need to explore further in order to discover the segment's unique characteristics and potential practices to lure and satisfy these fans without significantly hurting ticket value. Further, this group is much more informed about the specific event characteristics and may base their purchase decision on vastly different factors than a consumer who purchases months in advance. From a different perspective, as discussed in the 'Time' section, teams may establish floors for their ticket prices so that fans' perceived value for tickets is not damaged from such heavy discounting, and moreover, this practice may have positive implications on fans' satisfaction levels, especially in the long term. In the end, future research is certainly necessarily to further illuminate the relationship between time and price sensitivity.

Understanding consumer response to prices and price changes is of critical importance when using DTP. A possible outcome of DTP is that occasionally higher prices and frequent price changes will result in perceptions of unfairness. Conversely, lowering prices has the potential to lower the perceived quality of an event. Research must examine consumer response to these pricing indicators, as any of these outcomes would significantly reduce the benefits of DTP. Ideally, studies of this nature would be either longitudinal or experimental in order to understand the effect of increased consumer knowledge and familiarity on perceptions of fairness and value. Additionally, these studies should also consider various demographic and psychographic characteristics such as household income and fan loyalty. As a whole, experimental research on consumer response to DTP is critical, as the literature on consumer demand in sport is well documented at the macro level (see Borland & McDonald, 2003). Experimental designs allow researchers to understand human responses (both attitudes and behaviors) to specific marketing stimuli, an important step in maximizing the benefits of a DTP strategy.

Besides potentially increasing attendance for low-demand games and ticket revenue for high-demand games, one of the primary benefits of DTP is its potential effect on ancillary revenue from parking, concessions, and merchandise sales. The expectation is that by increasing attendance at low-demand events by decreasing prices, teams should see a significant increase in these other sources of revenue. However, as fans attending games with less expensive tickets are apparently more price sensitive, they may also be more careful with the amount of money that they spend at an event. Conversely, as these fans had lower ticket costs, the possibility exists that they have more money to spend on ancillaries. Research is needed to understand per-capita spending among all different types of consumers.

Proponents of DTP claim that revenue traditionally captured by ticket resellers belongs to the sport organization that is putting on the event and that DTP helps organizations recapture some of that lost money. As such, DTP would seem to have a significant impact on secondary market sales. However, the utilization of price ceilings and price floors would seem to minimize these effects. In theory, it would appear that DTP as an RM strategy would capture some of the revenue being funneled to the secondary market through more optimal primary market pricing. However, price restrictions would still leave a gap between DTP prices and secondary market prices, which are truly demand based without restrictions. Research is needed to examine the pricing efficiency of the DTP strategy, as well as its relationship to secondary market prices and the number of secondary market transactions, particularly given that most organizations are likely to create some artificial price restrictions.

Finally, and perhaps most importantly, research must be conducted to understand fans' willingness to pay and the variables that influence such willingness. The results of such research may change from season to season and from one location to another depending on fan characteristics; however, only an in-depth understanding of these variables will mitigate errors in pricing. Further complicating this process is the challenge of putting a price on previously unquantifiable variables. For example, how much does a visiting team with a highly loyal fan base add to the price of a ticket? How does an organization quantify the popularity of individual players? Belson (2009) stated that prices are typically higher for tickets to the Giants when their star pitcher, Tim Lincecum, is scheduled to pitch. Putting a price on his popularity relative to his performance is a difficult proposition that requires extensive research. Further, situational factors may also be difficult to quantify such as breaking a record. For example, Belson (2009) mentioned the potential missed revenue from Barry Bonds's various homerun records and the collective popularity of the "Big 3" in Miami. Chris Hutson, co-chief executive for Turnstyles Ticketing, said: "There are so many variables in [dynamic pricing], and I'm not sure we've thought through them all. What happens, for example, if Lincecum doesn't pitch in a particular game after somebody's paid an accelerated price to see that game?" ("Ticketing's changeup," 2010). Understanding how these factors influence the

value that large and diverse fan bases put on tickets is undoubtedly challenging; however, this research is critical to the successful implementation of DTP.

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