

**RESTURANT REVENUE MANAGEMENT:
EFFECTS OF CUSTOMER'S PERCEIVED SCARCITY OF CAPACITY AND
THE PRICE DIFFERENCE ON PERCEIVED VALUE AND FAIRNESS PERCEPTIONS**

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ABSTRACT

Revenue management has been applied to the restaurant industry, but restaurant operators have been disinclined to apply various types of RM approaches, due to apprehension for customer's possible expressions of dissatisfaction. To relieve this reluctance, restaurant operators may need to understand how their customers perceive capacity limitations. While customers are more familiar with RM practices in traditional RM industries (e.g., airlines or hotels) with fixed capacities, perceptions of capacity limitations in restaurants (relatively flexible capacity) may influence customers' perceptions of RM practices. In addition, the price difference between high-demand periods and low-demand periods may have differential impacts on customers' perceptions of value of the restaurant's expected offering and the fairness of RM practices. Based on commodity theory and equity theory, this study hypothesizes that two main effects, perceived scarcity of space in a restaurant and price differences between high-demand and low-demand periods, influence perceived value of a restaurant's offering and fairness perceptions of a restaurant's RM practice.

As hypothesized, the negative effects of price difference on fairness perceptions are supported by the results, but the effect on perceived value has support only from the results of structural equation modeling. Unexpectedly, the main effect of perceived scarcity of space does not influence either perceived value of a restaurant's expected offering or fairness perceptions for a restaurant's RM practice. Interesting results arose found from supplementary analyses and suggest future research directions.

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CHAPTER 1

INTRODUCTION

1.1. Revenue Management

Revenue management (RM), also known as yield management, has become an indispensable strategic tool in capacity-constrained service industries whose total revenue often depends on firms' abilities to use capacity efficiently. The rationale for RM is efficient use of fixed, perishable capacities by charging customers different prices for identical services in an attempt to balance demand and revenues per capacity unit (Kimes, 1989; McGill & van Ryzin, 1999). RM aims to stimulate demand when demand is low and maximize profits when demand is high. Practitioners of RM use tools such as market segmentation, demand forecasting, and variable pricing to ensure sale of the service firm's limited capacity at the highest possible price in each given situation (Ng, 2007).

RM originated in the airline industry in the 1970s and subsequently has had wide application in tourism and hospitality industries such as hotel and rental car businesses. Research has shown, in general, RM increases a company's profitability (Hanks, Noland, & Cross, 1992; Smith, Leimkuhler, & Darrow, 1992). Notable examples of successfully employing RM include American Airlines, which reported an approximate 4-5% increase (\$1.4 billion over 3 years) in revenue (Cook, 1998), and Hertz car rental, which reported an increased average revenue per rental by 5% (Carroll & Grimes, 1995). In recent years, an increasing number of industries adopted RM because of its ability to increase revenue and profitability.

Kimes (1989a, 1989b) identified a number of preconditions for the successful application and effective operation of RM. In general, to gain additional revenues and profit, RM practices suit service industries that have perishable inventory, fixed capacity, high-fixed and

low-variable cost structure, variable demand, and segmented markets (Kimes 1989a, 1989b; Berman, 2005). In addition, reservation systems can help manage demand forecasting because such systems can calculate inventory units in advance of consumption. Airline, hotel, and rental car industries represent traditional RM industries because they share those similar characteristics (Chiang, Chen, & Xu, 2007).

However, substantial research by numerous authors indicated that different sectors of the tourism and hospitality industries apply RM techniques differently (e.g., Edgar, 1998; Lieberman, 1993; Smith et al., 1992). Research shows that several non-traditional RM industries, such as restaurants (e.g., Kimes et al., 1998; Kimes, 2004; Susskind, Reynolds, & Tsuchiya., 2004; Johns & Rassing, 2004), golf clubs (e.g., Kimes & Wirtz, 2003), cruise lines (e.g., Hoseanson, 2000; Lieverman & Dieck, 2002), resorts (e.g., Kasikci, 2006; Pinchuk, 2006), casinos (e.g., Norman & Mayer, 1997; Hendler & Hendler, 2004), capital equipment service industries (e.g., Oberwetter, 2001), hospitals and healthcare facilities (e.g., Lieberman, 2004), and theme parks (Heo & Lee, 2009) share most of the common characteristics of traditional RM industries, and thus, have the potential to incorporate RM practices in their operations. These studies on RM in non-traditional RM industries have also discussed unique characteristics of each industry and how to adapt RM practices, thereby providing useful guidelines to practitioners in these industries. In addition to unique characteristics of each industry, customers' perceptions of RM in non-traditional RM industries may be another important factor; for service firms implementing RM, positive customer perceptions of these practices are essential for sustaining customer satisfaction, loyalty, and long-term profitability. (Kimes & Wirtz, 2003). Several researchers have argued recently that while the technology has been the driver and enabler of RM in the past, the customer will be the driving force in the future (Milla & Shoemaker, 2008; Vinod, 2008).

However, while several studies have discussed perceived fairness of RM in traditional RM industries (e.g., Choi & Mattila, 2004; Mauri, 2007), relatively few studies investigated how customers perceive RM practices in non-traditional RM industries, including the restaurant industry. Although RM has had application in the restaurant industry, a limited number of specific strategies have had implementation (Kimes et al., 1998; Susskind, Reynolds, & Tsuchiya, 2004) and the depth of extant studies on RM practices among restaurants is fairly shallow (Bertsims & Shioda, 2003). Therefore, this study seeks to understand customers' perceptions of RM in restaurants to enable successful implementation of RM to that industry.

In particular, restaurant operators may need to understand how customers perceive capacity limitations of restaurants. This is important because customers are mostly familiar with RM practice in traditional RM industries (e.g., airlines or hotels) with fixed capacities, and restaurants' capacity is relatively flexible, compared to traditional RM industries; perceptions of this relatively flexible capacity in restaurants may influence customers' perceptions of RM practices. In addition, the price difference between high-demand periods and low-demand periods may have differential impacts on customers' perceptions of value of the restaurant's expected offering and the fairness of RM practices. The current study, therefore, focuses on customers' perceptions of capacity limitation and the impacts of price differences in restaurants.

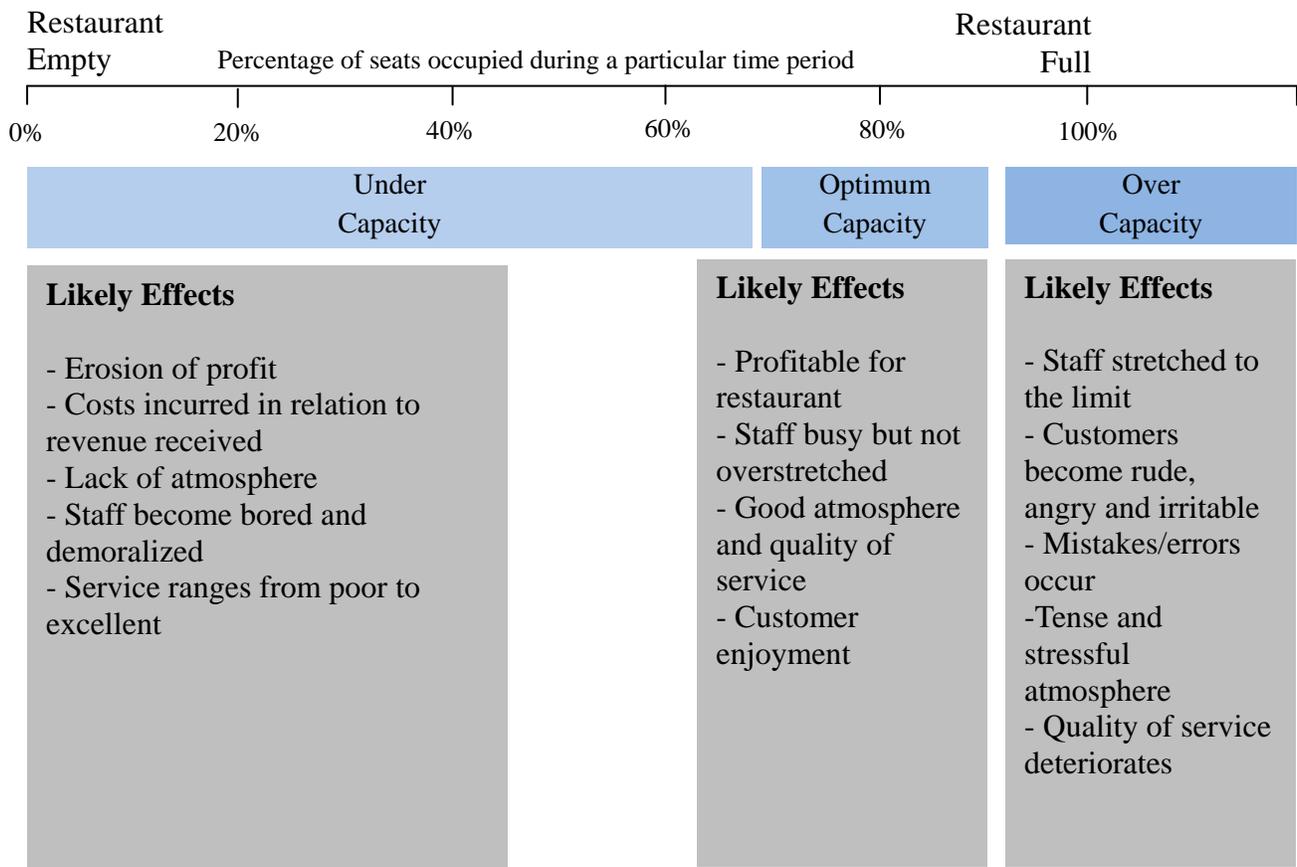
1.2. Restaurant Revenue Management

Restaurants can enhance revenue by increasing the number of customers they serve and/or the amount each guest spends. Adding seating or drive-in windows, extending operating hours, and building additional foodservice units are all examples of restaurants' efforts to increase capacity to serve more guests. Conversely, suggestive selling by service staff, creative

menus, and guest discounts for very large purchases are examples of efforts to increase the amount of money each customer spends. RM is one of the aforementioned ways to increase revenue in restaurants, and RM practices in restaurants are the primary focus of this study. Because restaurants have a relatively flexible space, relatively high fixed costs, and no inventory opportunities, capacity utilization is a major concern for restaurants as they try to maximize revenue. Figure 1 exhibits the likely effects of capacity utilization in a restaurant as proposed by Mudie and Pirrie (2006). Apparently, the level of capacity utilization impacts the quality of service and the restaurant's financial performance.

Figure 1. The Impact of Capacity Utilization in a Restaurant

(Adopted from Mudie & Pirrie, 2006)



Restaurants that do not have concern for limited space—for example, takeout restaurants

which market the meal itself rather than space and time—may have limited application for RM to maximize revenue. Kimes (1999) argued that the principles of RM can apply to restaurants given that the unit of sale in restaurants is the time required for service, rather than just the meal itself. RM is more applicable to restaurants that have more demand than the capacity can accommodate during peak time (e.g., Friday dinner). These are the majority of the restaurants that can increase revenue by managing demand and controlling customers' seating duration.

Kimes and Thompson (2004) stated that research in RM traditionally focused on theoretical and practical strategic problems facing airlines and hotels, among other industries, but studies have given relatively little consideration to the restaurant industry. The restaurant business is similar enough to hotel and airline operations that restaurants should be able to apply RM practices in a strategic fashion, but the application of such practices has thus far been mostly tactical. Restaurants share most characteristics which allow successful RM implementation, such as perishable service products, variable demands, and cost structures, and thus restaurants have the potential to maximize revenues by adopting RM techniques. Even though restaurants have a higher variable cost percentage than traditional RM industries, potential revenue gains can be substantial (Kimes & Thompson, 2004).

However, the restaurant industry also has unique characteristics and operational components different from airline and hotel industries. These unique characteristics pose special challenges to restaurant operators and therefore require them to be more creative in developing RM strategies. Among the unique characteristics of restaurants are the relative flexibility of capacity and the flexible duration of a meal, which are important subjects to be considered for implementing RM practices. Restaurants have fairly flexible capacities compared to airlines and hotels. For example, a restaurant may open an outdoor patio seating area during good weather to

expand capacity during peak periods. The duration of a meal can also affect RM applicability. The total available seating capacity per day in a restaurant is not fixed because customers' seating durations are unpredictable. Thus, restaurants cannot simply apply the same RM strategies as those used by airlines and hotels (Susskind et al., 2004), and restaurants need to develop more sophisticated RM strategies based on the unique characteristics.

1.3. The Importance of Customer's Perception of Revenue Management

Maintaining a good relationship with customers is a critical issue in a restaurant business. While only a few major competitors exist in the airline and rental car industries, many competitors populate the restaurant industry (Kimes, 1994). A customer who is not satisfied or who feels treated unfairly may simply go elsewhere or not return at all. Several researchers claimed importance for profitable relationships with customers in order to maximize lifetime value from current and potential customers (e.g., Mathies & Gudergan, 2007; Rust et al., 2004). Therefore, to survive in a competitive market, restaurant operators need to provide not only good value and quality food and services, but also maintain a high level of customer satisfaction that will lead to increasing customers' return visits and greater market share (Kivela, Inbakaran, & Reece, 1999). Kimes (1999) defined RM for restaurants as "selling the right seat to the right customer at the right price and for the right duration," and Kimes and Wirtz (2003a) claimed the determination of "right" entails attaining the largest contribution possible for the restaurant, while also delivering the greatest value or utility to the customer. Therefore, restaurants must balance their use of RM strategies with the creation of value for their customers.

Several researchers, recently, discussed the potential negative effects of RM practice on customer relationship management (e.g., Shoemaker, 2003; Wirtz et al., 2003). For example,

Wirtz et al. (2003) presented an overview of customer conflicts that can be caused by RM, and Shoemaker (2003) argued that RM can have an adverse effect on customers' perceptions of the service company, resulting in destroyed customer loyalty. Noone, Kimes, and Renaghan (2003) discussed the relationship between customer relationship management (CRM) and RM and proposed the integration of CRM and RM strategies. Huefner and Largay (2008) believed that a long-term perspective should be considered because regular, repeat-customers are more valuable than one-time customers, and Lindenmeier and Tscheulin (2008) identified drawbacks to implementation of RM, specifically, that the practice endangers customer relations. The ultimate goal of RM in restaurants is attainable only when restaurants are capable of increasing revenue with RM practices without diminishing customer satisfaction and patronage. Although customers' perceptions of RM are important from a long-term perspective, researchers have neither extensively discussed the significant variables that form customers' perceptions of RM in restaurants nor empirically tested how those variables interrelate.

Previous literature suggested perceptions of value (e.g., Dodds, Monroe, & Grewal, 1991; Grewal, Monroe, & Krishnan, 1998; Monroe, 1990; Rao & Monroe, 1989) and fairness in service exchanges (e.g., Maxwell, 2002) are important factors for sustaining customer satisfaction, positive behavioral intentions, and, consequently, long-term profitability. Most companies set prices for their products or services based on the cost of producing, selling, and delivering them. However, customers assign a certain value to goods and services based on their own unique needs and desires and not necessarily on the cost of the products or services (Cross, 1997). Customers choose the price they are willing to pay based on the value they receive from a product or service (Mohammed, 2005). A customer's perception of the value of the product depends mainly on availability of alternatives, amount of disposable income, and the urgency or

need for the product or service (Zeithaml, 1988). Only when the value perceived by the customer matches or exceeds the price do customers execute a purchase (Cross, 1997). The basis for core principles of RM is customers' perceived value for a service or a product, not the cost. A product may be priced higher than its cost if customers' perceptions dictate the desired item or service is worth the price. Much research in the field of customer value has developed a typology of value (e.g. Holdbrook, 1994; Lai, 1995; Richins, 1994; Sheth et al. 1991; Zeithaml, 1988). Levitt (1980) argued that a product represented a complex construct of value satisfactions for customers, who attach value to the product according to its perceived ability to meet their needs. Perceived value takes into account the price of the service in addition to the quality. Many marketing strategies emphasize that creation of superior customer value is a key component for ensuring a firm's success (Higgins, 1998; Porter, 1996; Woodruff, 1997; Wyner, 1996).

In addition, some researchers claimed that perceived fairness is a measure of RM acceptance (e.g., Kimes, 2002; Kimes & Wirtz, 2003). If customers regard RM practice as representing unfair policies, RM practice may lead to customers' dissatisfaction, and therefore, the increased revenues resulting from RM may not be long-term (Wirtz et al., 2003). Fencing conditions (Wirtz & Kimes, 2007), framing of rate fences (Kimes & Wirtz, 2002), familiarity with RM practices (Wirtz & Kimes, 2007), and information disclosure of rate fences (Choi & Mattila, 2004; 2005) have revealed effects on fairness perceptions of RM practices. Although several researchers studied fairness perceptions of RM, extant research on fairness perceptions of RM practices in restaurants primarily examined and compared different levels of fairness perception for various rate fences. However, within the same fencing condition (e.g., lunch-versus-dinner) or the same direction of framing (e.g., discount or surcharge), the magnitude of price differences also may have unequal impacts on customers' perceptions of restaurants' RM

practices. Moreover, little research considered cognitive processes underlying customers' perceptions of RM practices. To sustain customer satisfaction and maintain a good customer relationships, customers' perceptions of RM, such as perceptions of value and fairness, should be considered simultaneously with industries' characteristics for successful implementation of RM because customers' perceptions and behaviors have a direct influence on the performance of RM (Chiang et al., 2007). Therefore, this dissertation investigates how customers' perceptions of RM practices in restaurants influences customers' patronage decisions in the context of restaurant RM.

1.4. Problem Statement

RM has been applied to the restaurant industry, but prior research offered only a limited number of specific strategies for implementation (Kimes et al., 1998; Susskind et al., 2004). Restaurants offer promotions such as happy hour and early bird specials, but RM strategies currently implemented by restaurants only focus on discounting prices during low demand periods. While the core element of RM is to charge premium prices during high demand periods based on capacity limitation, restaurant operators have been disinclined to apply various types of RM approaches, including demand-based pricing, because of apprehension for possible customer dissatisfaction (Kimes & Wirtz, 2003).

Customers' responses to restaurants' RM practices are critical for the successful application of RM practices in restaurants because revenue maximization is only attainable when customers accept the RM practices without dissatisfaction. In particular, customers' perceptions and attitudes toward restaurants' RM are critical for maintaining positive relationships with customers. While these issues are critical for long-run success, they are not well understood.

Because of a lack of awareness of customers' perceptions and acceptance of RM practices, restaurants operators may be reluctant to move forward with implementation.

Since Bertsims and Shioda (2003) asserted that the number of studies and depth of research involving restaurants' RM has been fairly slim, no substantial amount of investigation seems to have been added to the literature to date. Kimes et al. (1998) and Kimes, Barrash, and Alexander (1999) have been among the first to directly address the issue of restaurant RM. Kimes et al. (1998) developed a framework for the application of RM in restaurants that involves managing demand so as to maximize the revenue generated for a restaurant's capacity. The framework suggests that restaurants can manage restaurant capacity by managing meal duration and customer arrival, as presented in Table 1. During periods of high demand, shorter meal duration facilitates serving more customers. Moreover, effective reservation and seating decisions can reduce the amount of time that seats are empty, thereby better utilizing capacity and maximizing restaurants' revenues.

