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### ABSTRACT

Sport organizations use dynamic ticket pricing (DTP) strategies to generate extra revenues. DTP is based on demand and occasions. This exploratory study reported the results of the online survey data collected from 48 mid-west college/university athletic directors and marketing managers. The participants shared responses regarding their perceptions of the use of DTP by regional and private small-market collegiate athletic programs. Specifically, the study examined the perceived benefits and shortcomings of DTP. Past experiences implementing the strategy are also discussed. The results concluded that the majority of respondents were receptive to DTP although they questioned whether the strategy could deliver excessive financial benefits. They also noted that the practice of frequent ticket price change may be cumbersome and challenged.

Keywords: dynamic ticket pricing, college sports, ticket sales,

### INTRODUCTION

Dynamic pricing is a strategy to generate extra ticket revenues by changing prices based on different levels of demand, types of customer, and weather (Duran, Swann, and Yakici, 2012). Dynamic pricing is commonly used by street vendors, antique dealers, and other small, independently owned businesses. Rascher, McEvoy, Nagel, and Brown (2007) note that sport industries rely on the quality of the opponent, days of the week, month of the year and special events to determine fluctuating prices. The practice of dynamic pricing is evidently growing as more professional baseball and basketball teams have adopted this pricing strategies since 2011 (King, 2012; Scibetti, 2011). This sales strategy is adopted to boost profits from ticket sales (Drake, Duran, and Griff, 2008). According to a survey of 105 Paciolan athletics clients, approximately 26% of schools report they are moderately or more than likely to adopt dynamic pricing in 2013 (Butler, 2012). Although large conference programs might successfully leverage dynamic pricing, this study questions whether dynamic pricing is an appropriate strategy for regional, small-market collegiate athletic programs.

### Sport Team Dynamic Pricing

The key reasons sport organizations implement dynamic pricing strategy are volume and revenues generated by total ticket sales (Ferguson, Stewart, Jones, and Le Dressay, 2009). Major League Baseball (MLB) relies on dynamic pricing to take advantage of its large venues and many games

played during the season. MLB teams adjust ticket prices dynamically to derive great economic benefit. Rascher et al (2007) indicate dynamic pricing yields approximately \$590,000 additional annual ticket revenues for each Major League Baseball team. In 2012, Giants' total revenues increased 7-8% after employing dynamic pricing (Fisher, 2012a) and its World Series against the Detroit Tigers set records for online resale exchanges (Fisher, 2012b).

The potential rewards reaped from a dynamic pricing strategy are not limited to professional sports organizations. Recently, the University of Southern California partnered with StubHub to create an integrated ticket resale solution (Butler, 2012). Other major BCS schools have evaluated the potential for implementing this ticket resale practice with QC and Digonex. The benefits of this type of partnership include: (1) enabling fans to post and resell unused tickets online; and (2) enabling universities to deliver guaranteed, valid new tickets to buyers. Furthermore, sophisticated models have been developed for teams that identify optimal ticket bundle packages and that resell individual tickets at maximum ticket revenues (Drake et al., 2008; Duran and Seann, 2007).

### **Potential Benefits and Drawbacks of Dynamic Pricing**

Not all industries have benefited from dynamic pricing practices. Faruqui (2010) suggests the underlying premise of dynamic pricing is deemed unfair in some industries such as utilities and governmental services because federal and state laws strictly prohibit any discriminatory pricing strategy that gives competitors an unfair advantage. The risk of an inconsistent price change could create loss of customer goodwill when one customer discovers another paid less (Cachon and Feldman, 2010). Fans paying escalating fees for athletic event tickets could become upset if there are plenty of unsold seats available at lower prices. In general, the resale of tickets usually is observed at professional sports and major collegiate programs (Courty, 2003).

