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## Perceived fairness of pricing on the Internet

Jen-Hung Huang <sup>a,\*</sup>, Ching-Te Chang <sup>b</sup>, Cathy Yi-Hsuan Chen <sup>c</sup>

<sup>a</sup> *Department of Management Science, National Chiao Tung University, 1001 Ta Hsueh Road, Hsinchu 300, Taiwan*

<sup>b</sup> *Institute of Business and Management, National Chiao Tung University, Taipei 100, Taiwan*

<sup>c</sup> *Department of Finance, National Chengchi University, Taipei 116, Taiwan*

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### Abstract

The perceived fairness of price changes has been a subject of much inquiry in economic and marketing literature. This paper examines consumers' perceptions of the fairness of pricing on the Internet. Fair prices on the Internet, pricing mechanisms, methods of price discrimination and yield management are investigated from a consumer's perspective. Results obtained from 276 questionnaires collected in Taiwan indicate that the Internet prices that equal those in the traditional channels are perceived to be unfair. Respondents considered various pricing mechanisms on the Internet to be fair while many practices of price discrimination and yield management were perceived to be unfair.

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### 1. Introduction

Applying the principles of economics to setting prices on the Internet can be precarious to the reputation of a firm. Amazon.com, the cyberspace retailer, encountered

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\* Corresponding author. Tel.: +886 3 571 21 21/886 955 861 006; fax: +886 3 5713796.

E-mail addresses: [jhh@ms1.hinet.net](mailto:jhh@ms1.hinet.net), [jhh509@cc.nctu.edu.tw](mailto:jhh509@cc.nctu.edu.tw) (J.-H. Huang).

problems when some customers who had bought DVD movies began to compare prices on online discussion boards. News media picked up on the disparity and consumer outcry erupted. Amazon.com finally refunded 6,896 customers an average of \$3 (Kong, 2000).

Amazon.com claimed that it had been performing random pricing tests, randomly offering the same DVDs at various prices. An Amazon.com spokesman claimed that the tests were useful in determining a price point – the right balance between how much Amazon.com could charge while maintaining a good sales volume. However, Amazon.com faced allegations that the various prices were based on customer data it obtained when the customers visited its site. Such data might include a person's mailing address and how much he or she might have previously spent at Amazon.com. Amazon.com was accused of charging their loyal customers higher prices than new customers.

Setting prices based on shoppers' incomes or buying habits is known as "dynamic pricing" (Kannan & Kopalle, 2001). Dynamic pricing is not new. Retailers frequently charge more for goods in stores in better neighborhoods, or more in areas of less competition. For example, Wal-Mart's prices in remote locations with no direct competition from a large discounter were 6% higher than that at locations where it was next to a Kmart (Foley, Mahmood, Bradley, & Ghemawat, 1996). The price of a can of Coke varies with the type of outlet, from DM 2.20 in newsstand in a train station, to DM 0.64 in a large supermarket (Dolan & Simon, 1996, p116). Airlines are also known to change prices frequently according to demand and the timing of a reservation. Very few people seem to complain about such pricing practices.

On the Internet, opportunities for dynamic pricing are greater for at least two reasons – customer information can be more easily collected and list prices can be more easily changed (Dolan & Moon, 2000). Furthermore, it is easier to check competitors' prices and availability of products. With such information, the dynamics of demand and supply can be better understood and prices adjusted accordingly.

The Internet supports not only the mechanism whereby sellers set prices, while consumers "take it or leave it," but also other mechanisms of transaction, such as group-discounting, negotiation, auction and reverse auction. Each type of transaction has its pros and cons from economic perspectives. For example, Wang (1993) compared posted-price selling with auctions in a traditional retail setting and found that auctions were optimal in most situations. Auctions would be even more attractive on the Internet since the associated costs would be much lower than those of auctions in the real world.

Most mutually satisfying exchange relationships require fairness. The perception of fairness is more critical on the Internet than in traditional channels, since feasible practices in brick-and-mortar stores, such as that adopted by Wal-Mart Stores, Inc., may not be tolerated on the Internet. As Kahneman, Knetsch, and Thaler (1986b, p. S299) stated, "The rules of fairness cannot be inferred either from conventional economic principles or from intuition and introspection," but should be empirically tested.

The perceived fairness of pricing has been extensively studied in economic and marketing literature (Campbell, 1999; Dickson & Kalapurakal, 1994; Kahneman,

Knetsch, & Thaler, 1986a, 1986b; Schein, 2002; Seligman & Schwartz, 1997). Kahneman et al. (1986a) surveyed randomly selected adults from Vancouver and Toronto metropolitan areas regarding the fairness of various hypothetical business transactions. They contended that community norms of what constitutes a fair price are used to make judgments about fairness. They proposed the principle of “dual entitlement,” which states that buyers are entitled to the terms of the reference prices and firms are entitled to their reference profits. When the reference profit of a firm is threatened, increasing prices to protect that profit is perceived to be fair. A firm need not pass along savings to buyers when its costs decrease. However, a firm’s exploiting increased market power, such as during a supply shortage, is unacceptable.