Table 1. Strategic Levers for Restaurant Revenue Management
(Adopted from Kimes et al., 1998)

Uncertainty of Arrival	Uncertainty of Duration
Internal Approaches <ul style="list-style-type: none"> - Forecasting - Overbooking 	Internal Approaches <ul style="list-style-type: none"> - Menu design - Process analysis - Labor scheduling - Communication systems
External Approaches <ul style="list-style-type: none"> - Guaranteed reservation - Reconfirmation of reservations - Service guarantee 	External Approaches <ul style="list-style-type: none"> - Pre-bussing - Check delivery - Coffee and dessert bar - Reduction of time between customers - Process analysis - Communication systems

The framework from Kimes et al. (1998) provides useful guidelines to restaurant operators, but customers' perceptions of those RM approaches in restaurants are not considered in the framework. In spite of the importance of customers' perceptions, these issues have not gained much attention in the literature.

In particular, customers' perceptions of relatively flexible capacities of restaurants should be considered for developing restaurants' RM practices from customers' perspectives. Fixed capacity is a key characteristic if RM practice is to be applicable and successful. Capacity, for a service firm, is "the highest quantity of output possible in a given time period with a predefined level of staffing, facilities and equipment" (Lovelock, 1992, p.26). A variety of factors potentially limit capacity in restaurants, including kitchen facilities, staff, number, size, and settings of tables, and parking space. In general, capacity limitation helps a firm build variable pricing policies and proper rate fences. If service capacity is not limited, firms are less able to apply variable pricing, particularly imposing premium pricing during peak periods. For instance, customers believe the value of the flight ticket during peak period is higher and are willing to pay more because seats are limited during peak periods. In other words, core principles of RM pricing are based on customers' perceptions of value rather than cost and customers' differing valuations for service products' limited availability, according to demand fluctuations. Thus, the issue of capacity matters for customers' perceptions of value for a service.

Commodity theory provides insights into how individuals respond to the limited service products. Commodity theory argues that any commodity's value changes according to the extent that it is unavailable (Brock, 1968). Researchers in psychology and marketing have found that consumers' perceptions and evaluations of a product's attractiveness, desirability, expensiveness, quality, and taste are affected by knowledge that the product is scarce (Lynn & Bogert, 1996).

According to commodity theory, the individual evaluates a product as more attractive when it is scarce rather than abundant. Thus, a scarce product is viewed as having high value and is considered to be more desirable (Lynn, 1989; 1992; Verhallen & Robben, 1994). Therefore, the question arises as to whether or not a perceived scarcity of space in restaurants influences customers' value estimation of the restaurants' offerings. Customer perceived scarcity of space in restaurants have not been extensively examined in the literature.

In addition, when a restaurant operator practices a demand variable pricing policy to adjust demand, the magnitude of the price differences may influence fairness perceptions of the policy and the perceived value of the restaurant's expected offering. Kimes and Wirtz (2002) examined the perceived fairness of five types of demand-based pricing approaches: 1) differential lunch-versus-dinner pricing, 2) differential weekday-versus-weekend pricing, 3) time-of-day pricing, (4) coupon pricing with restrictions, and (5) table-location pricing. The results of the study indicate that time-of-day or lunch-versus-dinner pricing is perceived as fairer than weekday-versus-weekend pricing. Other research also found that customers' familiarity with RM practices associates with fairness perception of the practice (e.g., Taylor & Kimes, 2010; Wirtz & Kimes, 2007). Because restaurant customers are more familiar with time of day or lunch-versus-dinner pricing than weekday-versus-weekend pricing, they may perceive weekday-versus-weekend pricing as neutral to slightly unfair.

However, the study did not explicitly address the price difference between weekday and weekend pricing. Although customers perceive the lunch-versus-dinner pricing policy to be fair, the magnitude of the price differences may influence the fairness perceptions of the pricing and perceived value of the restaurant's offering. For example, although customers perceive lunch-versus-dinner pricing as fair, as the price difference between lunch and dinner increases, they

may no longer agree with the policy. According to adaptation-level theory, price perceptions rely on the actual price and the customer's reference price or adaptation level that is a function of the magnitude of the series of stimuli, the range of stimuli, and the dispersion of stimuli from the mean. According to theory, a region of indifference exists such that a change from a standard price within this region produces no change in perception (Emery, 1970). But assimilation-contrast theory also suggests that the price differences falling outside the acceptable price range are contrasted or rejected (Monroe & Petroschius, 1981). Thus, this dissertation focuses on how customers perceive the scarcity of space in a restaurant and how customers differently react to the price difference in terms of perceived value of the restaurant's offerings and perceived fairness of RM practices.

1.5. Study Goals and Objectives

This dissertation builds and empirically analyzes a conceptual framework of restaurant RM by examining the effects of perceived scarcity of space and the impacts of price differences on customers' perceived value of the restaurant's offerings and the fairness perceptions of RM practices. This study applies commodity theory, equity theory and assimilation-contrast theory to delineate factors that drive customers' perceptions. Based on these theories, this research hypothesizes positive effects from perceived scarcity of space and negative effects from price differences on customers' perceived value of the restaurant's offerings and the fairness perceptions of RM practices. Perceived value and fairness perceptions of RM are hypothesized to lead to an increase in customers' positive attitudes toward the restaurant's RM practices and an increase in patronage intentions.

While most research on commodity theory (e.g., Worchel, Lee, & Adewole, 1975; Verhallen, 1982) focused on tangible goods and showed the effect of scarcity on valuation, studies of intangible goods, especially capacity-constrained service industries or space, are rare. The current study extends the knowledge of how perceived scarcity of space influences perceived value of service. Also, findings of the study enrich the literature by extending RM literature to restaurants where capacity is relatively flexible and customers' duration of service use is not fixed. The conceptual framework of the study provides hospitality RM researchers a basis for understating the dynamic process of customers' psychology in the restaurant RM context. From a practical perspective, understanding how customers perceive and respond to a restaurant's RM practices may help restaurant operators develop appropriate approaches and make decisions for controlling demand. Restaurant operators also need to understand how customers' perceived value, and fairness perceptions associate with attitude toward the restaurant's RM practices and customers' patronage intentions, because, in the end, the effectiveness of any RM practice depends on how customers perceive and respond to RM practices. For example, when a restaurant applies an RM practice such as demand-based variable pricing, customers may perceive such RM practice unfair because the practice does not seem to add any value to the service and consequently the dining experience. In that case, customers may refuse to pay a higher price for the service and decide not to patronize the restaurant, but instead visit another restaurant. Thus, this dissertation identifies how customer perceptions vary with regard to the perceived scarcity of space in a restaurant and the impact of the price difference between high-demand periods and low-demand periods. The study also examines how customer perceptions relate to the perceived value of the restaurant's expected offering and fairness

perceptions of the restaurant's RM practices to develop RM practices from a customer's perspective.

1.6. Organization of the Dissertation

This dissertation's structure is: Chapter One presented an overview of the study and describes the study's conceptual and developmental context. This includes the background and overview of the problem. Chapter Two reviews the extant literature to elucidate customers' perceptions of restaurants' RM practices. The chapter also focuses on the conceptual model, the definitions of all constructs, and research hypotheses tested in the study. A detailed description of the literature leading to the proposed hypotheses is also provided. Chapter Three provides the research methodology for testing the research hypotheses introduced in Chapter Two, and also includes a detailed explanation of the research design and procedures followed for collecting data to test the hypothesized relationships. The results and their implications are discussed in the final two chapters which conclude with the study limitations and future research suggestions.

CHAPTER 2

LITERATURE REVIEW

The objective of the literature review is to build an understanding and appreciation for the large body of knowledge preceding the present study. Extant literature provides valuable insights into the issues relevant to the problem at hand, provides guidelines for the best approach for further study, and identifies inherent limitations. As mentioned in the previous chapter, this dissertation seeks to identify the influences of customers' perceptions of space scarcity in the restaurants on the perceived value of the restaurant's expected offering, fairness perceptions of restaurants' RM practices, attitudes toward the restaurant's RM practices, and patronage intentions. This chapter begins with a discussion of definitions and a history of revenue management and a review of literature in the fields of restaurant RM follows. Then, the theoretical bases for this study are discussed to develop a conceptual framework. A conceptual model, definitions of constructs, and study hypotheses are then presented.

2.1. Revenue Management

Many researchers use the term "revenue management" (RM) interchangeably with yield management (YM). Several definitions of RM have been suggested; however, RM researchers have different opinions about the scope of RM, and no consensus definition of RM appears as standard in the literature (Johns, 1999; Ng, 2007; Weatherford and Bodily, 1992). One of the most cited definitions of RM is one modified from American Airlines, which refers to RM as the maximization of revenue by "selling the right seats to the right customer at the right time." A later revision of this definition includes, "and at the right price" (Cross, 1997; Kimes et al., 1989; Kimes & Thompson, 2004; Pak & Piersma, 2002; Upchurch et al., 2002; Yeoman, Ingold, &

Kimes, 1999). Although this definition seems to be inclusive, it is impractical because what is right in one context may not be right in another (Ng, 2007).

Based on the focus of the research, researchers suggested definitions that either widen or limit the scope of RM (Ng, 2007). Pfeifer (1989, p149) defines RM for the airlines as “the process by which discount fares are allocated to scheduled flights for the purposes of balancing demand and increasing revenues.” Nykiel (1999) provides a similar definition of RM for the hotel industry: charging various rates for the same service to different customers. Barker and Collier (1999, p 242) defined yield management in the hotel industry as “an intelligent approach to the dynamic pricing, overbooking, and allocation of perishable assets across market segments in an effort to maximize short-term revenues for the firm.” The definition of RM proposed by Wirtz et al. (2003, p216) refers to “a sophisticated form of supply and demand management that helps a firm maximize revenue by balancing pricing and inventory controls.” Ng (2006) defined RM as “the practice of obtaining the highest possible revenue in the selling of a service firm’s capacity. For the current study, restaurant RM is a restaurant’s strategy that helps it maximize revenue from existing capacity by managing demand and efficiency of operation through duration control.

RM research started in the 1970s with Rothstein’s (1971, 1974) and Littlewood’s (1972) examinations of RM in airlines. With the deregulation of the airline industry in 1978, the industry sought to make operations as efficient as possible. RM is one of the methods developed so that airlines could better compete to achieve better revenue streams; researchers’ and practitioners’ interest in RM increased. In those early days, the understanding of RM was mostly on a computational and operational level because operations researchers dominated investigation (Desiraju & Shugan, 1999). RM research focused on algorithms and processes, but in the last ten

years, the scope of RM expanded (Boyd, 2004). Researchers tended to view prices as given and focused on optimization methods, but this approach developed a reputation for being too constricted (Ng, 2007). Over time, RM developed into a sophisticated practice as researchers employed compound mathematical algorithms to allocate capacity, set price, and forecast demand (Ng, 2007). Complicating RM practices was the advent of the Internet and the development of information technology (Elmaghraby & Keskinocak, 2003).

2.2. Past Research on Restaurant Revenue Management

Unlike the widespread application of RM in airlines and hotels, the number and depth of studies of RM for restaurants has been relatively sparse (Bertsimas & Shioda, 2003), and a summary of research involving restaurant RM appears in Appendix I. Kimes (1999) and Kimes et al. (1998, 1999) were among the first to directly address the issue of restaurant RM. They developed a strategic framework for applying RM to restaurants to increase revenue by effective duration management and demand-based pricing. They proposed using the revenue per available seat hour (RevPASH: revenue accrued in a given time interval divided by the number of seats available during that time). RevPASH indicates the rate at which capacity utilization generates revenue, and RevPASH increases as the number of table turns increases and the length of a meal's seating duration decreases. Kimes et al. (1989) suggested managing meal seating duration and customer arrival as methods for demand management. Meal seating duration (subsequently, meal duration) is the length of time that a customer occupies a seat in a restaurant, and it is important because it governs the availability of seats (Kimes et al., 1998). By reducing variation in meal duration restaurant management can more effectively manage reservations and seating decisions (Kimes, 1999; Kimes & Chase, 1998; Kimes et al., 1989; Kimes et al., 1998).

Based on the argument of Kimes et al. (1989), several researchers expanded the discussion of the relevant issues of meal duration control. For example, Kimes and Robson (2004) discovered that dining durations in a midscale restaurant vary based on table characteristics. Kimes and Thompson (2005) reported on the average duration of a meal by party size and day of week for a midscale restaurant. Bell and Pliner (2003) showed that durations of meals increase with party size across several restaurant contexts. Kimes and Wirtz (2003) examined dinner duration expectations for a casual restaurant by adopting a time sensitivity measurement to derive the expected dining time, and the optimal and indifference duration points. The study discovered that Europeans preferred a significantly longer dining time, while North Americans and Asians have similar meal duration expectations. Noone and Kimes (2005) examined the effects of reduced duration on customers' satisfaction and customers' intention to return to the restaurant. Duration reduction strategies can directly and negatively influence customers' satisfaction as well as produce an indirect negative influence through the reduction of customers' perceptions of servers' performance and control (Noone & Kimes, 2005). Noone et al. (2007) found that too fast a pace during the meal diminishes customer satisfaction. More recently, Noone et al. (2009) found that the overall relationship between a perceived service encounter pace and satisfaction follows an inverted U-shape. The effect of perceived pace on satisfaction appears to be moderated by service stage, with a greater tolerance of a faster pace during the post-process stage than during the pre-process or in-process stages (Noone et al., 2009). Thompson (2009) conducted a simulation-based study and found that, on average, the revenue bump experienced by reducing the dining duration is less than one-quarter of the amount predicted by the common assumption that a reduction in dining duration yields a proportional increase in revenue.

Some researchers are more interested in maximizing revenue by increasing efficiency of restaurant operations. Sill and Decker (1999) proposed the use of capacity management science (CMS) as a systematic approach to evaluate a restaurant's capacity potential and process efficiency. CMS includes monitoring every element of service and the production delivery process with quantifiable measurements to enhance customer satisfaction, improve employee satisfaction, and increase profitability. Quain, Sansbury, and Abernethy (1998) and Muller (1999) identified managerial factors that may improve the efficiency of restaurants; those factors include defining profit centers, dispersing demand, reducing operating hours, and decreasing service time by making the restaurant operation as efficient as possible. Similarly, Kimes et al. (1999) suggested recommendations for the application of restaurant RM such as training employees, developing standard operating procedures, and improving table management to increase efficiency of restaurant operation. Thompson (2002; 2003) focused on restaurants which do not allow reservations and found that having appropriately sized tables in positions to be combined with other tables to serve large parties can yield additional revenue at virtually no added cost. Bertsimas and Shioda (2003) developed two classes of optimization models to maximize revenue in a restaurant. The two-step procedure included using a stochastic gradient algorithm to decide, a priori, how many future reservations to accept and using approximate dynamic programming methods to decide dynamically when to seat an incoming party during the operational day.

Other researchers focused on fairness perceptions of various RM techniques in restaurants. McGuire and Kimes (2006) tested the perceived fairness of four waitlist-management techniques and found that party-size seating and call-ahead seating enjoy relatively fair policy perceptions, while VIP seating and large-party reservation policies have the

perception of being unfair. Kimes and Wirtz (2002; 2003) examined perceived fairness of five types of RM pricing in a restaurant and found framing demand-based pricing as discounts rather than as surcharges made consumers perceive RM practices to be fairer. Only a few studies have been conducted on RM from customers' perspectives, and the studies focused on fairness perceptions for RM techniques or the influence of the techniques on customers' satisfaction. A theoretical approach is needed to identify the underlying factors in forming customers' fairness perception for the further advancement of restaurants' RM practices.

Susskind et al. (2004) found that customers would be willing to shift their dining time to off-peak hours in exchange for discounts on menu items. Dickson, Ford, and Laval (2005) suggested incentive strategies with a reservation system that can create demand shifting so that the arrivals match the restaurant's capacity in a managed way. A few researchers indicated interests in customer's fairness perceptions of discounting policies in restaurants (Kimes & Wirtz, 2002; 2003) and of waitlist-management techniques for restaurants (McGuire & Kimes, 2006).

Although demand-based pricing has proven to be successful in other service businesses such as airlines and hotels, where customers find demand-based pricing to be more acceptable or fair, restaurants are more constrained in their use of demand-based pricing (Kimes & Chase, 1998). But, Kelly, Kiefer, & Burdett (1994) suggested a demand-based menu pricing as a method of managing revenue and argued that a one percent increase in price can yield as much as a 20 percent improvement in profits. Kelly et al. (1994) claimed that a demand-based approach to menu pricing is predictable from customers' views of restaurant value because customers are focusing on value more than on price. Moreover, pricing based on the amount charged for similar products offered by competing restaurants does not work well because the menu items often are not exactly alike. Competitors' decorations, service, and quality differ as well. Kelly et

al. (1994) indicated that a restaurant may raise its prices and its profit without hurting demand; further, the study suggested that future menu-pricing strategies should incorporate some consideration of the demand fluctuation. Heide et al. (2008) also investigated different pricing strategies in the restaurant industry, and concluded an existing potential for increased use of various revenue enhancing strategies such as price discrimination, peak-load pricing, and bundling. But research ignored extensive discussion of restaurant RM from customers' perspectives: nor have restaurants' customer-oriented RM approaches been proposed.

2.3. Commodity Theory and Perceived Value

Commodity theory explains how individuals respond to scarcity by claiming that commodities' values reflect the extent to which they are unavailable (Brock, 1968). Commodity refers to anything that can be possessed, is useful, and is transferable from one person to another (Brock, 1968). The definition of commodities encompasses both material goods and intangible services. Value refers to increases in perceived utility or perceived desirability (Brock & Brannon, 1992). Unavailability refers to scarcity and other limits on availability and typically, has operationalization as limits in supply or number of suppliers, costs in acquiring or providing, restrictions limiting possession, and delays in providing a commodity (Lynn, 1991). In the literature, the terms "unavailability" and "scarcity" are commonly interchangeable.

Based on commodity theory, the influence of scarcity on the valuation of goods has had extensive study (Lynn, 1991; Lynn, 1992; Mittone & Savadori, 2009; Verhallen, 1982; Vehallen & Robben, 1994). Building on commodity theory, many researchers tested four propositions: A product or service will be more attractive 1) when the number of suppliers is limited; 2) when a supplier imposes a restriction on availability; 3) when a consumer has to wait to gain the product;

4) when the consumer needs to make an extra effort to attain the product (Brock, 1968; Brock & Mazzocco, 2004). Researchers in psychology and marketing found that consumers' perceptions and evaluations of a product's attractiveness, desirability, expensiveness, quality, and taste are affected by knowledge that the product is scarce. For example, Worchel, Lee, and Adewole (1975) conducted an experiment in which two glass jars of chocolate chip cookies were separately presented to two groups of participants. The glass jars had either two (scarce) or ten (not scarce) identical cookies and participants were asked to taste a cookie and rate its quality. Participants rated the scarce cookies more desirable to eat, more costly than the abundant cookies, and better tasting than the abundant cookies. Similarly, Verhallen (1982) found people showed greater preference for a recipe book when perceived to be scarce, and Cialdini (1987) suggested that individuals assume that what is less common is more valuable. Lynn (1989) also found that artwork perceived as scarce were more desirable than paintings perceived as readily obtainable.