Shapiro and Drayer (2012) were pioneers who attempted to identify the influential factors for adopting dynamic pricing in Major League Baseball. Their results of regress analysis found 14 significant variables. The individual ticket prices from previous year and season ticket price along with six other performance variables had positive influence on the implementation of dynamic pricing. Ticket prices usually increase as the event draws near. Day games were charged about \$13.26 more than the night games. In Drayer and Shapiro's study on New York Mets' home games (2013), it further showed that the price changes were within a 10% range from the original price. As the games draw closer, the price for moderated price seats will rise, but price for premium and low level seats will drop slightly. Fans are more willing to pay more for a game that is likely to win. Their study helped us understand the price fluctuation of different games was actually at an acceptable and moderate level. If the demand of the certain games stayed high, dynamic pricing is good way to boost extra ticket revenues.

The San Francisco Giants is credited as the first professional sport franchise to utilize dynamic pricing strategy (Shapiro and Drayer, 2012). Today, dynamic pricing strategy was viewed as a logical revenue management practice in business industry. The practice could accommodate numerous unique business characteristics. Drayer, Shapiro and Lee (2012) further explained why it is ideal to implement dynamic pricing strategies in sport industries. Sport events are perishable products sold in advance with fluctuating demand. It also exhibit characteristics such as "high marginal to produce" (i.e., need to pay high salaries to ask players competing for additional games) and "low marginal cost to sell" (i.e., does not cost a whole lot to sell another empty seat in the arena). Drayer and Shapiro (2013) indicated purchase intentions of fans are negatively associated with the rising price. If a team frequently increases ticket price, consumers may generate a wrong impression of price unfairness. Commissioner of the National Basketball Association, David Stern, once commented that charging prices different for different games may raise question about the pricing fairness (Lefton and Lombardo, 2003). Nevertheless, the trend of implementing dynamic pricing strategy has paved the way for the major professional leagues in North America (Curtis, 2013). At

least seventeen of the Major League Baseball teams, nearly all of the National Basketball Association teams, and many other teams across the leagues implemented the practice after 2011 (King, 2012; Scibetti, 2011). Although a team that applies a dynamic pricing strategy may hurt fans' perception toward events' consistent price position, it is suggested that this problem can be corrected by offering a flexible substitute of resources or products (Ceryan, Shin, and Duenvas, 2013).

Sport managers often fear that increasing the ticket price will cause a decrease of attendance. For this reason, sport teams traditionally focus on maintaining a high level of attendance by underpricing the tickets (Courty, 2003). This concept may hinder the managers' decision of implementing dynamic pricing strategy for the purpose of maximizing the revenues. On the other hand, simply lowering the ticket price before the games to boost attendance can risk damaging fans' perception on ticket value as well (Kimes, 2010).

### **Purpose of the study**

Many intercollegiate athletic programs are evaluating whether professional leagues' strategies can be adapted to obtain sponsorships, enhance fan experience and sell tickets. Dynamic pricing practices have become popular in professional leagues as well as major universities' football programs, such as Purdue and Michigan (Austin, 2013; Purduesports.com, 2013). Grano (2013) estimated that the implementation of the dynamic pricing model could generate millions of dollars of ticket revenues for the athletic department of Michigan University. At this moment, there is a limited understanding of factors that affected the practice of dynamic pricing strategy in collegiate athletic settings. The researchers attempted to delve this question by testing whether dynamic pricing strategy is well accepted by the athletic administrators of mid-major and regional colleges and universities as a creative way to bring in extra ticket revenues.

There is a paucity of studies examining revenue producing programs at regional and small-market athletic programs. After investigating pricing strategies available to small and mid-size collegiate athletic programs, Chen, Henderson, Worrell, and Salazar (2012) found that minimal economic benefits were delivered by personal seat licensing programs. This study strived to contribute to the body of regional and private small-market collegiate athletic revenue-producing program research. The researchers examined the perspectives of athletic directors and marketing directors regarding the benefits and constraints of dynamic pricing strategies.

## **METHODOLOGY**

### **Participants**

Forty eight college/university athletic directors and marketing managers from (FCS) Football Championship Subdivision, National Collegiate Athletic Association Division-I institutions were recruited to participate in this study. The researchers initially contacted the athletic directors of 124 schools to participate for the study. The athletic directors could decide to let his/her deputy respond to the survey. This study yielded a return rate of 38.7%. Among the 48 respondents, 29 were Athletic Directors (60.4%), and the other participants were either Associate Athletic Director of External Relations or Manager of Marketing. In terms of their work experience, 39.6% (n = 19) of them had worked in their position for more than 15 years. About 27.1% had less than five years of work experience. The remaining one-third had worked between six to 15 years.

