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Dynamic pricing and customers' perceptions of price fairness in the airline industry

Abstract

The application of the Internet and other digital technologies has had a considerable influence on all elements of the marketing mix, including pricing. This is especially important in the context of service industries, such as hotels and airline companies, where digital technologies dramatically altered pricing policies. This process is dominated by dynamic pricing – a pricing discrimination technique which leverages real-time pricing and individualizes prices. Customers are aware that companies are charging different prices for the same products or services, and the issue of price fairness has also emerged. Unfavorable customers' perceptions of dynamically determined prices could lead to different consequences for the company, such as negative word-of-mouth and social media communication, and a decrease in customer loyalty. The aim of the article is to present the current scientific evidence on dynamic pricing and customers' perceptions of fairness of dynamically determined prices, with the focus on the airline industry. The importance of researching customers' perceptions of dynamic pricing is discussed and future research proposals are provided.

Key words: dynamic pricing; yield management; fairness, customers' perceptions; airline industry

Introduction

The past fifteen years have been characterized by strong growth and acceptance of the Internet. Consequently, a specific field of Internet marketing has emerged as a result of dramatic changes in the marketing environment (Wu, 2002). Digital technologies have left an imprint on the marketing mix itself, which had to be adapted to changes in the way marketing activities are conducted (Möller, 2006). Although McCarthy's 4Ps remain a dominant marketing management framework (Ranchhod, 2004; Möller, 2006), undeniably, the original marketing mix has undergone a substantial change.

The elements of the marketing mix in service-oriented companies (such as airline companies) have been far more influenced by growth and adoption of the Internet than others (Škare, 2011). Airline companies were the first to alter price as an element of the marketing mix in a digital environment. Although often neglected in comparison with other elements of the marketing mix, pricing has leveraged

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the development of information technology and database marketing, in turn enabling the emergence of so-called dynamic pricing (Jallat & Ancarani, 2008; Levin, McGill & Nediak, 2010). This practice was pioneered by airlines, but has spread in recent years to other industries, such as hotels, car rentals, and electricity distributors (Martinez, Gomez Borja, Mondejar Jimenez & Trinquocoste, 2011).

Dynamic pricing is a form of price discrimination, where firms charge different prices to different customers for the same product or service, based on various variables. Although legal, dynamic pricing in the airline industry is often perceived as unfair (Maxwell, 2002). There is controversy over whether dynamic pricing in the airline industry has become acceptable or not. As a consequence of dynamic pricing, companies can experience negative emotional and behavioral responses from customers, followed by a decrease in (or even a loss of) customer loyalty to the company and its brands (Dai, 2010; Kung, Monroe & Cox, 2002). Considering that dynamic pricing is becoming acceptable in a growing number of industries, it is important to explore customers' perceptions of this form of price discrimination.

The purpose of this paper is to examine current scientific evidence on dynamic pricing, and customers' perceptions of fairness of dynamic pricing, by focusing on the airline industry. Based on the obtained insights, further research opportunities are suggested in order to better understand customers' perceptions of dynamic pricing in the airline industry.

The article is structured as follows: Chapter Two deals with the specifics of price as an element of the marketing mix in a digital environment while emphasizing the practice of dynamic pricing. Chapter Three examines the application of dynamic pricing in the airline industry. In the fourth chapter, the findings on the concepts of fair price and customers' perception of price fairness are introduced, with a special emphasis on the factors affecting customers' perceptions of price fairness. Following the insight presented in previous chapters, Chapter Five discusses the importance of price fairness perception of dynamic pricing in the airline industry. Finally, in the last chapter we present our conclusions and recommendations for future research.

Price as an element of the marketing mix in a digital environment

The Internet and other digital technologies have affected all elements of the marketing mix, including price, which is "one of the four fundamental elements of the marketing mix, being the only one that is a source of revenue for the company" (Prebežac & Piri Rajh, 2004, p. 203). It can be defined as a quantity of money or products and services received by the seller in exchange for a quantity of products and services received by the buyer (Monroe, 2003).