Lynn (1992) described why scarcity enhances the desirability of commodities; explanations for unavailability's effect on desirability from the economic, psychological, and sociological literatures appear in Table 2. The first reason for scarcity's effect on value is that possessing a scarce resource provides a sense of distinctiveness which helps to satisfy individuals' needs for uniqueness (Lynn, 1992; Wills, 1981). The second explanation is that scarcity often implies that a resource will be costly to obtain in terms of effort or financial expense. Indeed, Lynn's 1989 study supported the assumed expensive-is-better explanation. When wine appeared to be scarce, respondents perceived it as more expensive and more desirable than non-scarce wine.

In addition, Lynn and Bogert (1996) found that participants predicted the future value of, and the demand for, scarce stamps and coins would be greater than abundant ones. The third

accounting for the effect of scarcity on desirability relates to Brehm's psychological reactance theory (1966). According to Brehm, people desire to maintain established freedoms and unavailability can threaten the freedom to possess the resource (Lynn, 1992).

Table 2. A List of Explanations for Unavailability's Enhancement of Desirability Compiled From the Economic, Psychological, and Sociological Literatures (Adopted from Lynn, 1992)

1. The possession of unavailable resources provides a valued sense of self-uniqueness (Synder & Fromkin, 1980).
2. The possession of unavailable resources provides an opportunity for self-enhancing downward comparisons with less fortunate nonpossessors (Wills, 1981).
3. The possession of unavailable resources is a source of power in exchange relationships with others who want the resource (Emerson, 1962).
4. The possession and display of unavailable resources is a source of status (Veblen, 1965).
5. People are motivated to find positive attributes that justify an unavailable product's cost in order to maintain a sense of fairness or personal equity (Seta & Seta, 1982).
6. The unavailability of a goal object arouses people physiologically and this energization increases the desirability of the goal object (Brehm et al., 1983).
7. Unavailability sometimes threatens people's freedom to obtain the unavailable resource, and these threats to existing freedoms arouse psychological reactance (Brehm, 1966).
8. Unavailability is a heuristic cue that sometimes implies quality and other desirable attributes (Ditto & Jemmott, 1989).

The fourth accounting involves the possibility that unavailability serves as a heuristic cue (Cialdini, 1985). Individuals generally associate rarity with evaluative extremity, particularly in the social domain. The desirability of a target will increase to the extent that the inferred attributes are valued by individuals (Lynn, 1992). For example, Jung and Kellaris (2004) explored cross-national differences between US and France in proneness to the scarcity effect and explained observed differences in terms of boundary conditions. The study also found

product familiarity, uncertainty avoidance, and need for cognitive closure moderate the scarcity effect.

Recently, several researchers examined how perceived scarcity influences customers' perception of price information. Lynn and Bogert's (1996) study examined scarcity's effect on an anticipated price appreciation and found scarcity increased the anticipated price appreciation of collectible products. Lynn and Bogert argued that although scarcity does not affect a product's actual potential for price appreciation, news reports of scarce collectibles that have appreciated in value may lead people to develop naive economic theories associating scarcity with price appreciation. Suri, Kohli and Monroe (2007) examined how perceived scarcity influences consumers' processing of price information. Under scarcity, consumers' perceived quality and monetary sacrifice showed different response patterns, depending on the relative price level and consumers' motivation to process information (Suri et al., 2007). The study found that in the high price in the high motivation condition, the perceived quality and value, and purchase intentions increased under scarcity and supported the hypothesis that motivation to process information moderates the effects of scarcity on information processing. Suri et al. argued that an increase in perceived value of an offer depends on whether or not the price information is used more in its role to evaluate the perceived sacrifice or perceived quality.

However, a few researchers argued that the appeal of scarcity does not necessarily result in favorable perceptions for the scarce product because potential purchasers scrutinize an offer more thoroughly (Brannon & Brock, 2001; Brock & Brannon, 1992; Inman, Peter, & Raghurir, 1997). A liberalization of commodity theory, proposed by Brock and Brannon (1992), include three modifications: 1) extension of the domain from any conveyable and possible objects to traits and skills, 2) extension to negative objects, and 3) identification of cognitive elaboration as

a mediator between scarcity and evaluative polarization. Brock and Brannon argued when negatively valenced objects, for which an individual might have a clear aversion, are scarce, the original notion of usefulness is discarded. Also, a negatively valenced experience would be regarded as more aversive to the extent that it is rare.

In addition, cognitive processing of messages may be influenced by an individual's perceived extent of unavailability. In other words, scarcity motivates more thinking about the object or about the message's advocacy, and thinking about the merits of positive and negative messages could lead to the extremization of attitude. As a result, scarcity, or reduced prevalence, makes evaluations more extreme (Ditto & Jemmott, 1989; Jemmott, Croyle, & Ditto, 1986). Ditto and Jemmott (1989) found increased information seeking when a negative personal condition was scarce rather than common. Moreover, Bozzolo and Brock (1992) and Inman et al. (1997) reported that individuals in a situation involving scarcity were more motivated to think about the message; thus scarcity can also make negative evaluations more extreme (Brannon & Brock, 2001).

In sum, commodity theory provides insights into how individuals respond to scarce products. The findings of the majority of research, based on commodity theory, suggest that when individuals perceive a scarce product as more unique or valuable, scarcity will elicit positive feelings about the product. Based on such a positive perspective on scarcity, commodity theory should predict an increase in the attractiveness of a restaurant's scarce space as well as the perceived value of the dining experience there. However, as some studies found the appeal of scarcity does not always result in a positive influence on attractiveness of the object, conflicting accounts are also possible. In particular, if an initial affective response for the object is not favorable, scarcity-induced evaluative thinking can reduce the attractiveness of the object.

2.4. Equity Theory and Fairness Perception

Equity theory, proposed by Adams (1965), focuses upon a person's fairness perceptions with respect to a relationship. The theory postulates that individuals consider what they put into a given situation relative to what they gain from the situation and then compare this with the inputs and outcomes of others. If the relationships are inferentially inequitable or unfair, individuals may become resentful and angry and may become uncooperative and engage strategic actions in order to return to a position of equity.

Researchers defined fairness as a judgment of whether or not procedures reach an outcome and/or if the outcome itself is reasonable, acceptable, and just (Bolton, Wallop, & Alba, 2003; Mauri, 2007; Monroe & Xia, 2005) and they identified three major aspects of fairness: distributive, procedural and interactional fairness (Adams, 1965; Bies & Moag, 1986; Deutsch, 1975; Lind & Tyler, 1988). Perceptions of fairness are not only driven by outcomes but also influenced by the fairness of the process and interpersonal treatment. In other words, distributive fairness refers to perceived fairness of the outcome's allocation (Adams, 1965; Deutsch, 1975) while procedural fairness relates to the process, methods, and rules used to reach outcomes (Leventhal, 1980; Lind & Tyler, 1988). Interactional justice is based on the perceived fairness of the interpersonal treatment received, whether or not those involved are treated with sensitivity, dignity, and respect, and also by the nature of the explanations given (Bies & Moag, 1986).

Perceived fairness appears to be an important part of sustaining customer satisfaction, loyalty, and long-term profitability (Kimes & Wirtz, 2003; Thaler, 1985; Kahneman, Knetsch, & Thaler, 1986; Urbany, Madden, & Dickson, 1989). Previous research has shown that unfair price perceptions influence customers' satisfaction, purchase intentions, and complaints (Campbell,

1999; Huppertz, Arenson, & Evans, 1978; Martins, 1995). Customers believe that the value to the firm should be equal to the value to the customers (Kahneman et al. 1986). If that relationship becomes unbalanced by increasing the value to the firm or decreasing the value to the customer, the customer may perceive subsequent transactions to be unfair (Kimes 1994). Therefore, if customers perceive RM practice as an unfair policy, such negative perceptions may engender dissatisfaction with the service or product, and consequently, increased revenues accruing from RM practice may be short-term (Kimes, 2002; Hoang, 2007).

In the RM context, fencing conditions, framing of rate fences, familiarity with RM practices and information disclosure of rate fences have all been found to have effects on fairness perceptions (Choi & Mattila, 2005; Wirtz & Kimes, 2007). Rate fences refer to rules and policies that a company uses to decide who receives what price and to distinguish one transaction from another (Kimes & Wirtz, 2003b). Kimes and Wirtz (2002) showed that the presentation of a rate fence to customers influences customers' fairness perceptions. Kimes and Wirtz (2002) studied the fairness perception of six RM practices in the golf industry and showed that golfers perceived arrival time control practices in the form of reservation fees or no-show fees to be fair. In addition, golfers perceived demand-based pricing in the form of coupons (two for the price of one), time-of-day, and reduced tee time intervals to be fair while the perception of time-of-booking pricing was neutral to slightly unfair. Kimes and Wirtz (2003) also examined customers' perceptions of the fairness of five demand-based pricing methods in the restaurant industry. The study found the perceptions of RM pricing in the form of coupons, time-of-day pricing, and lunch/dinner pricing were fair, while weekday/weekend pricing had a neutral to slightly unfair perception, and table location pricing gained a somewhat unfair perception. McGuire and Kimes (2006) tested the perceived fairness of four waitlist-management techniques in restaurants. The

study showed that party-size seating and call-ahead seating were perceived to be fair policies, while VIP seating and large-party reservations were perceived to be unfair policies.

Framing effects refer to the phenomenon that people respond differently to different descriptions of the same condition (Frisch, 1993), and prospect theory posits that individuals value gains and losses differently even if the situations are economically equal (Kahneman & Tversky, 1979; Thaler, 1985). According to framing effects and prospect theory, when prices are framed as a gain from a customer's perspective, the customer is more favorably disposed and accordingly perceives that price to be fairer than when those prices are framed as a loss.

Wirtz and Kimes (2007) examined the effects of familiarity with RM pricing, framing of prices, and fencing conditions. They found that familiarity moderated the effects of framing and fencing conditions on customers' fairness perceptions. This was especially true for cases in which customers were less familiar with the RM pricing.

Moreover, Choi and Mattila (2005) found that customers' fairness perceptions increased when customers were aware of the various reservation factors affecting room rates. Choi and Mattila (2005) conducted a study to examine how much and what type of information hotels should provide customers to enhance fairness perceptions. Customers who received no information generally thought the process was unfair. Limited information had little effect on fairness perception. When informed customers knew how the various reservation factors affected a room rate, fairness perceptions ratings increased compared to limited-information scenarios. Therefore, a restaurant adopting RM practice should develop reasonable rate fences with favorable framing from customers' perspectives to enhance distributive fairness perceptions, and the company should attempt to inform customers of the methods which determine prices to increase perceptions of procedural fairness.

Considering the aforementioned issues, when restaurants implement RM practices and develop rate fences to manage capacity, they need to understand how customers may perceive capacity limitations and respond to price differences between high-demand and low-demand periods. This is important because customers are mostly familiar with RM pricing policies in RM industries with fixed capacities, and such perceptions may influence procedural fairness. In addition, price difference may be related to distributive fairness because price difference can influence customers' reference price and reference transaction. Equity theory demonstrates that customers compare the ratio of inputs and outcomes (i.e., the service offerings and prices) available to them with those obtained by other customers (Hunt & Kernan, 1991; Huppertz et al., 1978), and the theory emphasizes the need to justify different rates (Xia et al., 2004). If a restaurant charges different prices for the same menu on different days of the week or times of day, the reference price may change resulting in a negative effect on fairness perceptions of the restaurant's RM practice. However, customers' perceptions of capacity limitation and price differences between high-demand and low-demand periods in restaurants have yet to be examined. The current study, therefore, attempts to fill this void in the RM literature.

2.5. Customers' Perceptions of the Price Differences

Assuming price influences customers' decisions because price serves as an indicator of purchase cost (Monroe, 1973), price is one of the most effective variables that firms can manipulate to encourage or discourage demand in the short-term (Bitran & Caldentey, 2002). In particular, demand-based variable pricing policies have had frequent use in traditional RM industries such as airlines and hotels. Demand-based variable pricing policies assist a company to increase revenues in two ways: By charging the less price-sensitive market segments premium

prices, the company can gain greater revenue, and simultaneously, charging discounted prices to a price-sensitive market segments to encourage increased sales, offsetting the price reduction.

Balancing customer demand with service providers' ability to serve those customers has been a challenge in the hospitality industry (Dickson et al., 2005). Demand-based pricing proved to be successful for airlines and hotels. Airlines and hotels set different prices at different time points according to the predicted demand, and vary prices according to actual demand. In general, the more restrictions the customer is willing to accept, the deeper the available discount (Kimes, 1994). Although restaurants may be more limited than hotels and airlines in varying prices according to actual demand, opportunity remains for restaurants to implement such practices based on predicted demand. Restaurants can apply demand-based variable pricing in order to balance customer demand with restaurants' existing capacities. Restaurants may ask customers to pay full rate during high-demand periods (e.g., Friday and Saturday nights) and provide discounts to customers during low-demand periods (e.g., Wednesday night) as airlines and hotels do. By doing so, restaurants can segment customers by the price that they are willing to pay and make tables available only to those who are willing to accept higher prices when demand exceeds a restaurant's capacity. If price-sensitive customers are aware of the pricing policy, a demand-based differential pricing policy should allow price-sensitive customers to take advantage of day-of-the-week discounts. Thus, restaurants can expect decreasing numbers of customers during peak periods and increasing numbers of customers during slow periods. Most restaurants have a higher demand on weekend evenings than during weekday evenings, but restaurant operators are reluctant to raise prices in response to that high demand because of potential customer dissatisfaction (Kimes & Wirtz, 2002).

Studies found that customers refuse to patronize companies viewed as being unfair

(Kahneman et al., 1986; Thaler, 1985; Xia, Monroe, & Cox, 2004). And thus, if demand-based pricing in a restaurant incurs customers' perceptions of being unfair, the restaurant may suffer from a loss of business (Kimes & Wirtz, 2002). Kimes and Wirtz (2002) identified two reasons why customers may perceive demand-based pricing in a restaurant to be unfair: First, customers often rely on reference prices to evaluate the fairness of a transaction (Kahneman, Knetsch, & Thaler, 1986), and higher prices during high-demand periods can be perceived to be higher than their reference prices, or customers' reference prices may have shifted downward because of lower prices during low-demand periods. Second, customers may not accept that the restaurant provides more value for the higher price, which would violate the principle of dual entitlement which argues that most customers believe that they are entitled to reasonable prices and firms are entitled to reasonable profits (Kahneman et al., 1986). Further, according to the principle of dual entitlement, customers think that raising the price to maintain profits is fair; whereas, they think that raising the price to increase profits is unfair. Thus, an increase in price is considered to be fair if it is due to a cost increase, but considered unfair if it is increased without a corresponding increase in cost. Accordingly, if the higher prices during high-demand periods cannot be justified either by higher associated costs or through certain desirable conditions, customers may view restaurants' demand-based pricing policies to be unfair.

Furthermore, customers' responses to price differences and price difference's impact on patronage decisions may be influenced by the magnitude of the price difference between high-demand and low-demand periods. This hypothesis' explanation lies in several theories and conceptual frameworks. First, this price perception hypothesis has a theoretical foundation in Helson's adaptation-level theory (Monroe, 1973) whose basis is the assumption that stimuli are judged with respect to internal norms representing the pooled effects of present and past

stimulations (Kalyanaram & Winer, 1995). According to adaptation-level theory, assessments of stimuli difference depend on the magnitude of the standard against which the assessments are made, and individuals' behavioral responses to stimuli represent modes of adaptation to environmental and organismal forces (Helson, 1964). Perceptual assessment of a stimulus is dependent on the relationship between the physical value of that stimulus and the physical value of the current adaptation level (Monroe, 1973). In a pricing context, adaptation-level theory suggests price perceptions rely on the actual price and the customer's reference price or adaptation level. Further, the adaptation level is a function of the magnitude of a series of stimuli, the range of stimuli, and the dispersion of stimuli from the mean. Emery (1970, p 98) has proposed several implications from adaptation-level theory on price perception:

1. Price perceptions are relative to other prices and to associated use-values.
2. A standard price for each discernible quality level for each product category exists.
3. The standard price serves as an anchor for judgments of other prices.
4. A region of indifference exists for a standard price such that changes in price within this region produce no change in perception.
5. The standard price is some average of the prices for similar products.
6. Buyers do not judge each price singly, but rather each price is compared with the standard price and the other prices in the price range.
7. The standard price need not correspond with any actual price or the price of the leading brand.

Second, assimilation-contrast theory (Sherif & Hovland, 1958) states that regions internal to people's perceptual judgments exist - namely, latitude of acceptance, latitude of rejection, and latitude of non-commitment. While a new stimulus that falls within the latitude of

acceptance may be acceptable and consequently assimilated, the stimulus that falls within the latitude of rejection is unacceptable or objectionable. In the context of price evaluations, latitude of acceptance comprises an acceptable price range encompassing a reference point; latitude of rejection translates into an unacceptable price range, and latitude of non-commitment constitutes a range of neither acceptable nor unacceptable prices. Thus, assimilation-contrast theory suggests that the price differences falling within consumers' acceptable price ranges are either accepted or assimilated (Blair & Landon, 1981; Liefeld & Heslop, 1985; Frankenberger & Liu, 1994). Assimilation shifts the existing internal reference point toward the price difference. In other cases, when price differences fall outside the acceptable price range, they are contrasted or rejected (Monroe & Petroschius, 1981).

Third, Xia et al. (2004) extended social-comparison theory to pricing and suggested that customers compare transactions and prices paid. These scholars argued that when the degree of perceived similarity between transactions is high, customers have little differential information on which to justify price differences (Xia et al., 2004). Accordingly, customers are likely to believe that they are entitled to equal prices and are likely to view price differences to be unfair.

Fourth, transaction utility theory posits that the value derived by a customer from an exchange consists of two drivers: acquisition utilities and transaction utilities (Thaler, 1985). Acquisition utility represents the perceived value of money (Ahtola, 1984; Zeithaml, 1988), and transaction utility reflects the consumer's reaction to price relative to the price expected. While acquisition utility can be thought of as quality received relative to price paid (Zeithaml, 1988), transaction utility represents the incremental utility associated with “a good deal” (a price lower than expected) or, alternatively, an exorbitant cost (Urbany et al., 1997). Equity theory and social cues may also impact the transaction's utility (Martins & Monroe, 1994). Transactions tend to be

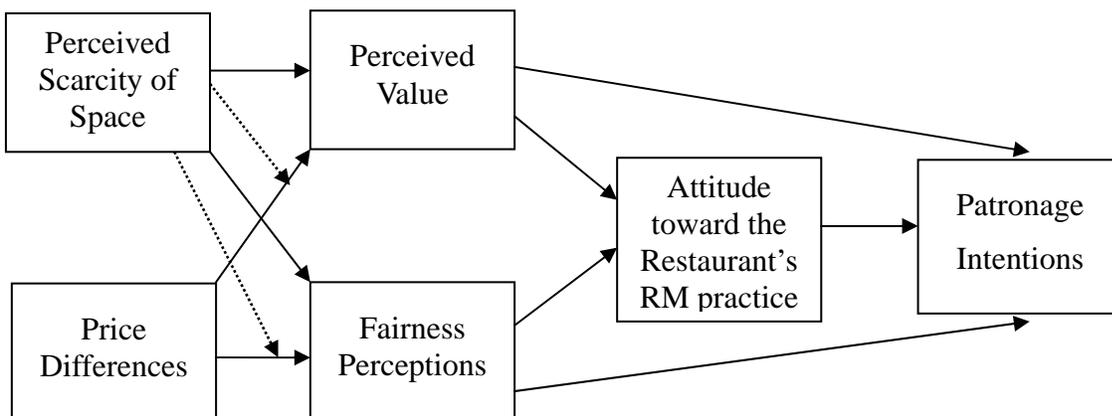
perceived as favorable and fair when the ratio of costs and benefits is the same for all customers; conversely customers encountering price-disadvantage in a transaction tend to feel dissatisfied (Adams, 1963).