### **Instrumentation and Procedure**

All respondents participated in an online survey posted in Survey Monkey. The survey identified participants' opinions and attitudes regarding the use of dynamic pricing. The survey contained three sections : (1) three demographic questions concerning their position, work experience, and conference affiliation; (2) a section of five-point Likert Scale items (n = 10) rating the statements

about dynamic pricing strategy; and (3) two specific open-ended questions addressing the overall impressions about the benefits and shortcomings of dynamic pricing and past experience for implementing the practice.

The online survey was carefully developed to ensure content validity and reliability. The ten Likert Scale statements concerning advantages and disadvantages of dynamic pricing were drawn from past literatures (Butler, 2012; Curtis, 2013; Fisher, 2010a; Shapiro and Drayer, 2012) and conversations with three athletic directors and two marketing managers. A panel consisting of an Athletic Director, a Director of Marketing, and two marketing faculty members from the researchers' institution reviewed the survey questions. In addition, 17 season ticket holders completed the online questionnaire to pre-test the readability, reliability, and content validity of the 10-item instrument. The questionnaire was revised and the correlation value (Pearson  $r$ ) between the first draft and the final version of the questionnaire exceed .800. The invitation and link for the online survey were sent to the participants in early November, 2013. The data collection ended in mid- March of 2014. When the participants read the invitation and decided to take the survey, they provided consent and showed understanding about the rights for their participation.

### **Data Analysis**

Participants' responses were exported from the Survey Monkey site to a SPSS file and analyzed with an IBM SPSS statistical analysis software program. For the open-ended responses, the researchers read the qualitative responses, identified key concepts and terms, and resolved differences with consensus to summarize the answers. The ratings of statements (in the Likert Scale section) were analyzed using mean and standard deviation descriptive. Additional factor analysis, correlation analysis, and other analysis of variances were performed to provide significant meanings to the findings.

### **RESULTS**

Table 1 showed the results of factor analysis and responses of rating concerning advantages and disadvantages of dynamic pricing. The Cronbach Alpha value (.678) of all rated statement was about at the minimum acceptable level (.700). The factor analysis categorized those ten statements into four factors, with a cumulative factor loading of 72.8%. The researchers gave the following four terms to describe each of the factors that has specific statements (items) associated with each term. (1) Accommodation and packages (25.7%): These items showed accommodated services and packages that may go along with the implementation of dynamic pricing. (2) The optimistic factor (22.1%): These items are considered to be positive benefits of dynamic practicing, including improving program's economy and ticket revenues. (3) Hesitation and caution: They are related to concerns, such as potentially upsetting the fans, and worry about the program size, while implementing the dynamic pricing (13.3%). (4) Willingness to adjust the ticket price (11.7%). The two highest rated items are "consideration for bundling certain packages" ( $M = 3.8750$ , 79.2% in agreement) and offering free drink with purchases ( $M = 3.7083$ , 62.5% in agreement). The factor score of "Hesitation and concerns" ( $M = 3.25$ ) was slightly higher than "The optimistic factor" ( $M = 3.04$ ). This finding showed that respondents probably did not fully believe in the potential benefits of dynamic pricing with an overzealous passion. They did not highly support the idea of recommending DTP ( $M = 2.94$ , 35.5% in agreement) and did not think that DTP would help boost attendance ( $M = 2.8333$ , 14.6% in agreement). In fact, they were somewhat skeptical about the implementation of dynamic pricing might upset fans ( $M = 3.2708$ , 48% in agreement). However, they did agree that dynamic pricing is a fair practice and there is certainly a need to change the price of single games in the near future (both means exceed 3.00 as well).

Table 1.

