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The Effect of Price Level and Price Type on Perceptions of a Restaurant

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ABSTRACT

Consumers are often drawn to certain products and services by pricing techniques. Four versions of an Italian restaurant menu were created to test the impact of price level and price type on people's perceptions of a restaurant. Two versions were inexpensive while two were more expensive. Within each condition, one was odd priced, with prices ending in .49 or .99, and the other was even priced, with prices ending in .50 or .00. Participants reviewed one menu and completed a survey, assessing the restaurant's quality-image and value-image and their willingness to try it. In Experiment 1 there was no time limit, while in Experiment 2 participants were allowed only one minute to review the menu which was then taken away before they filled out the survey. In both studies, the analysis revealed that people believed higher priced restaurants offered higher quality but less value and that they were less likely to try them. Odd pricing had no effect on any of the dependent measures, highlighting the need for further investigation of the circumstances under which this technique impacts consumers.

ARTICLE

The Effect of Price Level and Price Type on the Perceptions of a Restaurant

When deciding whether or not to buy a product, one of the first things a person typically sees is the price of the item. Often the only obvious difference between one brand of an item and another, price can affect people's perceptions of the quality and value of an item and can influence whether or not the item is purchased. The potential impact of various pricing strategies has been understood

by marketing experts for years. Most consumers, however, are blissfully unaware of the subtle power of such strategies and, therefore, are ill-equipped to guard against them. This study was designed to shed light on the extent to which consumers' perceptions of a restaurant are impacted by price level and price type.

Research has suggested that people may equate high prices with high quality (Dodds, Monroe, & Grewal, 1991) and that as a result, under some circumstances, high prices may lead to an increase in demand (Lambert, 1970). While the tendency to associate high prices with high quality may occasionally be a useful heuristic, this phenomenon puts consumers at the mercy of retailers. In his book *Influence*, Cialdini (1993) related an anecdote about how, counterintuitively, when a jewelry store raised its prices, sales increased. However, past research has not consistently demonstrated these effects of high prices. This experiment sought to investigate whether consumers would assume that a high-priced restaurant would offer better quality and whether, consequently, they would be more likely to try such an establishment.

In order to reduce the price image of an item, retailers often use a tactic called odd pricing. The most common definition for an odd price is a price that is just below a number ending in 0. Most odd prices end in .99, but .49 is another common ending (Kreul, 1982). Generally, odd pricing has been shown to increase people's perceptions of the value of a product, despite decreasing their perceptions of its quality. Lambert (1975) suggested that value is the ratio of quality to price. It can be inferred, then, that odd pricing decreases perceptions of price more than it decreases perceptions of quality, resulting in a higher value ratio. In addition, Stiving's (2000) study evidenced that while lower priced and lower quality products tended to be odd priced, their higher priced and higher quality counterparts actually tended to have even prices. These observations raise doubts about the efficacy of odd pricing for high priced and high quality products. No research was found that tested the interaction between odd pricing and price level; this experiment sought to fill this gap in the literature.

Literature Review

The Effect of High Prices

Not surprisingly, high prices have been shown to decrease perceptions of value. For instance, Dodds et al. (1991), found that participants rated both a high priced stereo headset player and a high priced calculator to be of lesser value than their low priced counterparts.

The relationship between price and perceptions of quality, however, is less clear. Alpert, Wilson, and Elliot (1993) observed that higher price, alone, did not create impressions of a higher quality facial moisturizer. However, they found that a higher price, coupled with quality signals such as premium packaging and advertising did indicate higher quality to consumers. In a similar vein, Venkataraman (1981) demonstrated that brand name had a larger effect on perceived quality than price, though price, alone, did have a significant effect. On the other hand, Dodds et al. (1991) found a clear, direct relationship between price and quality without using other quality indicators.

High price has been shown to have varied effects on the likelihood to try a product as well. Dodds et al. (1991) demonstrated that high prices reduced reported willingness to buy products. This finding is consonant with the traditional notions of the demand curve, which suggest that price and demand are inversely proportional (Kreul, 1982). Conversely, Rachman (1999) pointed out that high prices often increase demand for wine, another case in which consumers may be lured into equating high prices with high quality. This phenomenon suggests that the impact of a high price on demand is affected by the type of product. Lambert (1970) showed that high priced products were preferred when different brands of the product varied greatly in quality and when the product was socially significant, both of which seem to be the case with wine.

The Effect of Odd Pricing

Gendall, Holdershaw, and Garland (1997) showed that odd prices create a kink in the demand curve. A greater-than-expected sales increase is caused by the one-cent decrease between an even price and its corresponding odd price. Bettman (1979) suggested that this phenomenon is due to the limited capacity of short-term memory (STM). Information is lost from STM within a matter of seconds if it is not further processed. Therefore, consumers may be less likely to remember odd prices accurately because there are more digits in odd prices (prices ending in non-zero numbers) than in even prices (prices ending in 0), and accordingly, more processing is required to remember them correctly.