In conclusion, perceived value and fairness evaluations are comparative in nature. Perceptions of prices arise from customers comparing outcomes or prices comparable to others' outcomes (Xia et al., 2004). As a result, customers are affected by the magnitude of price differences, and customers' perceptions of value and fairness are relative to the prices other customers pay.

2.6. Conceptual Model and Construct Definitions

A theory refers to a generalization about a phenomenon that explains how or why the phenomenon occurs (Frey et al., 1991), and a theory is a statement of relationships between observed or approximated phenomenon in the empirical world. Approximated units are constructs which, by their very nature, cannot be observed directly, may be applied or even defined on the basis of the observables (Kaplan, 1964). Variables, on the other hand, may be defined as observable units capable of assuming two or more values (Bacharach, 1989).

Figure 2. Proposed Model



The conceptual model for this study has its basis in theoretical foundations discussed in the previous section and presented in Figure 2. The constructs constituting the conceptual model in this study and their definitions appear in Table 3, with detailed discussion in this section. The methodology section discusses measurement variables for each construct.

Table 3. Definitions of Constructs in the Conceptual Model

Construct	Definition in This Study	Abbreviation
Perceived Scarcity of Space	Availability of space of the restaurant	PS
Price Differences	Price differences between high-demand periods and low-demand periods	PD
Perceived Value	Customers' perceptions of what the customer receives in the restaurant for what the customer remits	PV
Fairness perceptions	Customers' perceptions of fairness from the restaurant's RM practice (demand-based pricing policy)	FP
Attitude toward the restaurant's RM practice	Customers' attitudes toward the restaurant's RM practice (demand-based pricing policy)	AT
Patronage Intentions	Customers' intentions to repatronize the restaurant	PI

2.7. Hypothesis Development

2.7.1. Main Hypotheses

The findings of research based on commodity theory suggest that when individuals perceive a scarce product as more unique or valuable, scarcity will elicit positive feelings about the product. Based on such a positive perspective of scarcity, commodity theory should predict

perceived scarcity of space in a restaurant as an increase in the attractiveness of the restaurant, as well as an increase in the perceived value of the dining experience in the restaurant. Although most research on commodity theory (e.g., Worchel et al., 1975; Verhallen, 1982) focused on tangible goods and studies focusing on service products are rare, similar positive effects of perceived scarcity of space in restaurants on perceived value are to be expected. In other words, customers who perceive the space of restaurants during peak period to be scarce should perceive a higher value for the dining experience. Therefore, this study proposes the hypothesis:

H1: Perceived scarcity of space in a restaurant will positively influence the perceived value of the restaurant's expected offering.

In addition, perceived scarcity of space is likely to relate to perceived fairness of RM practices. First, with procedural justice, customers evaluate the policies and processes used to make practices; whereas, with distributive justice, customers evaluate the outcomes of the processes (Smith, Bolton, & Wagner, 1999). Both equity theory and the principle of dual entitlement indicate that information that provides reasons for setting a certain price may influence perceived price perception (Xia et al., 2004). Empirical studies discovered that the information for determining a price point has a significant effect on perceptions of pricing fairness (Choi & Mattila, 2004), and consequently, customers' willingness to purchase (Maxwell, 2002). Maxwell (1995) demonstrated that judgments of price fairness result from consumers' considerations of how the seller determines prices and whether prices are affordable to everyone. Providing a logical reason for various RM practices seems important for establishing procedural fairness, and such procedural fairness may influence distributive fairness. Apprehension of scarcity of space in restaurants may enable customers to understand the reasons for RM practices, such as differential prices between high-demand and low-demand periods, and thus increase the

perception of fairness.

Second, according to commodity theory, people assume that scarce things are more expensive and often assumed they are of better quality. Therefore, perceived scarcity of space in a restaurant will enhance the attractiveness of the dining experience in the restaurant. Since available tables are limited during high-demand periods in restaurants, customers will put more value on the dining experience during high-demand periods than low-demand periods. Thus, perceived scarcity of space in a restaurant will have a positive relationship with distributive fairness. Therefore, this study proposes:

H2: Perceived scarcity of space in a restaurant will positively influence fairness perceptions of the restaurant's RM practice.

However, price differences will have a negative relationship with perceived value of the restaurant's expected offerings. Perceived value is the consumer's overall assessment of the utility of a product based on perceptions of what is received and what is given (Zeithaml, 1988). Thus, perceived value can be measure by the quality that the consumer received for the price paid (Monroe, 1990). When a restaurant charges different prices for the same menu on different days of the week, consumers may perceive the quality of food and service is to be the same, but the prices are different. As a result, as the price difference increase, the perceived value will decrease.

The price difference will also have negative influence on fairness perceptions of RM practice in restaurants. Abundant research suggested that one determinant of price perception is the reference price relative to the present price level, actual or perceived. Because customers typically do not understand a firm's cost structure and other important information which allow accurate assessment of the seller's inputs (Bolton et al., 2003), fairness perception of prices is

most likely based on comparative or highly similar transactions or reference transactions (Xia et al, 2004). When a wide variation exists in the prices charged, customers tend to compare the prices paid to the prices paid by other customers (Bolton, Warlop, & Alba, 2003; Chen, Monroe, & Low, 1998; Martins & Monroe, 1994), and customers with larger gain-loss ratios may be perceived as receiving an unfair advantage (Adams, 1963). Uhl (1970) postulated that behavioral response to price changes depends on exposure to and perception of price changes and motivation to alter behavior as a result. Uhl (1970) also argued that the perception of a price change depends on its magnitude. The price difference between high-demand and low-demand periods may impact the reference price and reference transaction. When a restaurant charges different prices for the same menu on different days of the week, and if the price during high-demand periods falls outside the acceptable price range, those conditions may negatively affect the perception of fairness perception from the restaurant's RM practice. Therefore, this study proposes:

H3: The price difference between low-demand periods and high-demand periods will negatively influence the perceived value of the restaurant's expected offering. In other words, the higher the price difference is, the lower the perceived value of the restaurant's expected offerings.

H4: The price difference between low-demand periods and high-demand periods will negatively influence fairness perceptions of the restaurant's RM practice. In other words, the higher the price difference is, the lower fairness perceptions of the restaurant's RM practice.

In addition, Brock and Brannon (1993) proposed perceived expensiveness is a moderator of scarcity effect, although they did not empirically test the relationships. Therefore, this study proposes:

H5: The price difference between low-demand periods and high-demand periods will

moderate the relationship between perceived scarcity of space in the restaurant and the perceived value of the restaurant's expected offering.

H6: The price difference between low-demand periods and high-demand periods will moderate the relationship between perceived scarcity of space in the restaurant and fairness perceptions of the restaurant's RM practice.

2.7.2. Replication Hypotheses

A number of researchers investigated the role of perceived value in consumption contexts, and previous research provided extensive evidence for the positive influence that perceived value has on purchase intentions or customers' willingness to buy (Della Bitta et al., 1981; Dodds et al., 1991; Grewal et al., 1998; Monroe, 1990; Rao & Monroe, 1989). For example, Zeithaml (1988) proposed the means-end model to analyze the relationships among price, quality, and perceived value, and provided evidence that perceived value is a direct antecedent of a purchase decision. Bolton and Drew (1991) proposed that customers' perceived value partly determine future intentions. The hospitality literature also reported research on customers' perceptions of value. Bojanic (1996) reported a strong positive correlation between perceived value and customer satisfaction across and within all hotel market segments. When consumers perceive that they have obtained a good value, the firm met or exceeded their expectations, and the consumer had a satisfying service encounter. Oh (1999) proposed and tested an integrative model for service quality, customer value, and customer satisfaction using a sample from the luxury hotel segment. Oh's study showed perceived value is an immediate antecedent to customer satisfaction and repurchase intention, and it also affects word-of-mouth directly and indirectly. One suggestion is that behavioral intentions can predict actual behavior,

when properly measured (Ajzen & Fishbein, 1980). According to the Zeithaml, Berry, and Parasuraman (1996) model of behavioral consequences of service quality, behavioral intentions are a multidimensional concept, and favorable behavioral intentions associate with a service provider's ability to encourage customers to 1) say positive things about them, 2) recommend them to other consumers, 3) remain loyal to them (e.g., repurchase products from the service provider), 4) spend more with the company, and 5) pay price premiums. Abundant research in service marketing literature frequently adopted word-of-mouth (WOM) and purchase intentions to measure future behavior (e.g. Babakus & Boller, 1992; Cronin & Taylor, 1992; Cronin, Brady, & Hult, 2000; McDougall & Levesque, 2000; Oh, 1999). Therefore, in the restaurant RM context, a similar positive effect from customers' perceptions of value on satisfaction and behavioral intentions such as WOM and restaurant patronage are expectations. Therefore, this study proposes:

H7: Perceived value of the restaurant's expected offering will positively influence attitude toward the restaurant's RM practice.

H8: Perceived value of the restaurant's expected offering will positively influence restaurant patronage intentions.

Previous studies identified that perceived value and fairness perceptions (Seider & Berry, 1998) are important variables in explaining individual's satisfaction evaluation. Research shows that fairness perceptions of a firm's strategic behavior positively influence consumers' shopping intentions (Campbell, 1999), and perceptions of unfairness from pricing result in dissatisfaction (Oliver & Swan, 1989). Therefore, this study proposes, that to the extent customers perceive greater levels of fairness and value, they will be more satisfied with the restaurant's RM policy and be more likely to patronize or recommend the restaurant to others. Therefore, this study

proposes:

H9: Fairness perceptions of the restaurant's RM practice will positively influence attitude toward the restaurant's RM practice.

H10: Fairness perceptions of the restaurant's RM practice will positively influence patronage intentions.

H11: Attitude toward the restaurant's RM practice will mediate the relationship between the perceived value of the restaurant's expected offering and patronage intentions.

H12: Attitude toward the restaurant's RM practice will mediate the relationship between fairness perceptions of the restaurant's RM practice and patronage intentions.

H13: Attitude toward the restaurant's RM practice will positively influence patronage intentions.

CHAPTER 3

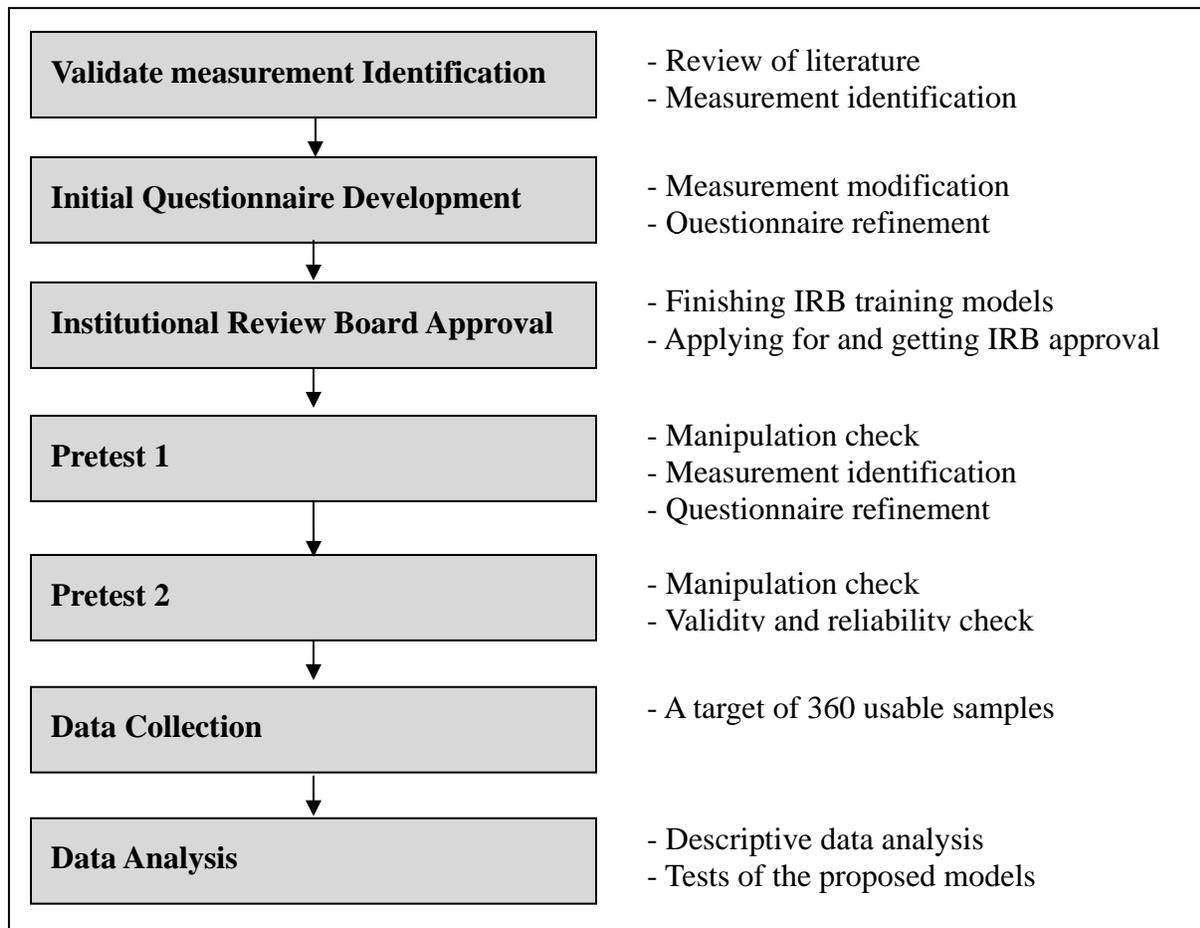
RESEARCH METHODOLOGY

Chapter Three presents a description and justification for the research method used. This chapter provides an overview of the research design and discusses the methodological issues relevant to the empirical testing of the hypotheses proposed in this study. The details of scenario development and data collection procedures are explained. Last, the results from the pre-tests and manipulation checks are presented.

3.1. Procedure

The procedures presented in Figure 3 guided data collection and analyses. Validation measures identified from relevant literature (Step 1) and adapted for the casual dining restaurant context led to development of an initial questionnaire (Step 2). A review of the initial questionnaire's results by tourism and hospitality faculty and doctoral candidates refined the content (Step 3) before submission to the Institutional Review Board for approval (Step 4). Upon approval, 66 tourism and hospitality undergraduate students and 132 general population participants pretested the initial questionnaire (Step 5 and Step 6). For the main survey, online distribution of the questionnaire to a general U.S. population resulted in a usable sample of 505 responses (Step 7). Last, data was analyzed to ascertain sample characteristics, check reliability and validity of the construct measures, and assess the proposed models (Step 8).

Figure 3. Data Collection and Analysis Procedures



3.2. Design of the Study

In scientific research, an experiment is a method of examining causal relationships among variables. In social science, experiments frequently test specific hypotheses or evaluate functional relationships because they allow researchers to establish causal relationships among different aspects of behavior and environment (Campbell, 1957). In an experiment, with one or more controlled variables (independent variable), measurement involves another variable's (dependent variable) response to different conditions. Because of the behavioral orientation, this

study uses a controlled experimental method.

To test the aforementioned purpose, this study uses, a three (Scarcity of space: High, Low or No) by four (Price difference: 10%, 20%, 30%, or 40%) factorial, between-subjects design (Table 4). The general goal of a between-subjects design is to determine whether or not differences exist between two or more treatment conditions (Gravetter & Forzano, 2002). The word “treatment” refers to levels of the independent variable or factor.

Table 4. Experimental Design

Constructs		Levels		
PS (Perceived Scarcity)	No	Low	High	
PD (Price Difference)	10%	20%	30%	40%

Between-subjects design has several disadvantages: First of all, a between-subjects experimental design requires a separate, independent group of individuals for each treatment condition, resulting in the need for a relatively large number of participants (Gravetter & Forzano, 2002). Another disadvantage of a between-subjects design stems from the fact that each score arises from a unique individual who has personal characteristics different from all of the other participants (Gravetter & Forzano, 2002).

However, a between- subjects design is useful in several ways: A main advantage of a between-subjects design is that each individual score is independent of the other scores. Because measurement of each participant occurs only once, reasonable confidence exists for the resulting measurement is relatively clean and uncontaminated by other treatment factors. For this reason, a between-subjects design is often called an independent measure design. Also a participant’s score is not influenced by such factors as experience gained in other treatment, fatigue from

participating in a series of treatments, or contrast effects that result from comparing one treatment to another.

This study used written scenarios to manipulate the perceived scarcity of space in restaurants and price differences between high and low demand periods. While not without disadvantages, the scenario approach with role-playing has had frequent application in consumer behavior research (e.g. Dabholkar, 1996; Noone & Mattila, 2009; Wirtz & Kum, 2001). This study uses a scenario method with role-playing to reduce possible problems caused by personal circumstances in the research context (Havlena & Holbrook, 1986) and to decrease experimental noise by employing a standardized setting for all subjects (Churchill, 1995; Cook & Campbell, 1979).

3.3. Development of Survey Instruments

The questionnaire was designed with the relevant constructs primarily based on scales taken from previous research. Some adjustments were necessary for the specific characteristics of the restaurant industry and for this research setting, and a seven-point Likert scale measures each item. The operationalization of each variable appears in Table 5.

3.3.1. Manipulation Check

In the literature, unavailability refers to scarcity and other limits on availability (Lynn 1991), and thus these terms provide the basis for the concept of perceived scarcity of restaurant space. To perform a manipulation check for the perceived scarcity construct, the survey includes two questionnaire items: limitedness and availability. Two questionnaire items used in pretest 1 were: 1) Space at this restaurant on Friday is very limited. 2) Tables at this restaurant on Friday

are readily available. However, the first questionnaire item was revised to “Chances of having dinner at this restaurant on Friday are very limited.”