Researchers generally consider exchange transactions to involve both outcomes and the process used to achieve those outcomes. For pricing, the outcome in question is the selling price of a good or service, with the question being whether that selling price is above or below its reference price. The process of an exchange transaction consists of the assessment of procedures used for decision making; for example, the considerations involved in price setting. Judgments of fairness regarding outcomes are usually studied under the term of distributive justice (Jasso, 1980; Messick & Sentis, 1979), whereas those involving processes are labeled procedure justice (Adams, 1965; Colquitt, Conlon, Wesson, Porter, & Ng, 2001; Jasso, 1980; Lind & Tyler, 1988).

Based on the equity theory of Adams (1965), individuals are concerned not with the absolute level of outcomes; instead, they are concerned with fairness of outcomes. Deutsch (1975) contended that equity, equality, and needs serve as distribution rules for determining perceptions of exchange fairness. Equity refers to calculating the ratio of “input” to outcome and, then, comparing the ratio of one with that of the other. Equality implies that outcomes are equally divided between parties, regardless of their respective input. Meanwhile, needs indicate that the outcome is distributed among parties according to their needs.

The process employed for decision-making is also essential in determining perceptions of fairness. Consumers care not only about the retail price but also about how that price is derived. The same price increase can be perceived as fair (e.g., to meet the increased costs) or unfair (e.g., to exploit the increased market power). This depends on whether or not the process meets social norms (Kahneman et al., 1986a).

Deutsch (1975) contended that equity rather than equality or need is the dominant principle of distributive justice in cooperative relations that focus on economic productivity. However, individuals are more likely to find justice in distribution rules that favor their own position (Messick & Sentis, 1979). When the other worker has worked for 7 hours and has been paid \$25, subjects judge the fairest amount for themselves to be \$37.07 for 10 hours of work. However, when the subjects have worked 7 hours and been paid \$25, they judge that the fairest amount for the other worker to be \$32.79 for working 10 hours of work. Similarly, a pricing mechanism is likely to be considered fairer by those respondents who receive lower prices than those who have to pay higher prices.

This paper aims to examine consumers’ perceptions of fairness of pricing on the Internet, addressing fair prices, pricing mechanisms, price discrimination and yield

management. The pricing of hotel rooms are examined for two reasons: First, most people have experience using the service; and second, many hotels have their own websites for taking reservations. Since many studies have examined the relationship between perceived fairness and purchasing intentions, this study focuses on fairness. Previous studies have shown that perceived unfairness leads to distrust and diminished shopping intentions both off and on the Internet (Campbell, 1999; Huang, 2001; Kahneman et al., 1986a, 1986b; Piron & Fernandez, 1995).

The following sections are organized as follows. Section 2 describes pricing mechanisms and methods on the Internet. Section 3 describes the survey. Section 4 reports the results of the survey. Section 5 draws conclusions.

## **2. Pricing mechanisms and methods on the Internet**

Dolan and Moon (2000) discussed pricing mechanisms on the Internet. The mechanisms are of three fundamentally different types. Type I is the set price mechanism, wherein the prices are set by the seller. Buyers are expected to “take it or leave it.” With this type of pricing, prices can be adjusted periodically, such as once every three months, or updated frequently, such as hourly or daily. Prices can also be customized for each buyer according to various rules that involve, for example, customer location, purchase history and click pattern. Type II is the negotiated price mechanism, wherein the buyer and the seller negotiate prices back and forth on the Internet. Type III is a class of mechanisms that rely on competition among buyers and sellers to produce prices. Type III consists of three subclasses – auction, reverse buying and exchange. In an auction system, the seller does not specify a price but rather provides an item, enabling buyers compete for the right to buy it in a bidding process. In a reverse buying system, the customer takes the lead in organizing the pricing process. For example, a buyer develops a Request for Proposal on an item or service, the price for which is determined in a competition involving bidding among potential sellers. In an exchange system, multiple buyers and multiple sellers come together in much the same way as at a stock exchange. Since an exchange system is rarely used in the transaction between a firm and its customers, its perceived fairness is not examined in this study.

### *2.1. Auction*

Auctions differ from other pricing mechanisms (Type I and II) in two fundamental ways. First, they entail a flexible pricing scheme in which prices are tailor-made for each transaction. Second, auctions bring buyers together to compete with each other. Auctions are essentially demand aggregation and thus serve to deliver the best price for the seller (Dolan & Moon, 2000). Business-to-consumer auctions on the Internet have been used to eliminate inventory for many types of products such as computer hardware and other high-technology products. Kahneman et al. (1986b) compared the perceived relative fairness of auctions, lotteries, and queues in situa-

tions in which demand exceeds supply. The order of fairness as perceived by consumers was queue, then lottery and finally auction.

In a standard reverse auction, a buyer communicates a need to a set of potential suppliers and suppliers bid to fulfill that demand. The reverse auction has been used frequently in business-to-business procurement. A variant of the reverse auction is the Priceline model, which is suitable for business-to-consumer situation. Suppose a buyer wants to purchase an airline ticket. The process starts with the buyer's offering a price that he/she would be willing to pay for the airline ticket. Priceline searches its databases to find whether any airline would take this price. Buyers cannot renege on the commitment once a seller accepts the price. Priceline keeps the difference between the price bid by the customer and the price offered by the seller. Priceline started with airline tickets, and has expanded to other categories of products, such as hotel rooms and new cars. However, this mechanism degrades the quality of the product supplied to the consumers and focuses on prices, resulting in downward pressure on prices (Dolan & Moon, 2000).