Nezamabad (2011) states that price has become one of the critical success factors for companies operating in a digital environment, since customers expect to pay lower prices online. This may be due to the fact that the Internet has contributed to a reduction of information asymmetry, allowing customers to compare prices in real time, leverage price transparency (Dominici, 2009), and gain more negotiation power (Nezamabad, 2011). Moreover, the implementation of Artificial Intelligent Agents (e.g. shopbots)¹ has enabled automatic and tailored comparisons of prices and product features, also leading to a reduction in the cost for customers in terms of time and effort (Dominici, 2009). Some

authors claim that this is not the case; e.g. Kung, Monroe and Cox (2002) argue that such technologies do not allow customers to find the lower prices. In order to make an accurate price comparison online, a customer must know not only the price of the product, but also shipping fees, sales tax and other transaction-related information. Acquiring and analyzing all this information requires time and outweighs the perceived reduction in search costs while purchasing online. Suri, Long and Monroe (2001) believe that this will lead or may already have led to a situation in which customers reduce their cost of information search by creating mental shortcuts that will facilitate their purchasing decision-making. Consequently, the majority of customers are not as price sensitive as expected (Kung *et al.*, 2002). Kim and Xu (2007) state that it is crucial for companies operating in a digital environment to identify how they can charge prices high enough to maintain their business profitability and sustainability. They have identified four factors that reduce customers' price sensitivity and allow companies to charge premium prices online: the company's reputation, the cost of switching to another company, familiarity with the company and customer satisfaction. Chaffey, Ellis-Chadwick, Johnston and Mayer (2006) also conclude that online customers are not always price sensitive, i.e. they do not always search for the lowest price. In fact, when deciding on which company to buy from online, customers take into account the perceived quality of service, familiarity with and trust in the company they have gained over the years. Furthermore, even though it seems that customers are looking for ways to minimize price, when deciding which company to buy from, most of them do not invest enough effort in minimizing the price of a product or service (Maxwell, 2008).

Although there are conflicting opinions about whether the Internet has led to lower prices (Smith & Brynjolfsson, 2001; Smith 1999 in Yan, 2008) or not (Baker, Marn & Zawada, 2001; Kung *et al.*, 2002), one thing is certain: in the era of interactivity, prices have become personalized, tailored to the needs of customers, while respecting a company's need for profitability (Vlašić, Mandelli & Mumel, 2007). Furthermore, new and innovative pricing methods have emerged.

Pricing methods in a digital environment

Dynamic pricing, auctions and aggregated buying are three pricing methods that have been driven by the acceptance of the Internet and other digital technologies. Although the concept of dynamic pricing has existed for some time, it has recently reemerged as a particularly viable strategy thanks to advances in the technology and increasing prevalence of e-retailing (Haws & Bearden, 2006). Dynamic pricing has become a commonly applied price discrimination strategy used by sellers in order to maximize profits by charging different prices for very similar or essentially the same products or services, according to the amount of money an individual customer is willing to pay (Dai, 2010), the value customers attribute to a product or service (Reinartz, 2002), and time of purchase, which is in correlation with the level of demand for a given product at a given point in time (Jayaraman & Baker, 2003; Sibdari, 2005). Business evidence proves that dynamic pricing is a very successful pricing method. American Airlines has earned an additional 500 million USD in one year, which can be attributed to the use of dynamic pricing (McAfee & Velde, 2006). Lufthansa claims that dynamic pricing has led to an increase in its revenue by more than 700 million EUR per year (Klophaus, 2005) and Delta Airlines has generated an additional 300 million USD by practicing dynamic pricing (Netessine & Shumsky, 2002).