Table 5. Survey Instrument and Scale

Variable	Items	Survey Instruments
Perceived Value (PV)	3	- The overall expected value of the restaurant's offering to me will be... (1=very low, 7=very high)
		- This restaurant offers good value for the price (1= strongly disagree, 7= strongly agree).
		- Having a dinner at this restaurant will be worth the money (1= strongly disagree, 7= strongly agree).
Perceived Fairness (FP)	4	I believe this restaurant’s pricing policy is... Fair (1= strongly disagree, 7= strongly agree). Acceptable (1= strongly disagree, 7= strongly agree). Unfair (1= strongly disagree, 7= strongly agree).
		Satisfactory (1= strongly disagree, 7= strongly agree).
		4
	- Procedural - Distributive	
Attitude toward RM (AT)	4	How do you feel about the restaurant's differential pricing policy based on day of the week? Unfavorable (1) - Favorable (7) Negative (1) - Positive (7) Bad (1) - Good (7) Dislike (1) - Like (7)
Patronage Intention (PI)	4	How likely are you to visit this restaurant? Unlikely (1) - Likely (7) Impossible (1) - Possible (7) Improbable (1) - Probable (7) Uncertain (1) - Certain (7)

3.3.2. Perceived Value Scale

Perceived value represents “the consumers’ overall assessment of the utility of a product

based on perceptions of what is received and what is given” (Zeithaml, 1988, p.14). The survey includes three direct measures to capture customers’ perceived value; th three items are those of the Cronin, Brady, and Hult’s (2000) study, but modified for relevance for the restaurant RM.

3.3.3. Perceived Fairness Scale

Consistent with Kukar-Kinney, Xia, and Monroe (2007), measurement of both procedural fairness and distributive fairness use a set of four items: fair, acceptable, unfair, and satisfactory. Kukar-Kinney et al. (2007) adapted this measure from Campbell’s (1999) study and added additional items to measure pricing policy, fairness (procedural fairness), and price fairness (distributive fairness).

3.3.4. Attitude Scale

Attitude is an important concept in marketing research. Fishbein (1967) defined an attitude as a learned predisposition of human beings, and Kotler (2000) stated that an attitude is a person’s enduring favorable or unfavorable evaluations, emotional feelings, and action tendencies toward some object or idea. Most researchers agree that attitudes refer to mental state of the individual which represents positive, negative, or neutral feelings toward an object, concept, or idea (Tuncalp & Sheth, 1975). A high correlation of attitudes to behavioral intention, and subsequently to behavior, has had confirmation in many studies (e.g., Ajzen & Fishbein, 1980). The current study measures attitude toward a restaurant’s RM practices with four items, adapted from Tuncalp and Sheth (1975). These items are all widely used scales for measuring the level of attitude and have been empirically verified in the literature (e.g., Batra & Ahtola, 1991).

3.3.5. Patronage Intention Scale

The semantic differential scale measures the stated inclination of a person to engage in a specified behavior. Abundant research in service marketing literature has frequently adopted patronage intentions to measure future behavior (e.g., Boulding et al., 1993; Cronin, Brady, & Hult, 2000; Jeong, Oh, & Gregorie, 2003; McDougall & Levesque, 2000; Oh, 1999). Therefore, measurement of the behavioral intentions in this study use four questions similar to those in prior service marketing research (e.g., Chattopadhyay & Basu, 1990; Grossbart, Muehling, & Kangun, 1986, Lim, Darley, & Summers, 1994; Martin, Lee, & Yang, 2004).

3.3.6. Covariates: Tolerance of Crowding, Familiarity with RM, and Gender

If some of the unexplained variance in terms of other variances (covariates) can be explained, then the error variance is reduced, allowing accurate assessment of the effect of the experimental manipulation. Perceived scarcity of space in a restaurant may relate to customers' perceptions of crowding. Therefore, a tolerance-of-crowding measure, adopted from Machleit et al. (2005), is one covariate in the Factorial ANCOVA. Moreover, previous research found customers' familiarity with RM practices has proven impact on fairness perceptions for RM (e.g., Taylor & Kimes, 2010; Wirtz & Kimes, 2007). For example, Wirtz and Kimes (2007) found that familiarity with RM moderates the effects of framing and fencing conditions on consumers' fairness perceptions. In particular, framing and fencing conditions have strong effects on fairness perceptions when customers are less familiar with RM pricing. Wirtz and Kimes (2007) suggested that as the customers become more familiar with RM practices, the unfairness perceptions declined over time because customers who were familiar with RM tended to have already adjusted their transaction and price references, resulting in less, or even no impact on

perceived price fairness. Thus, customers' familiarity with RM practices (demand-based pricing policy: Weekdays-versus-weekends) in restaurants was measured as an included covariate in the Factorial ANCOVA. Last, Beldona and Namasivayam (2006) examined gender differences in relation to perceived price fairness and subsequent repurchase intentions. These researchers found that females perceived significantly less fairness across all pricing scenarios in both discount and surplus frames. Beldona and Namasivayam (2006) argued for differences in the manner in which men and women evaluate fairness, and thus, research into fairness perceptions has to account for gender differences. Thus, three covariates, tolerance of crowding, familiarity with RM and gender, are included in Factorial Analysis of Covariance (ANCOVA) in this study.

3.4. Pretest 1

The goal of the Pretest 1 was to perform a manipulation check for the perceived scarcity and price difference and validate measurement items. This study developed a questionnaire for the casual dining restaurant context and conducted a pretest. The survey questionnaire used written scenarios to manipulate perceived scarcity of space in restaurants and price differences between high and low demand periods. Each of the stimuli, pretested to confirm the efficacy of the manipulations, represented the different treatment conditions of perceived scarcity of space and price difference. To manipulate perceived scarcity of space, the restaurant described in the first scenario, had tables readily available on Friday and Saturday (No Scarcity). The second restaurant scenario described tables to be not always available on Friday and Saturday (Low Scarcity). The last restaurant scenario described the tables in the restaurant as being seldom available on Friday and Saturday (High Scarcity). And the price difference between weekdays and weekends in the scenarios was either 10% or 40% to see whether respondents recognize the

price difference. 20% and 30% scenarios are not included in Pretest 1, because the purpose of this study is to examine how the magnitude of price difference between weekdays and weekends, not perceived price, influences on customers' perceived value and fairness perceptions of the restaurant's RM practice.

The survey, initiated with a brief introduction to the nature of the study, proceeded with participants' reading their scenarios. The questionnaire included two questions for perceived scarcity of space: 1) Space at this restaurant on Friday is very limited, and 2) Tables at this restaurant on Friday are readily available. One question for perceived price difference was included in the questionnaire. Second, the participants answered questions about their perceived valuation of the restaurant's expected offering and their fairness perceptions for the variable demand-based pricing policy (procedural fairness) and price difference (distributive fairness). In addition, respondents were asked to indicate their attitudes toward the restaurant's variable demand-based policy and their patronage intentions. The last, questions measured respondents' tolerance for crowding and familiarity with RM practice in restaurants, and other demographic questions such as gender, age, ethnicity and education concluded the survey. Demographic questions are included to see whether they are related to attitude toward the restaurant's RM practice.

The questionnaire was pilot tested via distribution to 66 hospitality undergraduate students at the University in East Coast in the U.S., afforded the participating students extra credit in a course. Excluding unqualified and/or inconsistent responses resulted in 55 remaining responses for pilot analysis (83.3%). Among the respondents, 18.2 % were male students, and 81.8% were female students.

Assessment of the scales included checks for internal consistency and unidimensionality (Traub, 1994). This separate assessment was necessary because a high Cronbach's alpha does not automatically imply unidimensionality (Gardner, 1995). Since the scales were adapted from other consumer goods marketing studies, these assessments are important for this study. Thus, internal consistency was estimated using Coefficient Alpha, and unidimensionality was established through confirmatory factor analysis for each scale with extraction based on Maximum Likelihood. Gerbing and Anderson (1988) suggested using confirmatory factor analysis for scale development because it affords stricter interpretation of unidimensionality. Factor analysis attempts to group correlated items together for measuring an underlying latent trait, while coefficient alpha characterizes the average degree of correlation between items (or the average split-half correlation). The average variance extracted (AVE) for each construct was above the recommended value of .50 (Fornell & Larcker, 1981). For all constructs, reliability was above the suggested cut-off point of .70 (Nunnally, 1978).

The t-test revealed that respondents perceived price differences between weekdays and weekends (10% vs. 40%) to be different (t-value: -5.09, p-value: .00). However, post hoc analysis showed manipulations for perceived scarcity of space did not elicit the hypothesized responses. Although perceived scarcity of space in the "No" situation was lower than the two other situations and statistically significant; no difference appeared in perceived scarcity of space between the "Low" and "High" situations. Thus, the scenarios, with manipulation for perceived scarcity of space and questions for the manipulation check, were revised, as presented in Table 6. The initial description for a restaurant in the "High" scarcity situation was described as "The tables are seldom available on Friday and Saturday." To enhance the perceived scarcity of space in the "High" scarcity situation, the description was revised to "The tables are always

unavailable on Friday and Saturday” The description of a restaurant in the “Low” scarcity was also revised from “The tables are sometimes unavailable on Friday and Saturday” to “The tables are normally available, but not always, on Friday and Saturday”. Revised manipulations for perceived scarcity of space were tested in another pretest with edited questions.

Table 6. Revised Manipulations for Perceived Scarcity of Space in Scenarios

Perceived Scarcity of Space	High	The tables are always unavailable on Friday and Saturday.
	Low	The tables are normally available, but not always, on Friday and Saturday.
	No	The tables are always available on Friday and Saturday.

3.5. Pretest 2

Revised manipulated scenarios for perceived scarcity of space appear in Table 6. Two questions for checking manipulation were also revised: 1) Tables at this restaurant on Friday are readily available. And, 2) Chances of having dinner on Friday at this restaurant are very limited. Respondents indicated their degree of agreement with the statement on a 7-point scale. The price difference given for weekdays and weekends in each scenario was only 40%, because differences in the perceived price were identified in Pretest 1.

Data for Pretest 2, collected from a sample of 3,000 general populations, represented individuals who requested tourism information for Arizona, Florida, and Texas. The 3,000 emails were divided into three groups and allocated to each of three scenarios. Each respondent participated in one of the three scenarios (No/Low/High Scarcity). A reminder email followed the original request nine days after the initial email invitation.

Of the 134 total respondents, 39 respondents participated in the survey for the No scarcity (3.9% response rate) scenario; 46 respondents participated in the Low scarcity (4.6%

response rate) scenario, and 49 respondents participated in the High scarcity (4.9% response rate) scenario. After excluding incomplete responses, 124 responses remained for Pretest 2 (4.13% usable response rate - No: 39, Low: 43, High: 44). Profiles of respondents in Pretest 2 appear in Table 7.

Table 7. Profiles of Respondents in Pretest 2

		Frequency	Percentage
Gender	Male	32	25.8
	Female	86	69.4
Income	US\$ 20,000 or under	5	4.0
	US\$ 20,001~ 35,000	8	7.1
	US\$ 35,001~ 50,000	18	16.1
	US\$ 50,001~ 75,000	31	27.7
	US\$ 75,001~ 100,000	22	19.6
	US\$100,001 or more	28	25.0
Education	High School or Less	29	23.4
	Associate	20	16.1
	Bachelors Degree	47	37.9
	Masters	17	13.7
	Doctorate Degree	7	5.6
Age	20 ~ 29	8	6.7
	30 ~ 39	24	20.0
	40 ~ 49	29	24.2
	50 ~ 59	33	27.5
	60 ~	26	21.7

Significant differences in perceived scarcity of space were found among the three scenarios, although the first question did not identify the differences. Differences in perceived scarcity of space between Low and No scarcity were not detected with the first question.

Table 8. ANOVA Results for Perceived Scarcity of Space

		Sum of Squares	df	Mean Square	F	Sig.
PS1	Between Groups	239.70	2	119.851	55.63	.00
	Within Groups	260.69	121	2.154		
	Total	500.39	123			
PS2	Between Groups	193.31	2	96.66	55.28	.00
	Within Groups	211.56	121	1.75		
	Total	404.87	123			

Table 9. Post Hoc Analysis of Perceived Scarcity of Space (PS1)

Level	N	Group1	Group2
Low	43	2.42	
No	44	2.48	
High	37		5.49

Table 10. Post Hoc Analysis of Perceived Scarcity of Space (PS2)

Level	N	Group1	Group2	Group3
No	37	2.68		
Low	43		4.95	
High	44			5.68

However, as presented Table 10, responses from the second question found differences in perceived scarcity of space among the three scenarios. Table 11 presents the final stimuli based on the previously described constructs. The entire texts of all scenarios appear in Appendix D.

Consistent with the results from Pretest 1, for all constructs, reliability was above the suggested cut-off point of .70 (Nunnally, 1978), and the average variance extracted (AVE) for each construct was above the recommended value of .50 (Fornell & Larcker, 1981) as presented in Table 12.

Table 11. Stimuli Manipulation

		Perceived Scarcity of Space in a Restaurant		
		No	Low	High
Price Difference b/w weekdays & weekends	10%	Tables are always available on Friday & Saturday.	Tables are normally available, but not always on Friday & Saturday.	Tables are always unavailable on Friday & Saturday.
		10%	10%	10%
	20%	Tables are always available on Friday & Saturday.	Tables are normally available, but not always on Friday & Saturday.	Tables are always unavailable on Friday & Saturday.
		20%	20%	20%
	30%	Tables are always available on Friday & Saturday.	Tables are normally available, but not always on Friday & Saturday.	Tables are always unavailable on Friday & Saturday.
		30%	30%	30%
	40%	Tables are always available on Friday & Saturday.	Tables are normally available, but not always on Friday & Saturday.	Tables are always unavailable on Friday & Saturday.
		40%	40%	40%

Table 12. Reliability and Unidimensionality of Constructs

Construct	Measurement Items	Mean	SD	Internal Consistency	Factor Analysis	
				Cronbach's Alpha	Factor Loading	Variance Explained
Perceived Value	- PV1	4.20	1.39	.71	.50	65.42%
	- PV2	3.41	1.32		.92	
	- PV3	3.53	1.51		.92	
Perceived Fairness of Price	- PFR1	2.72	1.63	.91	.93	78.84%
	- PFR2	2.85	1.70		.95	
	- PFR3	3.05	1.80		.81	
	- PFR4	2.98	1.61		.86	
Perceived Fairness of Policy	- PFP1	2.86	1.57	.92	.96	81.96%
	- PFP2	2.88	1.69		.93	
	- PFP3	3.15	1.74		.80	
	- PFP4	2.96	1.64		.92	
Attitude toward the restaurant's policy	- AT1	2.54	1.93	.97	.94	92.33%
	- AT2	2.39	1.71		.97	
	- AT3	2.35	1.60		.97	
	- AT4	2.28	1.67		.97	
Patronage Intentions	- PI1	2.64	1.83	.89	.90	76.36%
	- PI2	3.15	1.67		.92	
	- PI3	2.71	1.67		.94	
	- PI4	3.90	1.58		.71	

3.6. Data Collection

The final data was collected in May, 2010. The subject-size goal was 360 in total (30 subjects per scenario), because the central limit theorem can be used to prove a normal distribution in sample sizes of 30 or more. The subjects were from a general population, who requested tourism information of Arizona, Florida, and Texas. The 9,000 emails were divided into nine groups and allocated to each of the nine scenarios. Each respondent was asked to participate in one scenario (Scarcity: No, Low, or High by Price difference: 10%, 20%, or 30%). Three scenarios for a 40% price difference were not included in final data collection, because

data was available from Pretest 2. Two reminder emails, after 7 days and 15 days of the initial invitation, attempted to enhance response numbers.

From 12,000 emails, 549 respondents participated in the survey (4.6% response rate), and the response rate for each scenario varied from 3.5% to 5.5%. Of the 549 participants, 44 participants were disqualified because they did not complete the questionnaire. As a result, 505 responses remained for analysis (4.2% valid response rate); the number of responses attributable to each scenario appears in Table 13.

Table 13. Response Rates for Each Scenario

		Price Difference				Total
		10%	20%	30%	40%	
Scarcity	High	40	47	35	43	165
	Low	37	41	43	46	167
	No	39	36	43	55	173
	Total	116	124	121	144	505

As appearing in Table 14, the sample (n=505) in the analysis represented 75.3% females (n=362). The age of respondents ranged from 20 to 85 with a median age of 49.3. Those 50-59 years old (30.8%) and 20-29 years old (5.6%) accounted for the largest and smallest proportions of respondents, respectively. In terms of income, the respondents were fairly evenly distributed with the largest group (23.1%) reporting incomes between US\$75,000-100,000 and the smallest group (6.7%) reporting incomes US\$ 20,000 or under. In terms of education, the largest categories were bachelor's degree (32.8%) followed by high school or less (24.1%). Last, 86.6% of the respondents were Caucasian, followed by African American (3.9%) and other ethnicities (3.9%).

Table 14. Sample Characteristics

		Frequency	Percentage
Gender	Male	119	24.7
	Female	362	75.3
Age	20 ~ 29	27	5.6
	30 ~ 39	75	15.6
	40 ~ 49	119	24.7
	50 ~ 59	148	30.8
	60 ~	112	23.3
Income	US\$ 20,000 or under	31	6.7
	US\$ 20,001~ 35,000	42	9.1
	US\$ 35,001~ 50,000	77	16.6
	US\$ 50,001~ 75,000	102	22.0
	US\$ 75,001~ 100,000	107	23.1
	US\$100,001 or more	104	22.5
Education	High School or Less	116	24.1
	Associate	105	21.8
	Bachelors Degree	158	32.8
	Masters	84	17.5
	Doctorate Degree	18	3.7
Ethnicity	Caucasian	419	86.7
	African American	19	3.9
	Hispanic	8	1.7
	Asian	17	3.5
	American Indian	1	0.2
	Other	19	3.9

Manipulation checks included a series of one-way ANOVAs to determine whether or not the experimental treatments led to the desired significant differences in the various conditions (results in Table 15 and Table 16).

Table 15. Manipulation Checks for Perceived Scarcity

	Level	N	Subset for alpha = .05		
			1	2	3
PS1	High	173	2.20		
	Low	167		2.66	
	No	165			5.83
PS2	No	165	2.33		
	Low	167		4.57	
	High	173			5.60

The difference in perceived scarcity between high (mean of PS1: 2.20; PS2: 5.60), low (mean of PS1: 2.66; PS2: 4.57), and No (mean of PS1: 5.83; PS2: 5.60) was significant. The perceived price difference between 10% (mean: 4.10), 20% (mean: 5.04) and 30% (mean: 5.75) was also significant (f-value: 66.78; $P < 0.001$), but no perceived price difference appeared between 30% (mean: 5.75) and 40% (mean: 5.96).

Table 16. Manipulation Check for Perceived Price Difference

	Level	N	Subset for alpha = .05		
			1	2	3
PD	10%	116	4.10		
	20%	124		5.04	
	30%	121			5.75
	40%	133			5.96

Before conducting the main analysis, the study performed a test to identify outliers, but found none. Also, an examination for the significance of correlations between the items is an important step in the analysis, because the correlations between the items can cause a multicollinearity problem in the regression analysis. As presented in Table 17, none of the inter-item correlations appear to be higher than the threshold level of .80, suggesting that independence among the predictor variables is not violated and avoiding multicollinearity.

Further, a test for multicollinearity showed that tolerance levels of the variables were well above the recommended cutoff of .20, and the variance inflation factor (VIF) of all the predictor variables was well below the accepted limit of 10 (Belskey et al., 2005). As a result, no multicollinearity problem appeared among the variables.