## 2.2. *Negotiation*

Negotiation is widespread in the real world. Buying a house, a car or used books from a yard sale all involve negotiation. Negotiation usually requires much more interaction between buyers and sellers than fixed price transactions, and so transactions take longer to complete. Negotiations on the Internet overcome many of the disadvantages of negotiation in the real world, such as the need to meet. In the future, negotiation for a wide range of purchases may become practical, as one intelligent agent negotiates with another on behalf of buyers and sellers.

A variant of negotiation is buying-power based "negotiation" (Dolan & Moon, 2000), also known as group-buying discounts (Kauffman & Wang, 2001), in which consumers can pool their purchase volume together to obtain a lower price. Rather than truly negotiating for lower prices as buyers who have come together, this transaction mechanism uses a pre-determined quantity discount schedule, which is posted on a website. Retailers can use this method to sell some of their units to generate interest and traffic at their websites.

## 2.3. *Price discrimination*

In the Type I price system, the seller sets the price. All three types of discrimination discussed by economists can be applied because prices can be easily adjusted. Practicing first-degree discrimination, a seller can offer a price based on a customer's past purchases and mailing address, skimming as much as possible from each buyer. Firms practice second-degree discrimination by setting prices according to the quantity purchased. Practicing third-degree discrimination, a seller can offer a price based on geographical areas or on a customer's price sensitivity. When a customer logs into a website through a price comparison site, a lower price can be posted. Furthermore, the seller can change prices according to specified rules, such as random discounting,

and discounting to new customers. Customers would consider some of these pricing practices fairer than others.

#### *2.4. Yield management*

Yield management, unlike any of the price discrimination methods mentioned above, involves temporal considerations in changing prices. Airlines frequently sell tickets at lower prices when reservations are made months before departures, but charge higher prices for tickets purchased one or two days ahead. On the Internet, yield management is easy to implement. The posted prices can be adjusted continually based on current demand situations and the time to receipt of service. However, customers usually do not know how the seller adjusts prices, but they may notice that prices differ each time they log into the website.

### **3. Survey**

The survey consisted of 23 questions on judgments of fairness. The methodology followed that of surveys conducted by other researchers (Kahneman & Tversky, 1979; Kahneman et al., 1986a). The survey presented different scenarios, which respondents were asked to rate for fairness on a five-point scale from 1 (very fair) to 5 (very unfair). Since some of the questions were similar to each other, the questions were spread across three separate questionnaires. Some questions appeared in more than one questionnaire, although the majority of the questions appeared in only one questionnaire. A respondent answered only a single questionnaire, which included from seven to ten questions.

The questions concerned the pricing of hotel rooms. Respondents were told that they were making a reservation for a hotel room on the Internet and that the hotel was located in the U.S. or in Europe.

The questionnaires were administered to MBA students in a university class in northern Taiwan. A student was randomly given one of the three questionnaires. Each student was given six extra questionnaires, which were identical to the one answered by the student. The students were asked to take the questionnaires to their coworkers or friends to collect more data. A total of 276 usable questionnaires were returned.

These 276 responses consisted of 44% males and 56% females. The majority of respondents (90%) were aged between 22 and 40. Eighty percent of the respondents had a college degree. Full time students represented 29% of the respondents.

### **4. Results**

The survey results are discussed in five sub-sections, concerning increased market power, fair prices on the Internet, pricing mechanisms, price discrimination, and yield management.

4.1. Increased market power

The following two questions about hotel pricing when market power increases were asked to facilitate a comparison with the results of previous research.

*Question 1A.* There are two big hotels, A and B, in a town. Hotel A is closed for renovation. The price for a room in Hotel B used to be \$100 per night. However, when Hotel A is closed for renovation, Hotel B raises the price to \$120. Is this price increase fair?

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(N = 201)	Very fair	3.5%	13.9%	11.9%	37.8%	32.8%	Very unfair
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About 71% (37.8% + 32.8%) of respondents (out of N = 201, where N represents the number of respondents who answered the question) considered raising prices to take advantage of the supply situation unfair. To determine whether the number of respondents who consider the price increase is unfair is equal to those respondents who consider the price increase fair, those in the middle are deleted and a test of the null hypotheses  $H_0: p=0.5$  is performed, where p denotes the proportion who consider the pricing unfair out of those who consider the pricing either unfair or fair. According to our results,  $Z = 8.57, p < 0.001$  for a two-tailed test. This finding suggests that the unfairness group is significantly larger than the fairness group.

The size of the unfairness group is comparable with those of Kahneman et al. (1986a) (82%, N = 107) and Frey and Pommerehne (1993) (83%, N = 215). The scale used herein has a mid-point, while scales in the studies of Kahneman et al. (1986a) and Frey and Pommerehne (1993) did not have a mid-point, forcing respondents to choose either fair or unfair.