Another pricing method commonly used online, besides dynamic pricing, is auctioning. The Internet provides an infrastructure for conducting electronic auctions at a low cost, with many additional services and by involving a large number of sellers and buyers (Peček, 2008). Auctions are often used for selling products or services to buyers that value them differently, because in such cases the buyer is usually a person that values the offer most, enabling greater revenue for the seller than a listed price would (Daripa & Kapur, 2001). Similarly, Lucking-Reiley (2000) points out that the sellers of products or services which are in limited supply and of unknown demand benefit the most from using auctions, compared to other pricing methods. The examples of online auctions include eBay, Overstock, WebStore, and OnlineAuction (Technopedia, 2013).

Chaffey *et al.* (2006) consider aggregated buying as another pricing method in the digital environment, although they claim that this method has not been very successful. However, until recently, aggregated buying had significant success in the digital environment ((Demangeot & Broderick, 2010; Kauffman & Wang, 2001, in Ku, 2012). Internet group-buying works in a way where customers that join group-buying communities consolidate similar demand and purchase collectively in order to fulfill a seller's goal of reducing its selling costs (Ku, 2012). Aggregated buying portals use data on demand for a particular product or service to reduce the price of such a product or service (Li, Sycara & Scheller-Wolf, 2010). According to Ku (2012), previous research has shown that price and characteristics of a product are the most important factors influencing customers to join an aggregated buying group. When joining an aggregated buying group, customers should take account of the following: potential benefits, the size of a buying group, its potential impact, and members' characteristics (Nollet & Beaulieu, 2005).

In the context of pricing methods in the digital environment, dynamic pricing is one of the most intriguing methods, since it allows companies to change prices of their products and services in real time, and thus better adapt to today's rapidly changing market conditions (Dai, 2010).

The specifics of dynamic pricing

The application of dynamic pricing is primarily a result of the development and acceptance of digital technologies, which have enabled companies to determine customers' estimated willingness to pay for a product or service (Maxwell, 2008; Hinz, Hann & Spann, 2011). The practice was popularized by airline companies (Maxwell, 2008) and has been accepted by hoteliers, car rental and rail companies, as well as by those organizing and operating cruises (Selmi, 2010). In fact, dynamic pricing emerges in such industries where increasing the inventory level is impossible or at least very costly, and where companies have to sell their products or services by a certain deadline (Sibdari, 2005).

One of the first and most frequently cited definitions of dynamic pricing was given by the American Airlines company, which described dynamic pricing as a tool designed to maximize revenues by "selling the right product, to the right client, for the right price" (Deksnyte & Lydeka, 2012, p. 214). Dynamic pricing is a strategy in which prices for the same product vary over time and in different circumstances (Haws & Bearden, 2006; Levin *et al.*, 2010).

Yeoman (1999 in Deksnyte & Lydeka, 2012, p. 214.) defines dynamic pricing as "the allocation of resources and inventory to a suitable client for a suitable price in order to maximize revenue and profitability." McAfee and Velde (2006) and Sibdari (2005) consider maximization of revenues as a

purpose of dynamic pricing, which is done by discriminating customers who arrive at different times. The focus of dynamic pricing practices is to earn money immediately instead of investing in long-term relationships with customers (Da Silva, 2012). In other words, dynamic pricing is generally focused on a transaction level, i.e. companies are trying to optimize revenues of each transaction through time, by either working on the capacities or customers' willingness to pay (Jallat & Ancarani, 2008).

Fleischmann, Hall and Pyke (2004) argue that dynamic pricing is an adjustment of the price of a perishable product by taking into account the demand for it in order to maximize companies' revenues or profits. Demand is not the only variable taken into account when conducting dynamic pricing; in addition, other important variables for dynamic pricing are inventories and customers' willingness to pay a higher price (Sibdari, 2005), order amount, and even weather forecast (Reinartz, 2002).