Table 17. Inter-construct Correlations

	PS	PD	PV	Fair	AT	BI
PS	1					
PD	-.07	1				
PV	.10*	-.22**	1			
Fair	.16**	-.37**	.58**	1		
AT	.06	-.22**	.31**	.65**	1	.
BI	.05	-.24**	.50**	.68**	.70**	1

In addition, the reliability and validity of measures were estimated. Consistent with the results in Pretest 1 and Pretest 2, for all constructs, reliability was above the suggested cut-off point of .70 (Nunnally, 1978), and the average variance extracted (AVE) for each construct was above the recommended value of .50 (Fornell & Larcker, 1981) as presented in Table 18.

Table 18. Reliability and Unidimensionality of Constructs

Construct	Measurement Items	Mean	SD	Internal	Factor Analysis	
				Consistency	Factor Loading	Variance Explained
				Cronbach's Alpha		
Perceived Value	- PV1	4.23	1.43	.74	.58	68.0%
	- PV2	3.49	1.33		.92	
	- PV3	3.58	1.41		.92	
Perceived Fairness of Price	- PFR1	2.97	1.68	.91	.93	78.7%
	- PFR2	3.07	1.73		.94	
	- PFR3	3.32	1.82		.78	
	- PFR4	3.18	1.67		.89	
Perceived Fairness of Policy	- PFP1	3.12	1.62	.89	.94	76.3%
	- PFP2	3.17	1.69		.93	
	- PFP3	3.53	1.77		.73	
	- PFP4	3.26	1.67		.88	
Attitude toward the restaurant's policy	- AT1	2.70	1.98	.97	.95	92.9%
	- AT2	2.60	1.86		.97	
	- AT3	2.67	1.82		.97	
	- AT4	2.53	1.84		.97	
Patronage Intentions	- PI1	2.92	1.93	.92	.91	81.6%
	- PI2	3.29	1.77		.92	
	- PI3	2.95	1.78		.95	
	- PI4	3.13	1.69		.82	

CHAPTER 4

ANALYSIS AND RESULTS

This study hypothesizes that two main effects, perceived scarcity of space in a restaurant and price difference between high demand and low demand periods, influence perceived value of a restaurant's offering and fairness perceptions of a restaurant's RM practice. To test the hypotheses, a 3 (perceived scarcity of space) \times 4 (price differences) design results in the creation of 12 scenarios for between-subject manipulation. Factorial ANCOVA tests the main hypotheses, and a series of regression analyses test replication hypotheses. A series of one-way ANOVAs and a structural equation modeling (SEM) provide additional understanding of the conceptual relationships between the main constructs of the theoretical model. This chapter presents a brief description of the statistical methods used to analyze the data as well as the results from the analysis.

4.1. Main Hypotheses Test - Factorial ANCOVA

ANCOVA, typically, assesses the main and interactional effects of categorical variables on a continuous dependent variable and controls the effects of selected other continuous variables, which co-vary with the dependent variable. ANCOVA evaluates whether or not population means of the dependant variable, adjusted for differences on the control variables, called "covariates," differ across the levels of the independent variables. Including covariates is appropriate to eliminate some uncontrollable systematic variance that can bias the results and to account for differences in responses due to unique characteristics of the respondents. Thus, the question being tested is whether or not the adjusted group means vary significantly from each

other. This study's analysis, based on previous studies, includes three covariates, gender, familiarity with restaurant's RM practice, and tolerance for crowding as discussed in the previous chapter.

Factorial ANCOVA differs from one-way ANCOVA only in that the presence of more than one independent variable. The desirability and use of covariates are the same. Because the objective of this study is to examine two main effects of perceived scarcity of space and price difference on perceived value and fairness perceptions for RM practice in a restaurant, a factorial ANCOVA tests the main hypothesis. Separate analyses are performed for two dependent variables – perceived value of the restaurant's expected offering and fairness perceptions of the restaurant's RM practice.

Before performing a factorial ANCOVA, 35 samples, the smallest sample size of the 12 cells, from each cell were selected because having unequal cell sizes may reduce the robustness of factorial ANCOVA to the influence of assumption violations, especially heterogeneity of variance-covariance matrices. Notably, the study also performed all analyses with all collected samples, and the results were consistent with the ones from the 35-sample-cell analysis. Mean value and standard deviations of all constructs for each scenario appear in Table 19.

To test Hypothesis 1, the study performs a factorial ANCOVA with the dependent variable of perceived value. The analysis, performed using SPSS 17, provides the results in Table 19. Since no difference exists in respondents' perceptions of difference between 30% and 40%, the data from the 40% scenarios are omitted in the factorial ANCOVA. A critical assumption underlying ANOVA is that the variances of the different treatments are equal, termed the homogeneity assumption.

Table 19. Mean Value and Standard Deviation for Each Scenario

			Price Difference							
			10%		20%		30%		40%	
			Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Perceived Scarcity	High	PV	3.72	1.17	3.77	1.06	3.51	1.10	3.94	1.11
		FAIR	3.51	1.31	3.29	1.40	2.72	1.23	2.85	1.37
		AT	3.40	2.26	2.74	1.76	2.18	1.57	2.53	1.53
		BI	3.46	2.08	2.89	1.91	2.60	1.70	2.71	1.79
	Low	PV	4.11	.92	3.76	1.15	3.43	1.19	3.31	1.20
		FAIR	3.68	1.49	3.18	1.42	2.62	1.13	2.83	1.52
		AT	3.05	2.17	2.55	1.92	1.89	1.18	2.51	1.83
		BI	3.55	1.89	3.23	1.61	2.76	1.72	2.74	1.53
	No	PV	4.03	1.07	3.91	1.19	3.71	1.22	3.74	.90
		FAIR	3.55	1.53	3.56	1.33	3.32	1.24	2.90	1.56
		AT	2.56	1.80	2.89	1.73	3.00	1.86	2.06	1.39
		BI	3.07	1.72	3.08	1.47	3.18	1.65	2.73	1.20

The commonly accepted Levene's test of equality of error variances was applied to test the assumption of homogeneity in the covariance matrices across all combination levels of between-subject factors. As presented in Table 20, results of non-significance of these tests confirm that the homogeneity assumption is valid (Garson, 2007).

Table 20. Levene's Test of Equality of Error Variances

F	df1	df2	Sig.
.75	8	304	.65

- Tests the null hypothesis that the error variance of the dependent variable is equal across groups.
- Design: Intercept+CW+FAM+Gender+Scarcity+Price+Scarcity*Price
- Dependent Variable: Perceived Value

Table 21 illustrates the main and interaction effects of two independent variables (perceived scarcity of space and price difference) on perceived value of a restaurant's offering, after controlling for covariates. For perceived value, as the dependent variable, the main effects

of perceived scarcity of space and price difference were insignificant in the above analysis. This means that neither the perceived scarcity of space nor price difference influence perceived value of a restaurant's offering.

Table 21. Factorial ANCOVA Results for Perceived Value

Source	Type III		Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power ^b
	Sum of Squares	df						
Corrected Model	69.88 ^a	11	6.35	5.82	.00	.18	63.99	1.00
Intercept	43.68	1	43.68	40.00	.00	.12	40.00	1.00
CW	2.61	1	2.61	2.39	.12	.01	2.39	.34
FAM	49.04	1	49.04	44.90	.00	.13	44.90	1.00
Gender	2.95	1	2.95	2.70	.10	.01	2.70	.37
Scarcity	2.89	2	1.45	1.33	.27	.01	2.65	.29
Price	3.86	2	1.93	1.77	.17	.01	3.53	.37
Scarcity * Price	2.17	4	.54	.59	.74	.01	1.99	.17
Error	328.71	301	1.09					
Total	4849.67	313						
Corrected Total	398.59	312						

d. R Squared = .175 (Adjusted R Squared = .145)

b. Computed using alpha = .05

Also, interaction effect between perceived scarcity of the space and price difference was insignificant. Only one of the covariates, familiarity with RM practice was significant (f-value: 44.90, p-value: .00). The study performed an additional analysis, including the 40% price difference scenarios and excluding insignificant covariates, but the results remain unchanged.

Next, the study performed an ANCOVA to test hypotheses regarding perceived fairness of the restaurant's RM. As presented in Table 21, results of Levene's Test show the insignificance confirm that the homogeneity assumption is satisfied.

Table 22. Levene's Test of Equality of Error Variances

F	df1	df2	Sig.
1.27	8	304	.26

- a. Tests the null hypothesis that the error variance of the dependent variable is equal across groups.
 b. Design: Intercept+CW+FAM+Gender+Scarcity+Price+Scarcity * Price
 c. Dependent Variable: Fairness Perceptions

Table 23 shows the main and interaction effects of two independent variables (perceived scarcity of space and price difference) on fairness perceptions of a restaurant's RM practice, after controlling for covariates.

Table 23. Factorial ANCOVA Results for Fairness Perceptions

Source	Type III		Mean Square	F	Sig.	Partial		Observed Power ^b
	Sum of Squares	df				Eta Squared	Noncent. Parameter	
Corrected Model	192.91a	11	17.54	13.51	.00	.33	148.65	1.00
Intercept	67.92	1	67.92	52.33	.00	.15	52.33	1.00
CW	2.92	1	2.92	2.25	.14	.01	2.25	.32
FAM	14.40	1	140.40	108.18	.00	.26	108.18	1.00
Gender	18.26	1	18.26	14.07	.00	.05	14.07	.96
Scarcity	2.93	2	1.46	1.13	.33	.01	2.26	.25
Price	11.78	2	5.89	4.54	.01	.03	9.07	.77
Scarcity * Price	5.44	4	1.36	1.05	.38	.01	4.19	.33
Error	390.63	301	1.30					
Total	3903.42	313						
Corrected Total	583.53	312						

- a. R Squared = .33 (Adjusted R Squared = .31)
 b. Computed using alpha = .05

The main effect of perceived scarcity of space in a restaurant on fairness perceptions was insignificant, but the main effect of price difference was significant (f-value: 4.54, p-value: .01) This means that the perceived scarcity of space does not influence fairness customers'

perceptions for the restaurant’s RM practice, but does influence fairness perceptions for the restaurant’s RM practice. Two covariates, familiarity with RM practice (f-value: 108.18, p-value: .00) and gender (f-value: 14.07, p-value: .00) are significant. These results indicate familiarity with RM practice and gender influence on fairness perceptions of the restaurant’s RM practice. Additional analysis included the 40% of price difference scenarios and excluded insignificant covariates; the results did not change.

4.2. Replication Hypotheses Test

A series of regression analyses test replication hypotheses (H7-H13), and as shown in Tables 24 through 27, perceived value of a restaurant’s expected offering has a positive effect on attitude toward a restaurant’s RM practice and patronage intentions. Regression analysis shows a positive effect of perceived value both on attitude toward the restaurant’s RM practice (Table 24) and on patronage intentions (Table 25). Attitude toward restaurant’s RM practice have a positive effect on patronage intention as presented in Table 26.

Table 24. Regression Analysis: Perceived Value – Attitude

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.92	.30		3.12	.00
PV	.45	.08	.281	5.99	.00

- Dependent Variable: Attitude
 - R Square: .08 (Adjusted R Square: .08)

Table 25. Regression Analysis: Perceived Value - Patronage Intentions

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.41	.24		1.70	.09
PV	.71	.06	.49	11.53	.00

- Dependent Variable: Patronage Intentions

- R Square: .24 (Adjusted R Square: .24)

Table 26. Regression Analysis: Attitude - Patronage Intentions

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.43	.10		14.28	.00
AT	.63	.03	.70	19.87	.00

- Dependent Variable: Patronage Intentions

- R Square: .49 (Adjusted R Square: .49)

Table 27. Regression Analysis: Perceived Value & Attitude - Patronage Intentions

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-.09	.18		-.52	.60
PV	.46	.05	.32	9.70	.00
AT	.55	.03	.61	18.36	.00

- Dependent Variable: Patronage Intentions

- R Square: .58 (Adjusted R Square: .58)

As shown in Tables 28 and 29, fairness perceptions of a restaurant's RM practice have a positive effect on attitude toward a restaurant's RM practice and patronage intentions.

Table 28. Regression Analysis: Fairness Perceptions - Attitude

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.14	.17		.82	.41
Fair	.78	.05	.61	15.81	.00

- Dependent Variable: Attitude
- R Square: .37 (Adjusted R Square: .37)

Table 29. Regression Analysis: Fairness Perceptions - Patronage Intentions

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.64	.15		4.41	.00
Fair	.77	.04	.67	18.35	.00

- Dependent Variable: Patronage Intentions
- R Square: .45 (Adjusted R Square: .45)

Table 30. Regression Analysis: Fairness Perceptions & Attitude - Patronage Intentions

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.58	.13		4.59	.00
Fair	.44	.05	.39	9.61	.00
AT	.42	.04	.46	11.47	.00

- Dependent Variable: Patronage Intentions
- R Square: .58 (Adjusted R Square: .58)

Testing the mediation effects of perceived value and attitude toward a restaurant's RM practice, fairness perceptions, and attitude toward a restaurant's RM practice used, Baron and Kenny's (1986) method. Theoretically, mediation exists when four criteria exist: (1) Independent variables (perceived value and fairness perceptions) influence the potential mediator (attitude). (2) Potential mediator influences the dependent variable (patronage intention). (3) When the mediator is a covariate, the relationship between the dependent and independent variable

weakens. (These criteria assume a significant effect of the independent variables on the dependent variable.) (4) The effect of the independent variable on the dependent variable, controlling for the mediator, should be zero or be decreased.

The direct effect of perceived value on patronage intention was positive and statistically significant ($B: .70$, p -value: $.00$). The effect of perceived value on patronage intentions' controlling attitude toward a restaurant's RM practice decreased to $B: .45$ (p -value: $.00$), thus the mediation role of attitude toward a restaurant's RM practice is confirmed. In addition, the direct effect of fairness perceptions on patronage intention did appear, and the effect decreased after controlling for attitude toward a restaurant's RM practice. To test whether or not the mediation effects are statistically significant, a Sobel test was conducted. The results, presented in Table 31, indicate that the mediation effects were significant.

Table 31. Results of Sobel Test

Sobel Test	Test Statistics	Std. Error	Sig.
PV – AT – PI	5.43	.05	.00
FP – AT – PI	12.52	.04	.00

Table 32 exhibits summary of hypothesis tested. Unexpectedly, the main effect of perceived scarcity of space does not influence either perceived value of the restaurant's expected offering or fairness perceptions for a restaurant's RM practice. Thus, to obtain a better understanding of possible influences of perceived scarcity of space, two supplementary analyses were conducted. The results from the supplementary analyses appear in the next sections.

Table 32. Summary of Hypotheses Tested

No.	Hypotheses	Result
H1	Perceived scarcity of space in a restaurant will positively influence the perceived value of the restaurant's expected offering.	Not Supported
H2	Perceived scarcity of space in a restaurant will positively influence fairness perceptions of the restaurant's RM practice.	Not Supported
H3	The price difference between low-demand periods and high-demand periods will negatively influence the perceived value of the restaurant's expected offering. In other words, the higher the price difference is, the lower the perceived value of the restaurant's expected offerings.	Not Supported
H4	The price difference between low-demand periods and high-demand periods will negatively influence fairness perceptions of the restaurant's RM practice. In other words, the higher the price difference is, the lower the fairness perceptions of the restaurant's RM practice.	Supported
H5	The price difference between low-demand periods and high-demand periods will moderate the relationship between perceived scarcity of space in the restaurant and the perceived value of the restaurant's expected offering.	Not Supported
H6	The price difference between low-demand periods and high-demand periods will moderate the relationship between perceived scarcity of space in the restaurant and fairness perceptions of the restaurant's RM practice.	Not Supported
H7	Perceived value of the restaurant's expected offering will positively influence attitude toward the restaurant's RM practice.	Supported
H8	Perceived value of the restaurant's expected offering will positively influence restaurant patronage intentions.	Supported
H9	Fairness perceptions of the restaurant's RM practice will positively influence attitude toward the restaurant's RM practice.	Supported
H10	Fairness perceptions of the restaurant's RM practice will positively influence patronage intentions.	Supported
H11	Attitude toward the restaurant's RM practice will mediate the relationship between the perceived value of the restaurant's expected offering and patronage intentions.	Supported
H12	Attitude toward the restaurant's RM practice will mediate the relationship between fairness perceptions of the restaurant's RM practice and patronage intentions.	Supported
H13	Attitude toward the restaurant's RM practice will positively influence patronage intentions.	Supported

4.3. Supplementary Analysis 1 – One Way ANOVA

To investigate whether or not the effects of perceived scarcity of space on perceived value and fairness perceptions differ for each scarcity situation, the study performed one way ANOVA. As presented in Table 33, no significant effects of perceived scarcity of space appear for the 10%, 20% and 30% price differences, but for the 40% price difference situation, the effect of perceived scarcity of space was significant (f-value: 3.11, p-value .05).

Table 33. ANOVA Analysis of the Effects of Perceived Scarcity on Perceived Value

	Price Difference			
	10%	20%	30%	40%
F-value	1.31	.20	.55	3.11
P	.27	.82	.58	.05

Interestingly, according to the post hoc analysis results appearing in Table 34, a difference in perceived value appears between Low and High scarcity situations.

Table 34. Post Hoc Analysis of the Effects of Perceived Scarcity on Perceived Value

	N	Subset for alpha = 0.05	
		1	2
Low	35	3.31	
No	35	3.74	3.74
High	35		3.94

Further, Table 35 shows no significant effects from perceived scarcity of space on fairness perceptions appear for the 10%, 20% and 40% of price differences, but only in the 30% of price difference situation, the effect of perceived scarcity of space was significant (f-value:

3.53, p-value: .03). Consistent with the result for perceived value, the differential for perceived scarcity of space is present between Low and High scarcity situations, as shown in Table 36.

Table 35. ANOVA Analysis of the Effects of Perceived Scarcity on Fairness Perceptions

	Price Difference			
	10%	20%	30%	40%
F-value	.21	.67	3.53	.02
P	.89	.52	.03	.98

Table 36. Post Hoc Analysis of the Effects of Perceived Scarcity on Fairness Perceptions

	N	Subset for alpha = 0.05	
		1	2
Low	35	2.62	
No	35	2.72	2.72
High	35		3.33

4.4. Supplementary Analysis 2 – Structural Equation Modeling (SEM)

To investigate the hypothesized relationships as a whole, the study performed Structural Equation Modeling (SEM). The purpose of SEM was not originally for analyzing experimental data; however, its use in the context of consumer research related experiments has been advocated by several researchers and has had implementation in several studies (e.g., Mackenzie, 2001; Wang, Beatty, & Foxx, 2004). The advantages of SEM include more flexible assumptions, use of confirmatory factor analysis to reduce measurement error by having multiple indicators per latent variable, testing overall models rather than coefficients individually, ability to test models with multiple dependent variables simultaneously, and ability to model effort terms. The study performed SEM using AMOS 7 to test the hypothesized relationships. Notably, SEM does not exactly provide what the study hypothesized because fundamental differences exist between

ANCOVA and SEM. For example, three covariates, tolerance of crowding, familiarity with RM practice, and gender, cannot be included in SEM together. In addition, since the study initially did not consider SEM, price difference has only one measurement. Thus, the coefficient between price difference and fairness perceptions can be inflated.