*Question 1B.* There are five big hotels in a town. Hotel A is closed for renovation. The price for a room in Hotel B used to be \$100 per night. However, when Hotel A is closed for renovation, Hotel B raises the price to \$120. The other three hotels do not raise their prices. Is this price increase fair?

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(N = 75)	Very fair	1.3%	12.0%	8.0%	30.7%	48.0%	Very unfair
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Slightly more respondents considered that Hotel B is unfair to raise prices in this scenario than in the previous scenario (78.7% vs. 70.6%,  $Z = 1.41, p = 0.08$  for a one-tailed test). The result is comparable with the finding of Frey and Pommerehne (1993). Frey and Pommerehne (1993) found that raising the price of water is less acceptable if a second supplier exists and does not raise the price than if no second supplier exists at all. Stable prices of other products or of the same products sold by other suppliers enhance consumers' suspicions that the supplier in question acted deliberately to treat consumers unfairly.

#### 4.2. Fair prices on the Internet

Although no particular reasons justify differences between prices on the Internet and those in traditional channels, leading Internet retailers, such as Amazon.com, are often perceived as offering lower prices than their real-world counterparts (Dolan & Moon, 2000). Lee and Gosain (2002) conducted a longitudinal price comparison of prices of music CDs in electronic and brick-and-mortar markets. They found that old-hit albums are cheaper in the Internet market, but that the prices of current-hit albums in the physical markets are comparable to those in the Internet market. Thus, consumers can be reasonably assumed to expect lower prices on the Internet than in traditional channels.

According to Prospect Theory, price expectation, or reference price, plays a crucial role in a customer's choice processes (Kahneman & Tversky, 1979). If a price is lower than expected, a consumer is likely to consider the outcome as a gain and thus fair. If a price is higher than expected, the consumer considers the outcome as a loss and thus unfair. People make choices based on perceived gain or loss, and people hate losses. Hence, reference price is an important variable for understanding perceived fairness on the part of consumers. The following three questions ask about customers' expected prices and their perceptions of fairness on the Internet.

*Question 2A.* You plan to stay in a hotel. Suppose that you know that your friend has just made a reservation by fax and the price was \$100. If you log into the hotel's website and make a reservation on the Web, how much do you think the fair price should be? If you think that the fair price is higher than \$100, why do you think so? If you think that the fair price is lower than \$100, why do you think so?

The average price is \$92.00 ( $N = 75$ ) with a standard deviation \$7.70. Thirty-two percent of respondents answered \$90, 28% answered \$100, 15% answered \$95 and 13% answered \$80. Most respondents thought that booking on the Internet reduces the hotel's cost, which should be passed on to consumers.

*Question 2B.* You plan to stay in a hotel. Suppose that you know that your friend has just made a reservation by fax and the price was \$100. You know that if you make the reservation on the Web, the hotel would save manpower and thus cost, as compared with making a reservation by phone or fax. How fair is the hotel's charging the same price on the Web as by fax or by phone?

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( $N = 100$ )	Very fair	11%	21%	32%	27%	9%	Very unfair
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No clear trend reflects such an evaluation and different and almost equal opinions exist about price differences on the web compared to fax or phone (33% vs. 36%,  $Z = -0.44$ ,  $p = 0.66$  for a two-tailed test).



*Question 2C.* You plan to stay in a hotel. Suppose that you know that your friend has just made a reservation by fax and the price was \$100. Suppose that you estimate that the hotel can save \$20 by having a customer make a reservation on the Web. How much do you think that the hotel should charge you to be fair?

The average price is \$86.69 ( $N = 101$ ) with a standard deviation \$6.37. Respondents expect a relatively large share of cost saving from booking on the Internet. Dual entitlement is not applicable here simply because the reference price has been lowered on the Internet.

Overall, respondents considered the same price on the Internet as in the traditional channels to be unfair. Firms cannot keep all of the savings from operating on the Internet but should pass some on to consumers. As the results of Question 2A showed, respondents considered a saving to them of about 8% to be fair since consumers do not usually know how much the firm is saving by accepting reservations on the Internet.

Cost saving on the Internet for hotels may be less than that for other retailers such as book retailers. Book retailers on the Internet do not need to pay overheads such as shop rental and clerks in the stores. Hotels still have all the usual running costs and administration costs as customers ordered on the Internet. Whether respondents expect different savings for different types of products on the Internet awaits to be explored.

### 4.3. Pricing mechanism

This section examines the perceived fairness of various pricing mechanisms. Respondents considered various pricing mechanisms on the Internet to be fair, including auction, group-buying discounts, the Priceline model and negotiation. They considered such practices to be even fairer when they enjoyed a low price than when they paid a high price.

#### 4.3.1. Auction

A retail store, which found a Cabbage Patch doll unexpectedly, auctioned the doll to the highest bidder. This practice was considered unfair because the auction benefited the firm at the expense of the customer (Kahneman et al., 1986a). However, if the store were to declare that the proceeds from the auction were to go to UNICEF, the auction would be considered fair. Hence, the auction per se is not unfair, rather the perceived motive is being judged (Nelson, 2002). The following two questions examine the perceived fairness of an auction with an outcome that benefits either customers or the firm.