Within the context of economics research, dynamic pricing is often related to price discrimination, where dynamic pricing is understood as an attempt of a seller to force a customer to pay the highest price that he is prepared to pay (Deksnyte & Lydeka, 2012). This is in accordance with the definition provided by Taylor (2002, in Jallat & Ancarani, 2008), who stated that dynamic pricing is the new version of an old practice – price discrimination. Price discrimination occurs in cases where a company sells a product at two or more different prices, which do not reflect the proportional difference in costs (Kotler & Keller, 2012). This type of price discrimination, also called first-degree price discrimination, minimizes deadweight loss and allows the retailer to capture the entire customer surplus (Hinz *et al.*, 2011) by charging a different price to each customer, depending on the intensity of his/her demand (Kotler & Keller, 2012).

According to the above, dynamic pricing can be defined as a complex and sophisticated strategy of price discrimination used by companies in order to maximize their revenues by charging each customer a personalized price for an identical product. This personalized price is determined by various variables, of which the most important are: level of demand, time of purchase, and customer's willingness to pay higher prices. Dynamic pricing is commonly used in businesses that are faced with a limited period of sales of short-term and perishable products or services, and at such times when it is impossible or very difficult to increase the capacities of the company in the short term.

Although the terms "dynamic pricing" and "yield management" are often used interchangeably (McAfee & Velde, 2006; Cross, 1997 in Drayer, Shapiro & Lee, 2012), most authors agree that it is necessary to make a distinction between these two concepts (Reinartz, 2002; Sibdari, 2005; Cho, Fan & Zhou, 2008; Jallat & Ancarani, 2008; Deksnyte & Lydeka, 2012).

Cary (2004, in Deksnyte & Lydeka, 2012) argues that dynamic pricing focuses on competitors' actions and changes in supply and demand, whereas yield management focuses only on leveraging a company's current capacities. It can be concluded that yield management is used when a company wants to sell products or services that would otherwise remain unsold; e.g. a plane would take off whether all the seats were filled or a half remained vacant. Therefore, the aim is to fill as much capacity as possible in order to earn at least the revenue that has been forecast. With dynamic pricing, the focus is on selling as many products or services as possible, earning the maximum profit at the same time by charging the highest possible price that an individual customer is willing to pay, i.e. charging the right price to the right customer.

Studies have shown numerous benefits of dynamic pricing. It can allow a company to delay its pricing decisions until market conditions are known and to adjust prices accordingly (Cachon & Feldman, 2010). By doing that, the company's revenues usually increase 3-7 per cent, resulting in a 50-100 per cent increase in profits in certain cases (Wang & Bowie, 2009). Obermiller, Arnesen and Cohen (2012) argue that the increase in profitability is a result of customer discrimination. A company sets its price at the highest acceptable point for each person, ignoring for the moment customers with such low demand that it would cause the price to be below a profitable level; no sale is lost because the price is too high, yet no profit is lost by selling at the price lower than the price a customer is willing to pay.

Dynamic pricing has its disadvantages as well, among which customers' reactions to the practice of dynamic pricing are considered to be the most important. Dai (2010) states that dynamic pricing may lead to negative emotional and behavioral reactions among customers, as well as to a reduction or loss of customer loyalty to the company and its brands (Kung *et al.*, 2002). Customers could see companies' dynamic pricing practices as being focused purely on increasing revenues while neglecting building relationships with their customers (Wang & Bowie, 2009). From a customer's point of view, dynamic, non-linear pricing increases complexity because a customer is not able to understand when, how and why a price of a product or service changes. Since this pricing system is not transparent, it increases the stress to customers and their perceived risk.

The application of dynamic pricing in the airline industry

Before the airline industry was deregulated in 1978, government officials determined airline fares on the basis of flight length and required all airlines to charge the same price according to the length of the flight (Monroe, 2003). Deregulation of the airline industry in the United States began in 1978 (Friesen, 2005; Klophaus, 2005; McAfee & Velde, 2006; Jallat & Ancarani, 2008; Deksnyte & Lydeka, 2012), when President Carter signed the Airline Deregulation Act (Morrison, 1997). Deregulation has enabled a much more comprehensive implementation of various business activities by airline companies, and managing pricing in particular. McAfee and Velde (2006) state that the initial development of dynamically adjusted pricing is often credited to America Airlines' CEO at that time, Robert Crandall.