Results of factor analysis and participants' rating on pros and cons concerning dynamic pricing  
( $n = 48$ ; 1: strongly disagree, 5: strongly agree)

| Statement and Factor   | Mean   | % in Agreement |
|--|--------|----------------|
| Accommodation and Packages: 4 items  | 3.43   |                |
| I believe dynamic pricing is a fair marketing strategy.  | 3.2917 | 50.1%          |
| I believe the fan attendance will increase after the implementation of dynamic pricing.  | 2.8333 | 14.6%          |
| I believe including free drink with a purchase of a ticket will impact the fans' game- experience positively.                                | 3.7083 | 62.5%          |
| I would consider bundling certain mini-series packages for the next season to increase attendance.   | 3.8750 | 79.2%          |
| The optimistic factor: 3 items   | 3.04   |                |
| The economic challenge that we face will force me to adopt the dynamic pricing strategy for the athletic events.                             | 2.8333 | 27.1%          |
| I believe the implementation of dynamic pricing strategy will generate a greater profit for the program.                                     | 3.2542 | 43.7%          |
| I would recommend dynamic pricing strategy to a small market collegiate athletic program.  | 2.9375 | 35.5%          |
| Hesitation and caution: 2 items  | 3.25   |                |
| The implementation of dynamic pricing strategy will potentially upset the current consumers.   | 3.2708 | 48.0%          |
| The size of a collegiate athletic program's fan base should be a main factor in deciding the implementation of the dynamic pricing strategy. | 3.2292 | 56.2%          |
| Willingness to adjust the ticket price: 1 items  | 2.90   |                |
| I plan to change the prices on the single-game ticket for the next season.   | 2.8958 | 33.4%          |

Additional findings revealed that athletic directors (ADs) had a higher rating in "Hesitation and caution" than those of who are not ADs (marketing directors and assistant ADs) (3.69 vs. 3.27,  $p < .01$ ). Conversely, marketing directors had a higher rating in "Accommodations and packages" than ADs did. There was a fair positive correlation between the ratings of "optimistic factor" and "accommodation and packages" (Pearson  $r = .499$ ,  $p < .01$ )

Table 2 presents qualitative responses of participants. This section focuses on overall impressions about dynamic pricing, the benefits and disadvantages of this strategy and prior experiences implementing dynamic pricing. Participants' general perception is that DTP is a strategy based upon demand. Programs should take pricing advantage basing on high demands (while playing the high profile teams). The success may vary basing on the venue and size of the organization. However, the actual benefits for the small schools may be small. Some of the responses in the rated statements had clearly affirmed these descriptions. For examples, 56.2% of participants believed that the program's fan base size should be a main factor in deciding the implementation of DTP. Less than 44% of people believed that the implementation of dynamic pricing strategy will generate a greater profit for the program. The participants provided more details on the shortcomings (24 comments) of dynamic pricing than the advantages of the practice (13 comments). Evidently, they had more concerns and issues regarding what DTP may bring to their athletic program. Two most identified qualitative responses of DTP's disadvantage were "the need of a large fan base" and "no real big financial benefits." These answers once again had reflected the accuracy of the aforementioned rated statements.

Table 2  
 Participants' responses concerning benefits and disadvantages of DTP (Total: 48 answers)

| Category and Description | Frequency Count (%) |
|--------------------------|---------------------|
|--------------------------|---------------------|

|  |             |
|--|-------------|
| Advantages   | 13 (27.08%) |
| (1) Empowering patrons to decide what an acceptable price range is       | 5 (10.42%)  |
| (2) Increasing opportunity for sales                                     | 4 (8.33%)   |
| (3) it may help increase revenues  | 2 (4.17%)   |
| (4) a valid strategy   | 1 (2.08%)   |
| (5) it may work well for marquee match ups                               | 1 (2.08%)   |
| <i>Disadvantages</i>   | 24 (50.00%) |
| (1) Need a strong and large fan base to support it                       | 9 (18.75%)  |
| (2) no real big financial benefits                                       | 8 (16.67%)  |
| (3) more stress to the ticket office to justify the high price change    | 2 (4.17%)   |
| (4) educating consumers about the program can be a poor use of resources | 2 (4.17%)   |
| (5) not worth the efforts for shorter schedules                          | 1 (2.08%)   |
| (6) does work for some schools   | 1 (2.08%)   |
| (7) it devalues season tickets   | 1 (2.08%)   |
| Not sure   | 3 (6.25%)   |
| No comment   | 8 (16.67%)  |