*Question 3A.* A resort hotel claimed that due to an economic slump its occupancy rate was very low and it had decided to auction off its rooms for a specific weekend on the Internet as a way of promoting itself. The going rate for the hotel is \$100 per night. The hotel set a minimum bid price of \$40. The final bid price turned out to be \$70. How fair do you consider the auction of the hotel's rooms?

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(N = 75)	Very fair	42.7%	34.7%	16.0%	2.7%	4.0%	Very unfair
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Most of the respondents considered the auction fair (77.4% vs. 6.7%,  $Z = 7.28$ ,  $p < 0.001$  for a two-tailed test).

*Question 3B.* A resort hotel claimed that due to a nearby sporting event, the demand for its rooms was going to be much higher than the supply. The hotel decided to auction off on the Internet some of its rooms for the week of the event. The hotel set a minimum bid price of \$100, which was the actual going rate. The final bid price turned out to be \$130. Is this auction of hotel rooms fair or unfair?

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(N = 101)	Very fair	17.8%	31.7%	28.7%	11.9%	9.9%	Very unfair
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About half of the respondents (49.5%) thought that the auction was fair. Although the percentage of respondents who considered the auction to be fair in this case is significantly lower than that in the previous scenario (49.5% vs. 77.4%,  $Z = -3.76$ ,  $p < 0.001$  for a one-tailed test), the respondents who considered this auction to be fair outnumbered those who considered it unfair (49.5% vs. 21.8%,  $Z = 3.90$ ,  $p < 0.001$  for a two-tailed test). Again, the auction appears to be acceptable.

The results differ from those obtained in response to Question 1A, in which demand did not increase but customers did not have another choice. The current scenario concerns an increase in demand, not a supply shortage. Raising prices due to general demand conditions is more acceptable than doing so because customers having no other choice (Schein, 2002).

#### 4.3.2. Group-buying discounts

Group-buying appeals to buyers in that the final price paid is probably lower than the purchase price of the same items at other posted-price retailers. Buyers can obtain a lower price as the size of the group of buyers increases, so consumers have an incentive to recruit other consumers, reducing the retailer's customer acquisition cost. However, a transaction can take days to complete as consumers wait for other buyers to join in the volume purchase. The time involved in completing the transaction is such that this pricing scheme may appeal only to deal-prone, price-sensitive customers. Kauffman and Wang (2001) believed that group-buying business models lack key elements of sustainable competitive advantage. However, retailers can use this method to sell some of their units to generate interest and traffic at their websites, in the hope that consumers will remember the website and return for posted-price items. Such a pricing scheme does not guarantee that consumers enjoy prices lower than those on a posted-price website. Two scenarios are considered here – one with prices lower than the reference price, and another with a starting price that exceeds the reference price.

*Question 4A.* A resort hotel claimed that due to an economic slump, its occupancy rate was very low and it had decided to adopt a group-buying scheme to sell a weekend stay on the Internet. Suppose that the real actual going rate of a room is \$100. The price of a hotel room will depend on the number of rooms sold. The price schedule is as follows:

Number of rooms sold	Price
0–30	\$100
31–60	\$80
Over 61	\$65

Restated, if fewer than 30 rooms are sold, the price per room would be \$100. However, if more than 31 rooms, but no more than 60 rooms are sold, the price per room would be \$80. And if more than 61 rooms are sold, the price per room would be \$65. Is this group-buying practice fair or unfair?

( <i>N</i> = 100)	Very fair	18%	39%	19%	19%	5%	Very unfair
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Most respondents (57%) considered the group-buying discounts to be fair (57% vs. 24%, *Z* = 4.07, *p* < 0.001 for a two-tailed test).

*Question 4B* (same as above question)

Number of rooms sold	Price
0–30	\$110
31–60	\$85
Over 61	\$65

(same as above question)

( <i>N</i> = 75)	Very fair	21.3%	32%	14.7%	26.7%	5.3%	Very unfair
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Although the initial price exceeded the reference price, over half of the respondents considered the group-buying discounts to be fair and this number is higher than those who considered it unfair (53.3% vs. 32%, *Z* = 2.16, *p* = 0.03 for a two-tailed test).

The current scenario and the scenario in Question 4A do not differ significantly (53.3% vs. 57%, *Z* = 0.49, *p* = .31 for a one-tailed test). Apparently, group-buying is acceptable to respondents.

#### 4.3.3. *Priceline model*

In the Priceline model, when consumers know about the price and do not obtain a good deal, they are likely to be frustrated. However, when consumers are uncertain

or lack the knowledge to make an informed bid, they may become conservative in their estimates and bid very low prices, increasing the percentage of unsuccessful bids and frustrating consumers. The Priceline model attracts only those customers who are knowledgeable about prices and consistently bid low to get a good deal. Thus, the margins are likely to be thin, which fact contributed to the downfall of Warehouse Club, a subsidiary of Priceline. The Priceline model was tested with two scenarios: One in which consumers obtain a price lower than the reference price, and another in which consumers must pay a higher price than the reference price. Consumers who obtain a price not higher than the reference price are expected to perceive the scheme to be fairer than those who have to pay a high price.