There are several characteristics of industries that make the application of yield management most effective: the product is perishable, which means that it cannot be inventoried; future demand is uncertain; the market can be segmented (i.e. customers are willing to pay different prices for the same product); fixed costs are high, while marginal costs are low (Klophaus, 2005). Schwieterman (1985) stresses one more important prerequisite of price discrimination in the airline industry – an airline company can prevent buyers from reselling tickets.

By using super computers, airlines are introducing fare changes on a daily basis to reflect changes in demand, seat capacity availability between two destinations, and airline traffic conditions, with the objective to sell tickets at the maximum price in order to increase revenues (Monroe, 2003). This is possible because the airline companies are using a variety of techniques to distinguish customers according to their willingness to pay, such as: advance purchase requirements, round-trip travel requirements, minimum stay requirements, non-stop/one-stop travel provisions, day-of-the-week/time-of-day restrictions, fare expiration dates, match-the-competition provisions, and specialty fares (Schwieterman,

1985). In brief, advance purchase requirements are the most commonly used technique for determining which price each customer is willing to pay. Minimum stay requirements segment the market according to the trip purpose. Non-stop/one-stop travel provisions are used because the industry has found that passengers travelling for pleasure or vacation are more than twice as willing to make a stop on the route in exchange for a small saving than are business travelers. The day-of-the-week /time-of day restriction is used to help airline companies fill up their capacities in those periods when demand is low. Fare expiration dates are used for offering a particular fare to price-conscious customers. Finally, specialty fares are discounts offered to families, children, elderly people, and military personnel.

The purpose of yield management systems is to help companies determine how much of their capacities they can afford to sell at discount prices, without undermining their ability to serve those customers willing to pay a full price. This is a challenge for companies since it is usually not possible to sell first to all those customers willing to pay a full price, and subsequently to sell the remaining capacities to customers who require a discount (Nagle & Holden, 2002). In fact, the usual purchase pattern in the airline industry is exactly the opposite. Business travelers usually do not book their flights in advance, whereas those who are travelling for pleasure usually book their vacation at discount fares way in advance. Therefore, airline companies are using past experiences to create a so-called historical booking path for seats that are offered 30 days before departure. If sales to business travelers are above a historical average 30 days before the flight, then the airline company allocates fewer seats for discount sales. If sales to business travelers are below a projected booking path, then the airline allocates more seats for discount sales. By constantly adjusting the capacity and price, companies are able to maximize profits.

In addition to dynamic pricing, airline companies also use the overbooking technique. In the airline industry, 15% of all travelers do not check in for their flights (Selmi, 2010). Therefore, airline companies have adopted the overbooking technique in order to protect themselves against the loss of income resulting from unfilled seats. Klophaus (2005) cited the example of Lufthansa, which experienced a no-show by more than 5.5 million passengers for their flights in 2004. This corresponds to 14 000 Boeing 747 airplanes filled to capacity. The overbooking technique allowed Lufthansa to carry more than 640 000 additional passengers and brought in a revenue increase of 126 million EUR in 2004.

Fair price concept and perceived price fairness

Among significant consequences of an application of dynamic pricing is a potential perception of price unfairness, which occurs when an outcome for customers, i.e. the price of a product, is not in line with the price that customer has expected. This may result in negative reactions against the company, such as, for example, boycott of a company and its products and services. Bolton, Warlop and Alba (2003) argue that fairness might be defined as a judgment of whether an outcome and/or process to reach an outcome are reasonable, acceptable or just. Dark and Dahl (2003) point to the fact that fairness is often used to describe social interaction, and is observed by psychologists as a fundamental concept of social exchange. It should be emphasized that fairness is a subjective rather than objective judgment because it is what a person perceives, regardless of whether that perception is true or not (Xia, Monroe & Cox, 2004). Furthermore, the latter authors claim that fairness and unfairness may be conceptually different constructs, since it is possible to be clear about one without having clarity about the other.