Several different measures assess the model’s fit. The chi-square goodness-of-fit statistics identify the magnitude of difference between the sample and fitted covariance matrices (Hu & Bentler, 1999). But the chi-square statistics are very sensitive to large sample sizes and easily reject even a closely fitting model (Anderson & Gerbing, 1991; Bentler & Bonett, 1980). The Root Mean Square Error of Approximation (RMSEA) is not as susceptible to influence from large sample size, and its value of .09 suggests acceptable fit (Browne & Cudeck, 1993). Incremental fit indices like Tucker-Lewis Index (TLI), Bentler’s Comparative Fit Index (CFI), and Bentler’s Normed Fit Index (NFI) indicate satisfactory fit of the model (Gefan, Straub, & Doudreau, 2000). As shown in Table 37, the measurement model provides a reasonable fit to the data (NFI = .94, IFI = .96, TLI = .95, CFI=.96, RMSEA=.07).

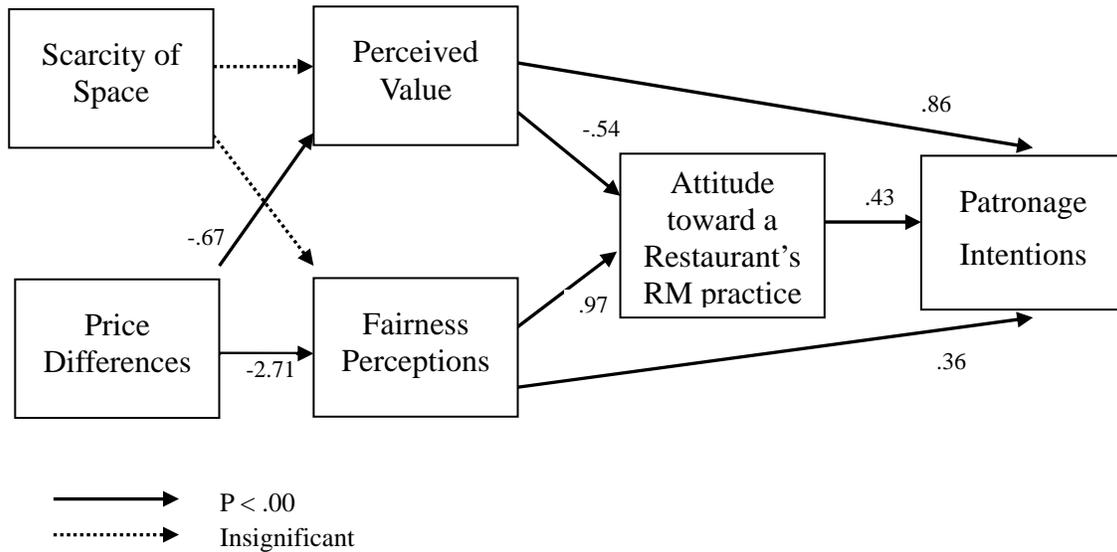
Table 37. Fit Statistics for the Overall Model in SEM

Model Fit Statistics	
Chi-Square	667.3
Degree of Freedom	187
P	.00
NFI	.94
IFI	.96
TLI	.95
CFI	.96
RMSEA	.07

According to the test results shown earlier in Figure 4, perceived scarcity of space in a restaurant does not have a positive effect on perceived value and fairness perceptions, but

perceived price difference has a negative and significant effect on perceived value and fairness perceptions.

Figure 4. Path Coefficients of Overall Model in SEM



The sample was split into three groups based on the experimental treatments of scarcity and multi-group analysis compares path coefficients among groups. Model fit statistics for multi-group analysis appear in Table 38. In general, fit statistics indicate a reasonable fit of the three models, although a few model fit statistics (e.g., NFI = .87, TLI = .88) in the Low scarcity group showed a below acceptable cut-off point. Multi-group analysis showed some interesting results. First, the effect of perceived scarcity of space in a restaurant on perceived value and fairness perceptions is insignificant in Factorial ANCOVA analysis and in the overall SEM model. However, the effect of perceived scarcity of space in a restaurant is significant and has a positive effect on fairness perceptions in the Low scarcity group. Also the relationship between perceived value and attitude is not significant.

Table 38. Fit Statistics for Multi-Group Analysis in SEM

Model Fit Statistics	High	Low	No
Chi-Square	393.7	530.8	371.5
Degree of Freedom	187	187	187
P	.00	.00	.00
NFI	.90	.87	.89
IFI	.94	.91	.94
TLI	.93	.88	.93
CFI	.94	.91	.94
RMSEA	.08	.10	.08

Table 39. Regression Coefficients for Multi-Group Analysis in SEM

	Scarcity		
	High	Low	No
Perceived Scarcity -> Perceived Value	-	-	-
Perceived Scarcity -> Fairness Perceptions	-	.63	-
Perceived Price Difference -> Perceived Value	-.53	-.71	-.63
Perceived Price Difference -> Fairness perceptions	-3.16	-1.77	-2.39
Perceived Value -> Attitude	-	-	-
Perceived Value -> Patronage Intentions	.72	1.40	.65
Fairness Perception -> Attitude	.98	.89	.90
Fairness Perception -> Patronage Intentions	.54	-	.31
Attitude -> Patronage Intentions	.33	.46	.53

- : insignificant

4.5. Summary

This chapter discusses the various analysis procedures used to test the proposed hypotheses. The results from the different analyses produce interesting findings. For the main hypotheses, the results provide support for the effects of price difference on fairness perceptions, but not on perceived value, while the effects of perceived scarcity of space in a restaurant are unsupported for both perceived value and fairness perceptions of the restaurant's RM practice. The results support all replication hypotheses. To investigate whether or not the effects of

perceived scarcity of space on perceived value and fairness perceptions differ for each scarcity situation, the study performed one way ANOVA and found the effect of perceived scarcity of space was significant only for the 40% of price difference situation. Furthermore, to investigate the hypothesized relationships as a whole, the study performed SEM and found perceived scarcity of space in a restaurant does not have a positive effect on perceived value and fairness perceptions, but perceived price difference has a negative and significant effect on perceived value and fairness perceptions. Discussion of results and implication for practitioners are the subject of detailed discussion in the next chapter.

CHAPTER 5

DISCUSSION AND CONCLUSIONS

The purpose of this study is to assess the effect of perceived scarcity of space and price difference on perceived value of a restaurant's expected offering and fairness perceptions for a restaurant's RM practice. To this end, this study applied commodity theory, equity theory, and assimilation-contrast theory. Based on these theories, hypotheses propose that perceived scarcity of space has a positive effect on perceived value and fairness perceptions, and price difference has a negative effect on perceived value and fairness perceptions. To test the hypotheses, the study adopted a 3 (perceived scarcity of space) \times 4 (price difference) between-subject design. The data analysis used Factorial ANCOVA and regression techniques. The study performed one-way ANOVA and structural equation modeling to produce additional information for better understanding the relationship between constructs as a whole. This chapter discusses the results from the analyses, contribution to the literature and implications for practitioners, along with an assessment of limitations of the study. The last section discusses recommendations for future research to advance study in this field.

5.1. Discussion of Results

The most notable feature of the results is the effects of perceived scarcity of space on perceived value of a restaurant's expected offering and fairness perceptions for a restaurant's RM practice. Commodity theory claims knowledge of a product's scarcity affects consumers' perceptions and evaluations of a product's attractiveness, desirability, expensiveness, quality, and taste. However, the results of this study do not find positive effects of perceived scarcity of space in a restaurant on perceived value and fairness perceptions in the context of a restaurants' RM.

Although commodity theory has supported from many empirical studies, several researchers argued that a product's scarcity does not, in all cases, have a positive effect on consumers' evaluation of the product. Some studies argued that appeals of scarcity lead consumers to scrutinize an offer more thoroughly and do not necessarily result in favorable perceptions for the scarce product (Brannon & Brock, 2001; Brock & Brannon, 1992; Inman et al., 1997). Brock and Brannon (1992) argued that for scarce, negatively valenced objects, for which an individual might have a clear aversion, the original notion of usefulness is discarded. Also, a negatively valenced experience would be regarded as more aversive to the extent that it was rare, because people in a situation involving scarcity are more motivated to think about the message; thus scarcity can also make negative evaluations more extreme (Brannon & Brock, 2001).

In addition, Suri, et al. (2007) examined perceived scarcity's influence on consumers' processing of price information in the context of product and service purchase. The results showed that under scarcity, consumers' perceptions of quality and monetary sacrifice exhibit different response patterns, depending on the relative price level and consumers' motivations to process information. According to the findings, motivation to process information moderates the effect of scarcity. For a high price in a high motivation condition, the perceptions of quality and value, and also purchase intentions, increased under scarcity. (Suri et al., 2007). In the current study, the respondents read a scenario and imagined participating in the situation. However, their motivation to process given information from a scenario is unknown, and that may relate to the results of the non-significant effects of perceived scarcity of space in this study.

Also the unexpected results of non-significant effects of perceived scarcity may associate with the type of scarcity and the type of product. Gierl and Huettl (in press) recently

argued that positive effects on product evaluation depend on the type of scarcity (i.e., scarcity due to supply vs. due to demand) and the type of products (i.e., high vs. low suitability for conspicuous consumption). Gierl and Huettl combined the types of scarcity and the types of products and found scarcity due to supply would result in higher product attitudes than scarcity due to demand for high-conspicuous consumption conditions. The findings of this research support the notion that product evaluation can be enhanced by referring to scarcity due to limited supply, but positive evaluation of the product declines when scarcity is attributable to high demand. Thus, in current study, how customers perceived a dining experience at the casual dining restaurant (whether conspicuous consumption or not), may affect the results. If the respondents regard having a dinner at the casual dining restaurant as conspicuous consumption, scarcity due to high demand may not affect attitude.

Nevertheless, supplementary analyses reveal interesting findings: Although the effects of perceived scarcity of space remain unconfirmed by factorial ANCOVA, when the price difference is 40%, the effect of perceived scarcity of space on perceived value was significant, and the effect on fairness perceptions is significant when the price difference is 30%. Another interesting result is that a difference appears between Low and High scarcity situations in both cases. This may imply that when the price difference due to demand level is small, the perceived scarcity does not matter to customers, but when the price difference becomes large, the perceived scarcity of space may help customers rationalize the price difference.

From the results of the multi-group analysis in structural equation modeling, the coefficient of perceived scarcity to fairness perceptions is significant and positive only in the Low scarcity situation. An interesting question whether or not an optimal degree of scarcity of space exists to maximize perceived value and to minimize unfairness perceptions. However,

further investigations are necessary to identify how customers incorporate information of scarcity of space and price difference.

As expected, the negative effects of price difference on fairness perceptions are supported by the results from both factorial ANCOVA and SEM. But the effect on perceived value was significant in the results of SEM only. These results mean that as the perceived price difference between high demand periods and low demand periods becomes large, the perceived value of the restaurant's offering and fairness perceptions for the restaurant's RM practice decrease. Last the results of this study support replication hypotheses, which have been tested in many previous studies. Perceived value relates to attitude toward a restaurant's RM practice and patronage intentions, and fairness perceptions for a restaurant's RM practice associates with attitude toward the restaurant's RM practice and patronage intentions. Among the demographic variables, only gender related to the restaurant's RM practice. The results support the mediating roles of attitude toward the restaurant's RM practice between perceived value and patronage intention, and between fairness perceptions and patronage intention.

5.2. Contribution to the Literature and Implications for Practitioners

Previous literature has discussed various issues in restaurant RM, but, to the best current knowledge, this study is the first attempt to apply commodity theory in the RM context. Although the results do not support the hypotheses regarding perceived scarcity of space, this study raises the important issue of consumers' perceptions of scarcity of service resources in the RM context. Also previous RM research has not examined the effect of price difference of low demand periods and high demand periods on perceived value and fairness perceptions. Researchers in revenue management found that familiarity with RM practice is a considerable

factor for fairness perceptions of RM, and this study also confirms the importance of respondent's familiarity with RM practice. But if the price difference becomes larger, even customers who are familiar with RM practice may perceive RM as an unfair policy. The key issue for future research is to discover the optimal level of price difference at which customers do not believe the price is unfair while allowing restaurants to maximize their revenues.

In general, the mean scores for fairness perceptions across all scenarios were relatively low (2.56 ~ 4.11). Restaurants may need to educate their customers about RM practice by providing information or by adopting a step-by-step approach in order to create familiarity with the restaurant's RM practice among customers. Also when restaurants adopt RM practice extensively, they should not depend solely on demand level, because the effect of perceived scarcity of space is not significant. Additional rate fences should be developed to provide better value to the customers during high demand periods and to prevent perceptions of unfairness by differentiating service offerings from a customer's perspective. For restaurants to maximize their revenues through RM practice, their customers should accept higher rates during high demand periods. Otherwise, customers will not return and patronize other restaurants instead.

5.3. Limitations and Future Research Directions

Several limitations of this study should be noted. First, the nature of the scenarios including scarcity might limit the generalizability of results from the study which only analyzes scarcity effects in cases of a restaurant's presenting no information of other restaurants' practices and alternatives. In a restaurant choice situation, nearby restaurants' information may be the critical factor when customers interpret scarcity signals.

Second, the experiment in the study was scenario-based and did not occur in a field

setting. Online based scenarios may not fully represent the restaurant's on-going situations found in the field. Capturing all of the nuances of actual situation in a scenario is difficult, and consequently respondents may have difficulty predicting their feelings (e.g., perceived scarcity of space and attitude toward the restaurant's RM practice) in hypothetical situation. Especially with regard to the description for High scarcity situation, tables always unavailable, is not very realistic. Furthermore, because respondents reported their predicted, rather than their actual behavior, the findings may not accurately reflect behaviors in real-life restaurant situation.

Third, although the perceived value measures of this study provide acceptable construct reliability and validity, future research may attempt to develop more rigorously restaurant specific value measures. Also different aspects of value (e.g. hedonic vs. utilitarian values) may be considered in extensions of this research.

Another constraint in this study is the focus of only customers' perceptions of disadvantageous situations, because the respondents' plans were for a visit to the restaurant on Friday. Future research may consider examining how customers in advantageous situations (e.g., obtaining discounts) respond to a restaurant's RM practice in scarcity circumstances.

This study is experimental in nature and one of the first few studies exploring the effects of perceived scarcity of space in the restaurant RM context. Although this study did not find a significant effect from scarcity on perceived value and fairness perceptions, additional research is needed to investigate the effects of using different settings and other factors. To further understand the impact of scarcity on the valuation of service offerings from a restaurant, future research needs to recognize the effects of other factors that could influence consumers' evaluations of price information. A need also exists to further understand the interaction between scarcity of space and difference types of restaurants (e.g. casual vs. upscale restaurants), because

Gierl and Huetl (in press) argued that the types of products relate to scarcity effects. Also further study may consider brand loyalty to or brand image of, the restaurant as a moderator between perceived scarcity of space and perceptions of the restaurant's RM practice, because Brock and Brannon (1992) claimed that initial response toward a scarce object is important for scarcity effect. In addition, future research can study cognitive procession as a mediator of scarcity effects to better understand the underlying mechanism for scarcity effects.

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Appendix A. Summary of Research on Restaurant Revenue Management

Authors	Title	Key Findings
Kimes et al. (1998)	Restaurant revenue management: Applying yield management to the restaurant industry.	A framework for applying RM in restaurants is developed. Methods of managing customer arrival and meal duration are suggested.
Kimes et al. (1999)	Developing a restaurant revenue management strategy	The types of data and analysis necessary to establish a baseline, the tools for understanding actual service-cycle performance, and operational tactics are illustrated with a small, casual restaurant case study.
Kimes, Wirtz, & Noone (2002)	How long should dinner take? Measuring expected meal duration for restaurant revenue management	Dinner duration expectations for a casual restaurant were examined using an adoption of a time-sensitivity measurement to derive the expected dining time, the optimal and indifference duration points. While North Americans and Asian have similar duration expectation, European preferred a significantly longer dining time.
Kimes & Wirtz (2002)	Perceived fairness of demand-based pricing for restaurants.	Perceived fairness of five types of RM pricing in the restaurant are examined. Framing demand-based pricing as discounts rather than surcharges made consumers perceive RM practices to be fairer.
Thompson (2002)	Optimizing a Restaurant's Seating Capacity: Use Dedicated or Combinable Tables	This study focused on restaurants which do not allow reservations and examined whether such restaurants should be configured with tables dedicated to particular party sizes or configured with tables that can be combined to seat larger parties. The study found that restaurant tables that can't be pushed together to serve large parties are superior to combinable tables because of the loss of productive time that occurs when combinable tables are placed on hold while awaiting adjacent tables to become available.
Thompson (2003)	Optimizing restaurant-table configurations: Specifying combinable tables	This study focused on restaurants which do not allow reservations and found that having the right-size tables in a position to be combined with other tables to serve large parties can yield additional revenue at virtually no added cost.
Kimes & Wirtz (2003)	Has revenue management become acceptable?	RM pricing in the form of coupons, time of day pricing, and lunch/dinner pricing are perceived as fair, weekday/weekend pricing is perceived as neutral to slightly unfair, and table-location pricing is perceived as somewhat unfair. Framing demand-based pricing as discounts rather than surcharges made consumers perceive fairer.
Bertsimas & Shioda (2003)	Restaurant revenue management	Two classes of optimization models are developed to maximize revenue in a restaurant. A two step

		procedure includes using a stochastic gradient algorithm to decide a priori how many reservations to accept for a future time and using approximate dynamic programming methods to decide dynamically when to seat an incoming party during the day of operation.
Kimes (2004)	Restaurant revenue management: Could it work?	Revenue management technique and strategies for the reservation-based restaurants are discussed, and potential areas for future research are suggested.
Susskind, Reynolds, & Tsuchiya (2004)	An evaluation of guests' preferred incentives to shift time-variable demand in restaurants.	Customers are willing to shift their dining time to off-peak hours in exchange for discounts on menu items. (Cash discount>Time-limited coupon, Special service offering>Discounted or fixed choice menu> distinctive product offering)
Noone & Kimes (2005)	Dining duration and customer satisfaction	The effects of reduced duration on customers' satisfaction and customers' intention to return to the restaurant have been examined. Duration reduction strategies can have a direct negative influence on customers' satisfaction as well as an indirect influence through its reduction of customers' perceptions of server performance and control.
McGuire & Kimes (2006)	The perceived fairness of waitlist-management techniques for restaurant	The perceived fairness of four waitlist-management techniques is tested. Party-size seating and call-ahead seating are perceived as relatively fair policies, while VIP seating and large-party reservations are perceived as unfair policies.
Noone et al. (2007)	The effects of meal pace on customer satisfaction	Too fast a pace during the meal itself diminishes customer satisfaction irrespective of restaurant type, but speed during check settlement is preferred by customers. In addition, a faster pace at dinner diminished satisfaction ratings as compared to lunch.
Shields & Shelleman (2008)	Restaurant revenue management practice	Results of survey with 154 restaurant managers show that RM is prevalent among small, full-service restaurants and has significant effects on the number of table turns and average meal duration. The most common RM practices used by restaurants are managing customer arrivals and standard operating procedures.
Heide, White, Gronhauq, & Ostrem (2008)	Pricing strategies in the restaurant industry	Different pricing strategies are investigated and findings indicate that there is potential for increased use of various strategies such as price discrimination, peak-load pricing, and bundling for revenue enhancement.
Kimes (2008)	The role of technology in restaurant revenue management	The benefit of technology systems to both employees and customers and how technology systems can support restaurant managers' efforts to improve sales and profits through RM are discussed.