*Question 5A.* A hotel decided to adopt a pricing strategy that is similar to the Priceline model of pricing on the Internet; that is, you name a price and the hotel decides whether it would accept your offered price. If you make an offer and the hotel accepts, you cannot renege. You know a room in a similar hotel costs \$100. Suppose you offer \$90 for a room for one night stay and that this bid was accepted. Is this pricing method fair or unfair?

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(N = 75)	Very fair	30.7%	46.7%	9.3%	9.3%	4%	Very unfair
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Most respondents considered the Priceline model to be fair when obtaining a price below the reference price (77.4% vs. 13.3%,  $Z = 6.12$ ,  $p < 0.001$  for a two-tailed test).

*Question 5B* (same as above). You know a room in a similar hotel costs \$100. Suppose you offer \$90 for a room for one night's stay and this bid was rejected. Hotels in the vicinity area are full, so you go back to the hotel and offer \$110 for a room. Now the hotel accepts your offer. Is this pricing method fair or unfair?

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(N = 101)	Very fair	12.9%	30.7%	20.8%	21.8%	12.9%	Very unfair
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Roughly the same number of respondents perceived that the method is fair as compared with those who considered it unfair (43.6% vs. 34.7%,  $Z = 1.14$ ,  $p = 0.25$  for a two-tailed test). This is despite the fact that they must pay a higher price. When respondents obtain a price below the reference price, they tend to consider the scheme fair, as shown by the responses to Question 5A. However, when they did not enjoy a low price, the proportion of respondents who considered the scheme fair dropped sharply. The drop is statistically significant (77.4% vs. 43.6%,  $Z = 4.59$ ,  $p < 0.001$  for a one-tailed test).

#### 4.3.4. Negotiation

*Question 6.* Suppose that you can negotiate price on the Internet, in a manner similar to negotiating for a new car. The seller gives you an asking price. You can accept or make a counter offer. The seller can accept your counter offer or make another

offer. The process continues until either side quits or a price is agreed upon. You can negotiate with several vendors at the same time on the Internet. Furthermore, your offers are not binding. In other words, if a seller accepts your offer, you can still walk away with no obligation to purchase. Is this type of pricing method fair or unfair?

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(N = 75)	Very fair	25.9%	22.4%	14.9%	24.1%	12.6%	Very unfair
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Roughly the same number of respondents think that the method is fair as compared with those who think it is unfair (48.3% vs. 36.7%,  $Z = 1.18$ ,  $p = 0.24$  for a two-tailed test). Intuitively, such negotiation would be considered to be very fair. That a large percentage of respondents considered the negotiation unfair is surprising. Further questioning of the respondents revealed that they considered the procedure unfair because they felt that the buyer's backing off after negotiating a price was unfair to the firm. Apparently, buyers' considerations of fairness extend to the seller. Buyers may feel uncomfortable if they feel that they are taking advantage of the seller.

#### 4.4. Price discrimination

Price discrimination involves charging different prices according to specific characteristics of customers. Random discounting, couponing, geographic discrimination, discounting for new or loyal customers and discounting based on price sensitivity are all considered here. The results show that discounting for loyal customers and using a pop-up window for price sensitive customers are two acceptable discounting methods.

##### 4.4.1. Random discounting

*Question 7A.* When a customer logs into a hotel's website to make a reservation, the website quotes a price selected randomly from two possible prices. For example, one customer's price may be \$105, while another customer's price may be \$95. Is this pricing method fair or unfair?

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(N = 98)	Very fair	4.1%	8.2%	11.2%	34.7%	41.8%	Very unfair
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The majority of respondents considered the pricing method unfair (76.5% vs. 12.3%,  $Z = 7.16$ ,  $p < 0.001$  for a two-tailed test). That Amazon.com charged their better customers a higher price for the same DVD outraged consumers. Apparently, their explanation of random price testing was equally unacceptable.

*Question 7B* (same as above question). If the selected price is the lower one, the customer is congratulated and told that the hotel is giving randomly select customers a discount (same as above question).

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(N = 101)	Very fair	5.9%	16.8%	21.8%	29.7%	25.7%	Very unfair
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This question is basically the same as Question 7A, except in that customers are congratulated and informed about the random discounting. The percentage of respondents who considered the pricing method fair is higher than for the preceding question (22.7% for this question, 12.3% for the preceding question,  $Z = 1.93$ ,  $p = 0.027$  for a one-tailed test). However, over half of the respondents still considered the pricing method unfair, and the number exceeded those who considered it fair (55.4% vs. 22.7%,  $Z = 4.21$ ,  $p < 0.001$  for a two-tailed test).

#### 4.4.2. Couponing

*Question 8.* A hotel mails discount coupons to some of its potential customers via email, but not to others. When a customer with a coupon logs into the hotel's website to make a reservation, the customer can enter the number on the discount coupon to obtain a discount. The customers who did not receive the discount coupon pay the full price. Hence, for example, one customer's price may be \$105, while another customer may pay \$95 after the discount. Is the pricing method fair or unfair?