The limited capacity of STM has been shown to impede recall of prices. Schindler and Wiman (1989) demonstrated that prices ending in .00 were almost twice as likely to be recalled correctly as prices ending in .99 or .98. Their study also indicated that the left-most digit was remembered 63% of the time, while the right-most digit (the units digit of the cents) was recalled only 32% of the time. In addition, they noted that 49% of prices ending in .99 were underestimated, while only 39% of prices ending in .00 were

recalled as underestimates, showing that odd pricing created a rounding down effect. Similarly, Lambert (1975) found that people were more likely to underestimate the total price of a group of odd priced objects, valuing it at about 25% below an even priced group. These last two findings clearly highlight the dangers of susceptibility to odd pricing, as consumers are tricked into mentally reducing the cost of odd priced items well beyond the one-cent decrease in price from the round number.

Studies have shown that odd prices lead to appearances of lower quality products. Consumers may perceive price as a reflection of quality, and odd prices tend to be perceived as lower than they actually are. Based on an examination of nearly 2,500 products sold in 12 stores, Stiving (2000) concluded that stores use even prices to signal high quality. Similarly, Schindler and Kibarian (2001) found that items advertised at prices ending in .99 and the stores that advertised them were perceived as lower in quality than their counterparts advertised with even prices. Interestingly, when the stores were divided into high and low priced ones, the perceived quality difference caused by odd pricing was significant only in the high priced establishments. This finding suggests that odd pricing may not negatively impact consumers' perceptions of quality when they are shopping for inexpensive or bargain items.

People tend to associate odd pricing with higher value. Because value can be seen as the ratio of quality to price (Lambert, 1975), this phenomenon suggests that odd prices decrease perceptions of price more than they decrease quality perceptions. Schindler and Kibarian (2001) demonstrated that consumers shown prices ending in .99 as opposed to .00 were significantly more likely to report that they would be unable to find a lower price and that the advertised price was a discount price. Bartsch and Paton (1999) showed that when the Texas lottery jackpot was raised from \$9 million to \$10 million, 1 million more tickets were bought, a sales increase nearly three times the size of the increase predicted based on the increase in the prize. While the increase may have been due, in part, simply to the lure of a larger jackpot, the authors argue that the finding implies that people perceived more of an increase in the value of their winnings than was actually present due to the move from an odd price (\$9 million) to an even price (\$10 million).

As suggested by its longevity, odd pricing has been consistently shown to create increased willingness to try a product. Little's (1975) study showed that an increase in the price of a product from \$0.49 to \$0.52 led to a much greater decline in willingness to buy than mathematically would be expected. Schindler and Warren (1988) illustrated that people were more likely to order odd priced

items than even priced items off restaurant menus that contained both types of prices. Similarly, Schindler and Kibarian (1996) determined that people purchased 8% more items when the prices ended in .99, as opposed to .00 or .88. This finding suggests that it was the odd price, and not just a lower price, that created the greater demand. Finally, Gendall et al. (1997) showed odd pricing created increased demand for a variety of household items, ranging from food to small appliances. However, all of these studies focused on relatively low priced goods and services. Stiving (2000) found that higher priced stores used more even prices than lower priced stores, that higher quality brands of the same product were more likely to be priced using round numbers, and that higher prices were more likely to be even. Based on Stiving's (2000) observation that high priced goods tend to carry even prices, we wondered if using odd pricing in a high priced restaurant could actually decrease demand.

This experiment sought to determine the impact of price level (high or low) and price type (odd or even) on a middle class population's perceptions of an Italian restaurant, an arena in which both quality and value are important to consumers. A middle class population was used in order to increase the likelihood that participants would eat out frequently, while still being somewhat value-conscious. A restaurant was selected for several reasons. Considerable variety exists between restaurants in terms of quality and price, and the use of odd pricing by restaurants is common. Schindler and Warren (1988) demonstrated that odd priced products were chosen significantly more frequently from a restaurant menu than products with even or other types of prices, although in their study, odd and even prices were present on the same menu, an unusual strategy in restaurant pricing. In addition, restaurants allowed us to explore Lambert's (1970) assertion that higher prices would increase demand for socially significant products. Also of interest was whether high prices, without any other information, would be associated with higher quality. Finally, this study investigated the interaction between odd pricing and price level predicted by Stiving's (2000) theoretical model and empirical observations.

In terms of quality perceptions, we hypothesized that 1) As compared with low prices high prices would lead to perceptions of A) higher quality and B) lesser value and 2) As compared to even prices, odd prices would lead to perceptions of A) lesser quality and B) greater value. With regard to likelihood to try the restaurant, we hypothesized that 3) In a high priced restaurant, even prices would lead to a greater likelihood to try than odd prices, but 4) In a low priced restaurant, odd prices will lead to greater likelihood to try than even prices.

Experiment 1

Method

Participants

The sample for this study was 95 adults entering a local library in an upper-middle class neighborhood in New York, United States. The participants' mean age was 52 years; the youngest participant was 18 years old, and the oldest was 86 years old. There were 41 males, 52 females, and two people who neglected to report their gender. Every person or group entering the library was approached and asked to participate. Each group was regarded as one person, and any single member of the group (designated by the group itself) could opt to fill out the questionnaire. No incentive was given for participation, and approximately 50% of the people who were approached agreed to participate. Participants were randomly assigned to view one of the four restaurant menus described below.