Thompson & Kwortnik (2008)	Pooling restaurant reservations to increase service efficiency	How assigning restaurant reservations to tables affects operational efficiencies are examined. Findings indicate that pooling reservations enables a 15-minute reduction in table turn times more than 15% of the time and enables a restaurant to serve more customers during peak periods.
Chan & Chan (2008)	Revenue management strategies under that lunar-solar calendar: Evidence of Chinese restaurant operations	RM strategies to cope with high demand associated with Chinese festivals were discussed, and restaurant RM strategy framework was developed.
Thompson (2009)	(Mythical) Revenue benefits of reducing dining duration in restaurants	This simulation-based study found that, on average, the revenue bump experienced by reducing the dining duration is less than one-quarter of the amount predicted by the common assumption that a reduction in dining duration yields a proportional increase in revenue.
Noone et al. (2009)	Perceived service encounter pace and customer satisfaction: An empirical study of restaurant experiences	The overall relationship between perceived service encounter pace and satisfaction follows an inverted U-shape. The effect of perceived pace on satisfaction is moderated by service stage, with a greater tolerance of a faster pace during the post-process stage than during the pre-process or in-process stages.

Appendix B. Summary of Research on Revenue Management in the Hospitality Industry From a Customer's Perspective

Author(s)	Title	Industry	Key Findings
Kimes (1994)	Perceived fairness of yield management: Applying yield-management principles to rate structures is complicated by what consumers perceive as unfair practices	Airline and Hotel	RM practices often encounter perceptions of unfairness. RM practices would be perceived as fair if information on varying pricing options is available, substantial discounts are given along with reasonable restrictions, and services perceived as different have different prices.
Kimes & Wirtz (2002)	Perceived fairness of revenue management in the US golf industry	Golf industry	Golfers perceive arrival duration control practices in the form of reservation fees or no-show fees as fair. In addition, golfers perceive demand-based pricing in the form of coupons (two for the price of one), time-of-day, and reduced tee time intervals as fair. Conversely, time-of-booking pricing was perceived as neutral to slightly unfair.
Kimes & Noone (2002)	Perceived fairness of yield management: An update	Airline and Hotel	Perceived fairness of RM in airlines and hotels are examined, and the result was compared with that of a previous study. Kimes' study (1994) found that customers view RM as less fair for hotels, but a repeated study in 2002 found there was no difference in fairness perception between two industries.
Kimes & Wirtz (2002)	Perceived fairness of demand-based pricing for restaurants	Restaurant	Perceived fairness of five types of RM pricing in the restaurant are examined. Framing demand-based pricing as discounts rather than surcharges made consumers perceive RM practices to be fairer.
Kimes & Wirtz (2003)	Has revenue management become acceptable?	Restaurant	RM pricing in the form of coupons, time of day pricing, and lunch/dinner pricing are perceived as fair. Weekday/weekend pricing is perceived as neutral to slightly unfair, and table location pricing is perceived as somewhat unfair. Framing demand-based pricing as discounts rather than surcharges made consumers perceive fairer.
Noone et al.	Integrating	Hotel	The relationship between CRM and RM was

(2003)	customer relationship & revenue management		examined, and the impacts of RM strategies on business processes in relation to customer segmentation demand forecasting, information systems management, and human resource management are discussed.
Wirtz et al. (2003)	Revenue management: Resolving potential customer conflicts		Potential conflicts caused by RM are discussed and organizational strategies that can be used to resolve such conflicts are proposed.
Shoemaker (2003)	Future of revenue management	Hotel	How RM can destroy customer loyalty is discussed, and ways of changing the value perception in order to earn higher revenue are presented.
Choi & Mattila (2004)	Hotel revenue management and its impact on customers' perceptions of fairness	Hotel	This study measures the effect of hotel demand-based variable pricing practices on customers' perceptions of fairness. In addition, it examines the moderating effect of information about the hotel's room pricing practices offered to customers at the time of reservation.
Capiez & Kaya (2004)	Yield management and performance in the hotel industry	Hotel	The study explored the impact of customer satisfaction on hotel for performance, the customer satisfaction being affected by service quality, and yield management practice.
Shoemaker (2005)	Pricing and the consumer	Airline	Strategies to improve revenue and competitive position are suggested based on consumer psychology.
Mattila & Choi (2005)	The impact of hotel pricing policies on perceived fairness and satisfaction with the reservation process	Hotel	The impact of offering differential pricing policy information on customers' perceived fairness and their satisfaction with the reservation process are examined. The study found both information availability and comparison outcome influence perceived fairness rating, and comparison outcome, comparison standard and information availability jointly determined overall satisfaction with the reservation process.
Choi & Mattila (2005)	Impact of information on customer fairness perceptions of hotel revenue management	Hotel	Customers who receive no information generally think the process was unfair. Limited information has little effect on fairness perception.

Mcguire & Kimes (2006)	The perceived fairness of waitlist-management techniques for restaurants	Restaurant	The perceived fairness of four waitlist-management techniques is tested. Party-size seating and call-ahead seating are perceived as relatively fair policies, while VIP seating and large-party reservations are perceived as unfair policies.
Choi & Mattila (2006)	The role of disclosure in variable hotel pricing : a cross-cultural comparison of customers' fairness perceptions	Hotel	Cross-cultural differences in customers' fairness perceptions of hotel room pricing found that increasing the level of information improved fairness perceptions for respondents in both the United States and Korea. Overall, U.S. consumers perceive variable pricing practices as fairer, more so than do their Korean counterparts.
Mattila & Choi (2006)	A cross-cultural comparison of perceived fairness and satisfaction in the context of hotel room pricing		Cross-cultural differences in customers' fairness perceptions of hotel room pricing are examined.
Beldona & Namasivayam (2006)	Gender and demand-based pricing: Differences in perceived (un)fairness and re-patronage intentions	Hotel	Gender differences in perceived price fairness and repurchase intentions are examined. Females perceived less fairness across all pricing scenarios in both discount and surplus frames.
Wirtz & Kimes (2007)	The moderating role of familiarity of fairness perceptions of revenue management pricing	Hotel and Restaurant	Familiarity moderates the effects of framing and fencing conditions on customers' fairness perceptions. Especially, framing and fencing condition have strong effects on fairness perception when customers are less familiar with RM pricing.
Mauri (2007)	Yield management and perceptions of fairness in the hotel business	Hotel	Various aspects of customers' perceptions regarding RM are examined and managerial techniques are suggested that hotel companies can employ to manage customer conflicts resulting from perceived unfairness due to RM practices.
Beldona & Kwansa (2008)	The impact of cultural orientation on perceived	Hotel	Vertical individualism has a significantly positive relationship with perceived price fairness.

	fairness over demand-based pricing		
Milla & Shoemaker (2008)	Three decades of revenue management: What's next?	Hotel	An overview of future of the future of RM based on interviews conducted with hotel industry leaders is presented. The integration of the customer behavior and preferences is suggested as a major future trend.
Vinod (2008)	The continuing evolution: Customer-centric revenue management	Airline	Customer-centric RM is proposed as a new paradigm for RM. A range of initiatives are discussed for acquiring new customers and retaining existing customers in the airline industry.

Appendix C. Survey

Dear Survey Participant,

We are interested in your opinions regarding a restaurant's policy. In this survey, you will be requested to answer several sets of questions. Just follow the instruction and simply give your honest opinions. There is no right or wrong answer.

Your participation is totally voluntary and, your responses are completely confidential and anonymous.

You should take less than 15 minutes to complete this survey. If you have any concerns or questions about this survey, please contact Dr. Seoki Lee, or Cindy Yoonjoung Heo, at email: seokilee@temple.edu or yheo@temple.edu.

\$20 gift card for Starbucks will be given to 5 respondents. The respondents will be randomly selected among participants right after the survey is closed. The selected respondents will be informed by Email. We greatly appreciate your participation in this study.

Sincerely yours,

Scenario 1: Perceived Scarcity (Low) * Price Difference (10%)

Imagine that you are planning to have a dinner with your family on Friday.

Your friend recommended several casual dining restaurants for you, and you found one restaurant which is located in convenient location for you. When you mentioned the restaurant, your friend said the tables are normally available, but not always on Friday and Saturday.

You searched the restaurant's website to get additional information such as menu offering and parking facilities. You found the restaurant provides various menus that your family members like to have and the average check for dinner is about \$30 - \$40 per person.

But you found prices varied by day of the week, although the menus are the same. The prices of menus during weekdays (Sunday – Thursday) are 10% lower than weekends (Friday – Saturday).

Based on your understanding and feelings about this restaurant, please rate the following statements (Please select only one answer for each response).

	1	2	3	4	5	6	7
	Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree
Tables at this restaurant on Friday are readily available.	<input type="checkbox"/>						
Chances of having dinner at this restaurant on Friday are very limited.	<input type="checkbox"/>						

	1	2	3	4	5	6	7
	Very Low	Low	Slightly Low	Neutral	Slightly High	High	Very High
Price differences between weekends and weekdays at this restaurant are ...	<input type="checkbox"/>						

	1	2	3	4	5	6	7
	Very Low	Low	Slightly Low	Neutral	Slightly High	High	Very High
The overall expected value of the restaurant's offering to me will be ...	<input type="checkbox"/>						
This restaurant offers good value for the price.	<input type="checkbox"/>						
Having a dinner at this restaurant will be worth the money.	<input type="checkbox"/>						

	1	2	3	4	5	6	7
	Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree
I believe this restaurant's pricing policy is ...							
Fair	<input type="checkbox"/>						
Acceptable	<input type="checkbox"/>						
Unfair	<input type="checkbox"/>						
Satisfactory	<input type="checkbox"/>						

	1	2	3	4	5	6	7
I think the price I would have to pay if I visit this restaurant would be ...	Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree
Fair	<input type="checkbox"/>						
Acceptable	<input type="checkbox"/>						
Unfair	<input type="checkbox"/>						
Satisfactory	<input type="checkbox"/>						

How do you feel about the restaurant's differential pricing policy based on day of the week?								
Unfavorable	1	2	3	4	5	6	7	Favorable
Negative	1	2	3	4	5	6	7	Positive
Bad	1	2	3	4	5	6	7	Good
Dislike	1	2	3	4	5	6	7	Like

How likely are you to visit this restaurant?								
Unlikely	1	2	3	4	5	6	7	Likely
Impossible	1	2	3	4	5	6	7	Possible
Improbable	1	2	3	4	5	6	7	Probable
Uncertain	1	2	3	4	5	6	7	Certain

	1	2	3	4	5	6	7
	Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree
I avoid crowded places whenever possible.	<input type="checkbox"/>						
A crowded restaurant doesn't really bother me.	<input type="checkbox"/>						
If I see a restaurant that is crowded, I won't even go inside.	<input type="checkbox"/>						

	1	2	3	4	5	6	7
	Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree
The variable pricing policy based on day of the week is common in restaurants.	<input type="checkbox"/>						
The restaurant's variable pricing policy based on day of the week is familiar to me.	<input type="checkbox"/>						

1. How many times on average do you go out for dinner per week?
 - More than five times
 - Three to four times
 - Once or two times
 - Almost Never

2. What is your gender?
 - Male Female

3. What is your age? _____

4. What is your nationality? _____
(Please name the country. For example, America, Canada, Korea, Japan, etc.)

5. What is your ethnicity?
 - Caucasian
 - African American
 - Hispanic
 - Asian
 - Native Hawaiian and other Pacific Islander
 - American Indian
 - Other (please specify) If you selected other please specify: _____

6. How much is your household's annual income?
 - US\$ 20,000 or under
 - US\$20,001 ~ 35,000
 - US\$35,001 ~ 50,000
 - US\$50,001 ~ 75,000
 - US\$75,001 ~ 100,000
 - US\$100,001 or more

7. What is the highest level of education you have completed?
 - High School or less
 - Associate
 - Bachelors Degree
 - Masters
 - Doctorate Degree

Thank you for your help.

\$20 gift card for Starbucks will be given to 5 respondents. 5 respondents will be randomly selected among participants right after the survey is closed and 5 selected respondents will be informed by Email.

Please leave your email address to get the results.

APPENDIX D. Scenarios

Scenario 2: Perceived Scarcity (Low) * Price Difference (20%)

Imagine that you are planning to have a dinner with your family on Friday.

Your friend recommended several casual dining restaurants for you, and you found one restaurant which is located in convenient location for you. When you mentioned the restaurant, your friend said the tables are normally available, but not always on Friday and Saturday.

You searched the restaurant's website to get additional information such as menu offering and parking facilities. You found the restaurant provides various menus that your family members like to have and the average check for dinner is about \$30 - \$40 per person.

But you found prices varied by day of the week, although the menus are the same. The prices of menus during weekdays (Sunday – Thursday) are 20% lower than weekends (Friday – Saturday)

Scenario 3: Perceived Scarcity (Low) * Price Difference (30%)

Imagine that you are planning to have a dinner with your family on Friday.

Your friend recommended several casual dining restaurants for you, and you found one restaurant which is located in convenient location for you. When you mentioned the restaurant, your friend said the tables are normally available, but not always on Friday and Saturday.

You searched the restaurant's website to get additional information such as menu offering and parking facilities. You found the restaurant provides various menus that your family members like to have and the average check for dinner is about \$30 - \$40 per person.

But you found prices varied by day of the week, although the menus are the same. The prices of menus during weekdays (Sunday – Thursday) are 30% lower than weekends (Friday – Saturday).

Scenario 4: Perceived Scarcity (Low) * Price Difference (40%)

Imagine that you are planning to have a dinner with your family on Friday.

Your friend recommended several casual dining restaurants for you, and you found one restaurant which is located in convenient location for you. When you mentioned the restaurant, your friend said the tables are normally available, but not always on Friday and Saturday.

You searched the restaurant's website to get additional information such as menu offering and parking facilities. You found the restaurant provides various menus that your family members like to have and the average check for dinner is about \$30 - \$40 per person.

But you found prices varied by day of the week, although the menus are the same. The prices of menus during weekdays (Sunday – Thursday) are 40% lower than weekends (Friday – Saturday).

Scenario 5: Perceived Scarcity (No) * Price Difference (10%)

Imagine that you are planning to have a dinner with your family on Friday.

Your friend recommended several casual dining restaurants for you, and you found one restaurant which is located in convenient location for you. When you mentioned the restaurant, your friend said the tables are always available on Friday and Saturday.

You searched the restaurant's website to get additional information such as menu offering and parking facilities. You found the restaurant provides various menus that your family members like to have and the average check for dinner is about \$30 - \$40 per person.

But you found prices varied by day of the week, although the menus are the same. The prices of menus during weekdays (Sunday – Thursday) are 10% lower than weekends (Friday – Saturday).

Scenario 6: Perceived Scarcity (No) * Price Difference (20%)

Imagine that you are planning to have a dinner with your family on Friday.

Your friend recommended several casual dining restaurants for you, and you found one restaurant which is located in convenient location for you. When you mentioned the restaurant, your friend said the tables are always available on Friday and Saturday.

You searched the restaurant's website to get additional information such as menu offering and parking facilities. You found the restaurant provides various menus that your family members like to have and the average check for dinner is about \$30 - \$40 per person.

But you found prices varied by day of the week, although the menus are the same. The prices of menus during weekdays (Sunday – Thursday) are 20% lower than weekends (Friday – Saturday).

Scenario 7: Perceived Scarcity (No) * Price Difference (30%)

Imagine that you are planning to have a dinner with your family on Friday.

Your friend recommended several casual dining restaurants for you, and you found one restaurant which is located in convenient location for you. When you mentioned the restaurant, your friend said the tables are always available on Friday and Saturday.

You searched the restaurant's website to get additional information such as menu offering and parking facilities. You found the restaurant provides various menus that your family members like to have and the average check for dinner is about \$30 - \$40 per person.

But you found prices varied by day of the week, although the menus are the same. The prices of menus during weekdays (Sunday – Thursday) are 30% lower than weekends (Friday – Saturday).

Scenario 8: Perceived Scarcity (No) * Price Difference (40%)

Imagine that you are planning to have a dinner with your family on Friday.

Your friend recommended several casual dining restaurants for you, and you found one restaurant which is located in convenient location for you. When you mentioned the restaurant, your friend said the tables are always available on Friday and Saturday.

You searched the restaurant's website to get additional information such as menu offering and parking facilities. You found the restaurant provides various menus that your family members like to have and the average check for dinner is about \$30 - \$40 per person.

But you found prices varied by day of the week, although the menus are the same. The prices of menus during weekdays (Sunday – Thursday) are 40% lower than weekends (Friday – Saturday).

Scenario 9: Perceived Scarcity (High) * Price Difference (10%)

Imagine that you are planning to have a dinner with your family on Friday.

Your friend recommended several casual dining restaurants for you, and you found one restaurant which is located in convenient location for you. When you mentioned the restaurant, your friend said the tables are always unavailable on Friday and Saturday.

You searched the restaurant's website to get additional information such as menu offering and parking facilities. You found the restaurant provides various menus that your family members like to have and the average check for dinner is about \$30 - \$40 per person.

But you found prices varied by day of the week, although the menus are the same. The prices of menus during weekdays (Sunday – Thursday) are 10% lower than weekends (Friday – Saturday).

Scenario 10: Perceived Scarcity (High) * Price Difference (20%)

Imagine that you are planning to have a dinner with your family on Friday.

Your friend recommended several casual dining restaurants for you, and you found one restaurant which is located in convenient location for you. When you mentioned the restaurant, your friend said the tables are always unavailable on Friday and Saturday.

You searched the restaurant's website to get additional information such as menu offering and parking facilities. You found the restaurant provides various menus that your family members like to have and the average check for dinner is about \$30 - \$40 per person.

But you found prices varied by day of the week, although the menus are the same. The prices of menus during weekdays (Sunday – Thursday) are 20% lower than weekends (Friday – Saturday).

Scenario 11: Perceived Scarcity (High) * Price Difference (30%)

Imagine that you are planning to have a dinner with your family on Friday.

Your friend recommended several casual dining restaurants for you, and you found one restaurant which is located in convenient location for you. When you mentioned the restaurant, your friend said the tables are always unavailable on Friday and Saturday.

You searched the restaurant's website to get additional information such as menu offering and parking facilities. You found the restaurant provides various menus that your family members like to have and the average check for dinner is about \$30 - \$40 per person.

But you found prices varied by day of the week, although the menus are the same. The prices of menus during weekdays (Sunday – Thursday) are 30% lower than weekends (Friday – Saturday).

Scenario 12: Perceived Scarcity (High) * Price Difference (40%)

Imagine that you are planning to have a dinner with your family on Friday.

Your friend recommended several casual dining restaurants for you, and you found one restaurant which is located in convenient location for you. When you mentioned the restaurant, your friend said the tables are always unavailable on Friday and Saturday.

You searched the restaurant's website to get additional information such as menu offering and parking facilities. You found the restaurant provides various menus that your family members like to have and the average check for dinner is about \$30 - \$40 per person.

But you found prices varied by day of the week, although the menus are the same. The prices of menus during weekdays (Sunday – Thursday) are 40% lower than weekends (Friday – Saturday).