Notions of unfairness are typically clearer, sharper and more concrete than notions of fairness. People know what is unfair when they see or experience it; however, it is difficult to articulate what is fair.

Price fairness is defined as "customer's evaluation and understanding of whether the difference between seller's and other party's price is reasonable, acceptable or justifiable" (Deksnyte & Lydeka, 2012). Maxwell (2008) states that "fair" has two separate meanings: "acceptable" and "just". "Acceptable" implies that a fair price is satisfactory while "just" is a judgment that the price has been justified and that it is free of favoritism or bias. The difference between an "acceptable" fair price and "just" fair price is the difference between what is called personal and social fairness. Maxwell (2008) concludes that a personally fair price is one that is low enough to meet one's expectations; on the other hand, a socially fair price is one that is the same for everyone, does not give the seller unreasonably high profits, and does not take advantage of customers' demand.

Perceived price fairness can be defined as a customer's judgment and related emotions of whether the difference in a price determined by a seller and its competitors (or lack thereof) is reasonable, acceptable and justified (Xia *et al.*, 2004). The authors argue that perceived price fairness is subjective and usually studied from a buyer's perspective. Therefore, the perception tends to be biased by the buyer's self-interest; that is the buyer tries to maximize his or her own outcome (i.e. tries to pay a lower price) compared to that of the other party.

The distinction between perceived price fairness and fairness of the pricing process itself should be clearly defined. Maxwell (2002) argues that a fair price and a fair pricing process are two different concepts with a positive link between them. In her research, Maxwell has concluded that perceived fairness is not only influenced by the fact a customer has to pay a higher price than he expected or that had been initially promised by the company, but also by the procedures under which a price was determined. Maxwell (2008) argues that the fairness of the pricing process becomes a matter of consideration when the buyer blames the seller for an unfair price. When a price outcome is perceived to be unfair, a customer wants to know how the price was determined. Maxwell (2008) captures the essence of the latter with the following example: students accept a higher tuition charge to them compared to other students, if they believe that the university awards financial aid based strictly on students' income and not on personal connections. That is a fair process, so the price itself is considered a fair one. Usually, if the price is considered to be fair, there is no motivation to perceive the pricing process to be unfair; but if the process is found to be unfair, the initial judgment of a fair price will change.

Factors affecting a customers' perception of price (un)fairness

Empirical studies provide evidence that customers' price fairness perceptions are influenced by various factors (Dai, 2010). Bolton *et al.* (2003) suggest that customers' knowledge of prices, profits and costs contribute to perceptions of price unfairness in the marketplace. If customers believe that a company has increased the price due to higher demand or lack of inventories, they perceive the price to be unfair. However, customers consider the price increase acceptable if a company faces an inevitable increase in costs. The possible explanation for the latter is the social norm in the United States that business should make a profit, even if the increase in price is needed (Maxwell, 2008). In addition, Maxwell claims that customers' perception of an (un)fair price and corporate profits are not so much in correlation. Several focus groups held in the United States have shown that customers do not think about or bother with a company's profits as long as the company is being just and fair.

Che Ahmat, Radzi, Zahari, Muhammad, Aziz and Ahmad (2011) suggest that factors influencing price fairness perceptions could be considered based on two broad aspects: knowledge and experience. Knowledge means that customers have developed a reference or expected price based on their knowledge of market prices, previous transactions and recall. More experienced customers are likely to perceive the price to be (un)fair because they have a broader knowledge of market prices. This is in line with research done by Kahneman (1986 in Maxwell, 2008b), who explored social norms as unwritten rules of behavior for specific situations, alongside a reference price issue. In his study, he asked respondents to evaluate the fairness of company behavior where a company raises the price of shovels from \$15 to \$20 after a large snowstorm. The results showed that 82% of the respondents considered the new price and behavior of the company to be unfair.