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( $N = 75$ )	Very fair	16%	25.3%	20%	16%	22.7%	Very unfair
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Coupons are not extensively used in Taiwan. About 41% of the respondents considered the use of coupon on the Internet fair, while about an equal number considered it unfair (41.3% vs. 38.7%,  $Z = 0.28$ ,  $p = 0.78$  for a two-tailed test). Targeted promotions involving coupons on the Internet seem easier than in traditional channels. Consumers may feel that they can more easily obtain one in the real world by asking or searching for it if they want one. A consumer would feel frustrated and that the scheme unfair if he/she would like to use a coupon but could not obtain one anywhere on the Internet.

#### 4.4.3. Geographic discrimination

*Question 9A.* Suppose you log into a hotel's website to make a reservation for a hotel room. You are asked to indicate your location, Asia, Europe, Northern America, Southern America or Others. The hotel is quoting different prices to people from different regions. Since you are from Asia, your price is \$95. (The price for people from Europe and Northern America is \$105, and that for people from South America and Other regions is \$95.) Is this fair or unfair?

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( $N = 99$ )	Very fair	8.1%	19.2%	23.2%	21.2%	28.3%	Very unfair
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Half of the respondents considered geographic price discrimination to be unfair even when they obtained a favorable price. This number is significantly higher than those who considered it fair (49.5% vs. 27.3%,  $Z = 2.88$ ,  $p = 0.004$  for a two-tailed test).

*Question 9B* (same as above). Since you are from Asia, your price is \$105. (The price for people from Europe and Northern America is \$95, and that for people from South America and Other regions is \$105.) Is this fair or unfair?

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<i>(N = 75)</i>	Very fair	8.0%	14.7%	7.8%	22.7%	46.4%	Very unfair
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Respondents considered charging different prices for customers who come from different geographic areas unfair (69.1% vs. 22.7%,  $Z = 4.38$ ,  $p < 0.001$  for a two-tailed test). The perception of unfairness is significantly greater when the respondents have to pay a higher price (69.1% for the current question, 49.5% for the preceding question,  $Z = 2.59$ ,  $p = 0.005$  for a one-tailed test).

*4.4.4. Discounting to new or loyal customers*

*Questions 10A.* Suppose you log into a hotel’s website to make a reservation for a hotel room. You find out that the hotel quotes prices according to customers’ purchasing history. Hence, for example, the price for a loyal customer is \$105; while, for promotional purposes, the price for a new customer is \$95. How fair do you think the hotel’s pricing is?

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<i>(N = 101)</i>	Very fair	3.0%	6.9%	5.9%	28.7%	55.4%	Very unfair
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Respondents perceived the situation to be the most unfair of all. A total of 84.1% of respondents consider this method to be unfair, while only 9.9% consider it to be fair ( $Z = 7.93$ ,  $p < 0.001$  for a two-tailed test). Consumers are likely to leave such a firm to avoid being punished for their loyalty. Charging loyal customers higher prices is the essence of first-degree price discrimination. However, implementing such a scheme has very negative effects, as the Amazon.com incident indicates.

*Question 10B.* Suppose you log into a hotel’s website to make a reservation for a hotel room. The hotel indicates that it sets prices according to customers’ purchasing history. For example, the price for a loyal customer is \$95; while the price for a new customer is \$105. How fair do you think the hotel’s pricing is?

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<i>(N = 100)</i>	Very fair	21%	48%	13%	11%	7%	Very unfair
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Giving discounts to new customers while charging loyal customers a higher price is considered to be extremely unfair. However, giving such a discount to loyal customers is considered very fair (69% vs. 18%,  $Z = 5.86$ ,  $p < 0.001$  for a two-tailed test).

*4.4.5. Discrimination based on price sensitivity*

A firm may employ two strategies to discriminate among customers according to their price sensitivity. First, if a consumer logs into the company’s website through a price-comparison site, the consumer is more likely to be price sensitive. The firm can offer this type of consumer a lower price. Second, a consumer that logs into a company’s website without making a reservation is more likely to be shopping around than one who makes a reservation. The firm can offer a discount to the former type of consumers using a pop-up window. This study posed the following two questions.

*Question 11A.* Suppose you log into a hotel's website to make a reservation for a hotel room. You found out that when a customer visits the website directly, the price is \$100. However, for a customer who uses a third-party search tool to compare prices among a number of competitors, and then connect to the hotel's website, the price is \$90. Is this fair or unfair?

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(N = 101)	Very fair	5.9%	5.0%	8.9%	31.7%	48.5%	Very unfair
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The majority of respondents considered it unfair charging a lower price to those who use a price comparison site than to those who do not (80.2% vs. 10.9%,  $Z = 7.64$ ,  $p < 0.001$  for a two-tailed test).

*Question 11B.* Suppose you log into a hotel's website to reserve a hotel room. When you almost finish the reservation process, you decided that you did not want to make a reservation at that time and closed the windows that connect to the website. At this moment a new window pops up, offering you a 15% discount if you make a reservation immediately. Is this fair or unfair?