According to the open-ended responses on the institution's experience in implementing dynamic pricing, 35 schools had not done so, and 13 others had some types of variable pricing programs going (See Table 3). The main reasons for not trying to utilize dynamic pricing include: (a) using the preferred seating strategy instead of dynamic pricing (n = 4); (b) not enough demand (n = 3); (c) no real financial benefits (n = 2); and (d) staff limitation (n =2).

Table 3  
 Past success in implementation of dynamic pricing (Total: 48 responses)

| Category and Description  | Frequency Count (%)                   |
|---|---------------------------------------|
| From the adopters   | 13 (27.08%)                           |
| (1) Selective use on a few events: (i.e., homecoming; non-conference games, \$2 to \$5 increase per game or 50% discount, certain game for free, or certain games without discount) | 8 (16.67%)                            |
| (2) Bundling with packages  | 4 (8.33%)                             |
| (3) Having technology to help ticket selling  | 1                                     |
| Don't even attempt it   | 35 (72.92%): 28 with reasons (58.33%) |
| (1) Not enough demand   | 8 (16.67%)                            |
| (2) No real financial benefits  | 6 (12.50%)                            |
| (3) Using the preferred seating strategy instead of dynamic pricing   | 4 (8.33%)                             |
| (4) Staff limitation  | 4 (8.33%)                             |
| (5) Willing to try, still negotiating with top administrators   | 2 (2.08%)                             |
| (6) Don't want the headache   | 1 (2.08%)                             |
| (7) Give away a lot of freebies already,  | 1 (2.08%)                             |
| (8) Satisfied with current situation,   | 1 (2.08%)                             |
| (9) Empty seats don't look good   | 1 (2.08%)                             |
| *Not given any reason   | 7 (14.58%)                            |

## **DISCUSSION AND CONCLUSIONS**

The participants' concerns in the opened questions on the shortcoming and disadvantages of dynamic pricing are consistent with the remarks made in extant literature (Cachon and Feldman, 2010; Chen, et al., 2012; Courty, 2003; Lefton and Lombado, 2003). They provided more than comments on disadvantages toward DTP than the perceived benefits (See Table 2). In the open-ended responses, participants questioned whether their institutions have the acceptable size of fan bases and demand to implement dynamic pricing ( $n = 9$ , 18.8% of total responses). They also worry that fans can become upset when they see empty seats at games caused by the low demand and devaluation of tickets due to the inconsistent prices. Some participants ( $n = 6$ , 12.5%) also wonder if dynamic pricing can really generate impactful financial benefits. This concept is reiterated a moderate rating of the item on the implementation of dynamic pricing strategy will generate a greater profit for the program ( $M = 3.25$ , 43% in agreement). Some schools are quite content with their current ticketing practice and using different preferred seating packages instead of the dynamic pricing practice. For these aforementioned reasons, most of the surveyed institutions (73%) avoid or do not implement this pricing practice at all.

Apparently, the willingness to recommend dynamic pricing practice is at a low to moderate level ( $M = 2.94$ , Item 3 of "the optimistic factor"). In this study, 13 participants indicated that their institutions had attempted or thought of using dynamic pricing strategy. Interestingly, with the heavy burden of finding all possible means to increase the athletic programs' revenues, the athletic directors (ADs) clearly had a higher level of concern (greater rating in "Hesitation and caution") toward dynamic pricing than their colleagues did. ADs also seemed to be more cautious about spending more money to provide additional accommodations to the fans. In their opinion, if dynamic pricing is implemented, it has to be both frugal (in cost) and effective (in revenue generation). Athletic directors are critical and influential individuals who may dictate whether to introduce DTP strategy or not. For this reason, although introduction of dynamic pricing at mid-major athletics may seem to be an inevitable trend as prophesized (Butler 2012), the researchers believed the ADs and directors of marketing hold the key to the adoption of this method. It was shown that early adopters had increased game-day ticket prices for key events or special games such as homecoming football games, conference rival games, non-conference games, and games that clearly have low demand. The change of ticket price may range from \$2 to \$5 as suggested in the open-ended comments. According to Ceryan et al. (2012), a sport team may offer a flexible substitute resources or products to offset the negative feelings experienced by the fans through the fluctuation of ticket prices. It is not surprising to see the positive correlation between the ratings of "optimistic factor" and accommodation and packages." Participants probably have already thought to offer drink, food, other accommodations, and bundling packages as means to enhance fans' satisfaction and experience, if the dynamic pricing practice is carried out. This practice certainly helps the fans feel that they are getting a fair deal as ticket prices increase slightly.