The perceptions of price fairness are influenced by information symmetry and transparency (Da Silva, 2012). If a company can explain the reason for the price change, it will be easier for customers to accept the new price and consider it a fair one (Grewal, Hardesty & Iyer, 2004; Da Silva, 2012). Price transparency implies that the price is rational and reasonable and that the customer knows what is included in the final price, prior to the purchase (Maxwell, 2008). Although price discrimination strategies are generally perceived to be unfair (Haws & Bearden, 2006), customers are more likely to perceive dynamic pricing as fair when it is considered transparent (Obermiller *et al.*, 2012). Maxwell (2008) argues that even if the price and the pricing process are transparent, it does not necessarily mean that the price will in turn be considered fair. A perception of fairness depends on whether the information provided to the customer indicates that the company is adhering to social norms. When respondents were told that the airline had set the price in accordance with demand, they thought the price was less fair than when they were given no information at all. In fact, it is not the social norm to base prices on demand and, therefore, it may be seen as taking an advantage of the customers, which is not fair.

Based on the available studies, it can be concluded that price fairness, as perceived by customers, is a rather subjective process; as such, it is influenced by various factors which determine whether a customer will perceive the price to be fair or not. Furthermore, what one customer considers a fair price, another may not. In addition, a perception of equal prices does not necessarily lead to a perception of justice, but perceptions of inequality almost invariably lead to a judgment of injustice (Selmi, 2010).

The importance of price fairness perception in dynamic pricing practice of airline companies

Selmi (2010) describes different issues that customers are having in relation to the dynamic pricing practice in the airline industry. They experience frustration and dissatisfaction when a flight is overbooked and dislike the company's strategies to set the highest price possible, which they find even unethical. Customers feel cheated when other customers pay less for the same flight. Furthermore, customers are demanding transparency and clarity in airline services' pricing, but dynamic pricing usually provides no transparency at all. Due to the latter, customers experience an increase in stress and perceived risk, as monetary and non-monetary consequences of booking a flight are not anticipatable (Friesen, 2005).

In his study Da Silva (2012) concluded that there is a significant relationship between the perception of price fairness and the knowledge about a company's dynamic pricing practice. However, the results of

his study show that customers are still loyal to the airline even when they believe the price to be unfair, due to other possible factors that influence loyalty, such as competition, differences of loyalty programs, types of destination, and reasons for travel. Also, Da Silva found that dynamic pricing practices have a more negative effect on leisure than business travelers, as business travelers may be less price sensitive.

There is controversy over whether dynamic pricing in the airline industry has become acceptable or not. Obermiller *et al.* (2012) state that although initially customers were reluctant regarding dynamic pricing in the airline industry, in time and owing to extensive application of dynamic pricing among airlines, this has changed. Kimes and Wirtz (2003) claim that dynamic pricing will become widely accepted among customers, if only airline companies provide more transparency and clarity. Maxwell (2008) believes that a lack of transparency is a major issue for dynamic pricing, and making it acceptable and a social norm. But she also stresses that, in time, almost every pricing method becomes a social norm. Grewal *et al.* (2004) believe that customers accept dynamic pricing in the airline industry only when price varies according to the time of the ticket purchase. However, the time of purchase is only one of the factors that influence pricing in the airline industry.