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(N = 74)	Very fair	18.9%	35.1%	13.5%	12.2%	20.3%	Very unfair
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More respondents considered it fair to use pop-up windows than those who do not (54.0% vs. 32.5%,  $Z = 2.14$ ,  $p = 0.03$  for a two-tailed test). This scenario is similar to the last one in that it seeks respondents' perceptions of fairness of price discrimination. However, it differs from the last question in two important respects. First, in this scenario, the respondents receive the lower price, whereas in the last scenario, they did not. Second, the scenario is very similar to the bargaining situation in traditional markets. This type of market is very popular in Taiwan and people are used to bargaining. A buyer often walks away in the middle of bargaining. If the seller calls the buyer back, the buyer can return to finish the transaction. Norms plays an important role here in influencing respondents' perception of fairness. Respondents may perceive this transaction differently in a country where bargaining is not a daily activity.

#### 4.5. Yield management

Yield management on the Internet involves raising or reducing prices according to market conditions. Therefore, this study posed two questions concerning price changes; one about price increases and the other about price reductions. Following Kimes (2002), consumers are expected to complain of unfairness when they encounter price changes either upward or downward. However, consumers will perceive price increases to be less fair than price reductions.

*Question 12A.* You were planning to take a vacation and logged into the Internet to check prices of hotel rooms. You found a room for \$100 on a hotel's website that is acceptable. However, you did not make a reservation immediately. Two days later,



you have made up your mind to reserve the room and log in to the same website. You found that the price of the hotel room has been raised to \$110. How fair do you consider the price change to be?

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(N = 100)	Very fair	6%	19%	24%	32%	19%	Very unfair
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*Question 12B* (same as above). Two days later, you have made up your mind to reserve the room and log in to the same web site. You found that the price of the hotel room has been lowered to \$90. How fair do you consider the price change to be?

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(N = 74)	Very fair	18.9%	32.4%	14.9%	27.0%	6.8%	Very unfair
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Only 25% of the respondents considered the price hike fair, while 51% considered the price hike unfair ( $Z = 2.94$ ,  $p = 0.003$  for a two-tailed test). However, roughly half of the respondents (51.3%) considered the price reduction fair, while 33.8% of respondents considered the reduction unfair ( $Z = 1.77$ ,  $p = 0.077$  for a two-tailed test). The difference in proportion between the two scenarios is statistically significant (25% vs. 51.3%,  $Z = -3.57$ ,  $p < 0.001$  for a one-tailed test). Seemingly, respondents use the price that they encounter the first time as the reference price. They compare the current price with the reference price. If the current price exceeds the reference price, they considered the change unfair. However, if the current price is below the reference price, many consider the change fair.

Dynamic pricing increases variation in the prices for products purchased on the Internet. This variation is likely to increase the frustration of consumers since whether the prices they receive are low or high is hard to determine. The long-term viability of yield management is doubtful since most respondents feel that raising prices with no justification is unfair and yield management probably involves more price increases than price decreases.

## 5. Conclusion

This study makes four contributions to the literature on fair pricing.

1. Selling products on the Internet for the same price as they are sold through traditional channels is considered unfair. In this study, respondents considered a saving by consumers of about 8% to be fair.
2. Respondents considered various pricing mechanisms on the Internet to be fair, including auction, group-buying discounts, the Priceline model and negotiation. Respondents consider such schemes to be even fairer if they obtain a low price than if they receive a high price.
3. This research examined random discounting, couponing, geographic discrimination, discounting to new or loyal customers and discounting based on price sensitivity. The results show that discounting to loyal customers and using a

window pop-up are two acceptable discounting methods. Other discounting methods are considered unfair. Respondents consider such practices to be less fair when they receive a high price than when they enjoy a low price.

4. Respondents feel price increases on the Internet to be unfair. Respondents do not favor yield management on the Internet.

The results of this study suggest several areas for future research. First, most respondents considered unfair the practice of charging a lower price to those who use price comparison sites than those who do not. Over half of the respondents considered the use of a pop-up window to entice buyers to be fair. These results are surprising since the two methods are essentially the same in that lower prices are offered to those with higher price sensitivity. The different results may originate from a Taiwan cultural norm. A reviewer of this study indicated that results may vary because the “actors” are different: In one case an automatic tool exists which collects and compares prices; in the other a relationship exists between the firm and the consumer. The customers and the firm have more control on the bargain, or no third party is involved in such negotiation. Future studies may examine perceptions of these pricing methods in other cultures and in more detail.

Second, this study examined many but not all pricing mechanisms and methods of price discrimination. For example, a hotel may ask customers to stay four days when the demand is high for only three days. Or a hotel may ask customers to purchase meal coupons to use in the hotel’s restaurants when making reservations on the popular days. Do consumers consider this type of product bundling to be fair or unfair? While product bundling is not specific to the Internet, this issue deserves careful scrutiny.

Third, how quickly do consumers get frustrated when they encounter frequent price changes? Do they consider such changes fair when they finally see a price decrease after encountering several price hikes? Will they still consider the practice fair when they see a price hike after encountering several price decreases? These and many other issues are worthwhile avenues for future research since the Internet supports highly flexible price-setting.

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