An urgent need for adjusting single game prices was indicated. Although some successful practices in dynamic pricing were evident in this study, there were 73% of institutions that had not attempted to use this pricing strategy thus far. It may be fair to conclude that participants' receptiveness toward dynamic pricing practice remains inconclusive.

### **Limitations and recommendations**

Technically speaking, if the researchers would survey the game attendees with the same questions, they may obtain a larger sample of respondents and gain direct insight on fans' perception about dynamic pricing. However, the researchers specifically selected athletic directors or marketing managers because they tend to be the driving force and deciding figures who may affect the actual adoption of dynamic pricing practice of an athletic program. Without our best attempt, we only recruited 48 athletic administrators from mid-major or regional and private universities to



participate in this study. This study yielded mix results regarding the preference, impact and benefits of this pricing strategy. Future research should gather a larger sample drawn from a more geographically diverse area and include administrators from various sizes of institutions to yield more generalizable results. Furthermore, future research may target single game attendees to examine their attitude towards dynamic pricing. Since the survey instrument of this study has laid a good foundation for testing the practicality of DPT with acceptable reliability and validity, the researchers believe this simple tool can help athletic administrators to identify a respondent's true interest in DPT.

## **IMPRLICATIONS FOR MARKETING PRACTITIONERS**

In order to combat the fear of low demand and negative fan reaction about fluctuating prices, administrators who wish to adopt the dynamic pricing scheme may consider the following suggestions:

- (1) If the price of tickets increase, please confirm the game attendees feel that the price paid was worth the game experience. It may be wise to offer free food item (i.e., hot dogs or drink) to accommodate the purchased ticket.
- (2) Create more game-time promotions and different packages for short series. Find ways to boost concession when sale discounts are offered. Fort (2004) supports this logical practice. Effective promotions can increase concession sales when ticket prices are inelastic (Krautmann and Berri 2007).
- (3) Schedule more marquee match ups. The sense of upgrading level of competitions increases demand for the games. Since the demand level will increase, the price can be more elastic.
- (4) It is important to educate the fans about your plan. Therefore, season-ticket holders and single game attendees will not have any confusion or complain about the price changes.

The researchers' institution has applied the DTP strategy for the football and men's basketball programs during last two seasons. To further illustrate the practicality of the aforementioned suggestions, the institution's newly introduced plans could serve as examples. Two specific football home games' prices were increased by \$3 dollars. A slogan, "Ten thousand strong!" was created to promote the match against the archrival. Two additional dollars were added to the single-game ticket price at three conference home games for basketball. All of those three games were played against the best rivals within the conference and had the top-3 attendances as well. Based on the estimation of the institution's ticketing staff, the university will gain at least \$3,000-5,000 ticket revenues in cash for those games with adjusted prices. During those games, additional souvenirs and prizes were drawn and given to fans and students through onsite texting contests. A new marketing campaign, "Eagle Empire," was also adopted to encourage community fans and students to become the fan club members of the institution's athletic program. Members of this club may be given the options to purchase the tickets at a stable constant rate without being impacted by the effect of dynamic pricing. Finally, the institution implemented its firework show after the season-opening football game in 2014. This activity is considered as a new complement for the fans. So far, the administrators have received positive feedback from fans regarding these new initiatives. The actual financial benefits due to the price change will be further examined once the attendance data are compared in a three-year timeframe.

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