Chung and Petrick (2012) suggest that it is important to deal with customers who perceive prices to be unfair, since it tends to evoke negative emotions that can consequently lead to unfavorable behavioral intentions. Several ways of handling angry passengers are proposed in order for companies to protect themselves against potentially negative customers' behavior. In their study, Chung and Petrick (2012) showed that front-line employees need to be empowered to handle angry customers immediately and fairly, because passengers or prospective passengers are most likely to express their negative emotions to the front-line staff. A loyalty program or credit card membership (e.g. frequent flyer membership) could also be introduced to allow customers to have the extra fees waived. In addition, the study showed that angry passengers are more likely to report their negative experiences to external agencies and media. Therefore, airline companies are invited to monitor external agencies and media (e.g. websites and reviews). It is suggested that airline companies should set up an online reputation management department to regularly check for any negative feedback and complaints on the Internet, and react accordingly.

Conclusion and recommendations for future researchs

The Internet and other digital technologies have led to major changes in pricing, as an element of the marketing mix in service-oriented companies. This can be attributed to a wide application of dynamic pricing – a complex and sophisticated strategy of price discrimination used by companies in order to maximize their revenues by charging each customer a personalized price for an identical product. This process is determined by a number of different variables, of which the most important are level of demand, the time of purchase, and the customer's willingness to pay a higher price. It is commonly used in activities experiencing a limited period of sales of short-term and perishable products or services, where it is very difficult or even impossible to increase the capacities of the company in the short term.

Due to the vast acceptance of dynamic pricing in several service-oriented industries, this topic has drawn attention of scientists who have described the essence of this pricing method, together with its advantages and disadvantages, both for the companies and their customers. Considerable attention is

given to the airline industry, which has pioneered the application of dynamic pricing. The application of dynamic pricing has not yet reached its full potential. It is still being deployed in other service-oriented industries (besides airlines and hotels), and there are also experiments with dynamic pricing of physical products (Valentino-Devries, Singer-Vine & Soltani, 2012). Therefore, it is important to continue conducting scientific research of all aspects of dynamic pricing and challenges faced by companies.

One of the biggest challenges faced by companies when applying dynamic pricing is that of customers' potential perceptions of price unfairness. Perceived price fairness can be defined as customers' judgment and related emotions of whether price differences between a company and its competitors (or lack thereof) are reasonable, acceptable and justified. A customer's perception of price fairness is a subjective process and one influenced by personal interest to maximize his or her outcome in comparison to third parties in the process. Although there is positive feedback between perceived price fairness and perceptions of pricing process fairness, the difference between these two concepts needs to be emphasized.

Dynamic pricing increases complexity because a customer is not able to understand when, how and why a price of a product or service changes and that increases the level of stress and perceived risk. In addition, customers are upset when they find out that someone else has got a better deal, e.g. a lower price for the same product or service. In that case, the difference in price influences the perception of price fairness.

After reviewing the existing knowledge on dynamic pricing, with the emphasis on the airline industry, a few recommendations for future research are provided. Since there is no consensus on whether dynamic pricing has become entirely acceptable or not, it is necessary to conduct further research into customers' perception of dynamic pricing in the airline industry, with a particular emphasis on the perception of price fairness of airline fares. Current knowledge (e.g. Friesen, 2005; Haws & Bearden, 2006; Selmi, 2010; Da Silva, 2012) shows that customers still perceive dynamic pricing in the airline industry to be unfair. Perceived price unfairness could lead to considerable problems for business nowadays, due to negative emotions expressed via social media and various anti-branding activities. Furthermore, it is necessary to examine differences in perceptions of dynamic pricing that are due to differences in customers' characteristics, such as demographic, but also according to their knowledge of the activities of airline companies, the extent of their experience with airline companies and their services, and their frequent-flyer status. Next, it would be interesting to investigate if there are any differences in perceived price fairness in relation to the fact of who pays for an airline ticket – a customer or a company (which does it for its employee). Finally, the literature has already recognized several activities (e.g. transparency) that companies could use to positively influence perceived fairness of dynamic pricing. The exact manner in which these activities truly affect customers' perception of dynamic pricing fairness would also be well worth investigating.

Note

¹Shopbot is a software or a web page that allows searching and comparing the price of a product between two or more suppliers, thereby enabling customers to buy products at the best conditions, for example Pricewatch.

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