Materials

Four different versions of a menu were created. They were intended to represent a typical Italian restaurant menu and were created using items and prices modeled after Italian restaurants in the area. With the exception of the prices, every version was identical, containing exactly the same items in the same order and layout. The menus were printed on white paper, no descriptions were provided for any of the menu items, and no name was given to the restaurant. The menus were deliberately designed to be plain in order to ensure that the participants would be influenced, as much as possible, by only the prices of the menu items.

Price was the only aspect of the menus that varied. Two of the versions contained inexpensive prices that ranged from \$2.99 to \$13.00. One of these versions had even prices, ending in .00 or .50, and the other version had odd prices, ending in either .49 or .99. The prices on the other two versions, ranging from \$5.99 to \$26.00, were essentially double those of the corresponding items from the inexpensive menus. Again, one version was even priced, and the other was odd priced. Since one objective was to compare how a one-cent price difference between a round price and one just below it ending in a 9 would affect consumers' perceptions of a restaurant, all of the odd prices were exactly one cent less than the even prices for the respective items.

Attached to each menu was a survey that was created to test perceptions of the restaurant based solely on the menu. Three items dealt with quality-image, three with value-image, and three with likelihood to try the restaurant. An example of a question dealing with quality-image was, "How would you expect the overall

quality of this restaurant to be?" A question dealing with value-image asked, "How good of a value do you consider this restaurant to be?" A question about participants' likelihood to try the restaurant was, "Do you think you would try eating at this restaurant?" All nine items were answered on a 7-point Likert-type scale. The final three items on the survey asked about participants' age and gender, and how often they ate out.

Procedure

As they entered the library, people were asked if they would participate in a study that involved rating a restaurant for a school project. After filling out consent forms, they were given both the menu and the survey and an unlimited amount of time to answer the questions.

Results

The three items that dealt with quality-image were averaged to create a Quality Scale that yielded a reliability coefficient of $\alpha = .95$ using Cronbach's alpha. The three items that dealt with value-image were averaged to create a Value Scale that had a reliability of $\alpha = .76$. However, the omission of one item increased the reliability to $\alpha = .88$ so only the first two items were used in the analyses. Finally, the three questions that dealt with people's likelihood to try the restaurant were averaged to create a Likelihood Scale with a reliability of $\alpha = .90$.

The survey included a question about how often the participants ate out. This question was intended to ensure that the sample was familiar with restaurants. When the data were analyzed, there was no statistical difference between the results when those who reported they ate out once a month or less (7.4%) were included and when they were omitted. Therefore, all participants were included in the final data analysis. Some participants, however, chose not to answer one or more survey questions. Consequently, the final sample consisted of only 88 participants, as only those participants that provided a response for every question could be included in the final analyses.

Because the three dependent variables were intercorrelated, the data were analyzed using a multivariate analysis of variance (MANOVA). See Table 1 for the means of each of the groups. A significant multivariate effect was found for price level, $F(3, 82) = 18.01, p < .001$. No significant effect emerged for price type, $F(3, 82) = .71, p = .55$, and no interaction was found between price level and price type, $F(3, 82) = .35, p = .79$. Follow up analyses employed univariate ANOVAs.

Table 1: Means Table for Experiment 1					
	Price Type	Price Level	Mean	SD	N
Quality	Odd	Low	4.25	1.02	20
		High	5.19	1.14	23
		Total	4.75	1.17	43
	Even	Low	4.31	1.13	24
		High	4.86	1.10	21
		Total	4.56	1.14	45
	Total	Low	4.28	1.07	44
		High	5.03	1.12	44
		Total	4.66	1.15	88
Value	Odd	Low	4.95	1.02	20
		High	4.11	1.38	23
		Total	4.50	1.29	43
	Even	Low	5.13	1.30	24
		High	3.79	1.45	21
		Total	4.50	1.52	45
	Total	Low	5.05	1.18	44
		High	3.95	1.41	44
		Total	4.50	1.40	88
Likelihood to Try	Odd	Low	4.25	1.61	20
		High	3.72	1.30	23
		Total	3.97	1.46	43
	Even	Low	4.58	1.29	21
		High	3.73	1.58	24
		Total	4.19	1.48	45
	Total	Low	4.43	1.44	44
		High	3.73	1.42	44
		Total	4.08	1.47	88

The Effect of Price Level and Price Type on Perceptions of Quality
A significant univariate main effect for price level on perceptions of quality was found. Participants rated the higher priced restaurant as better in quality than the lower priced restaurant, $F(1, 84) = 10.00$, $p < .01$. No significant effect of odd pricing on the perception of

quality was uncovered, $F(1, 84) = .34, p = .56$, and there was no interaction between odd pricing and price level, $F(1, 84) = .67, p = .41$.

The Effect of Price Level and Price Type on Perceptions of Value

Price level also had a statistically significant effect on perceptions of value, $F(1, 84) = 15.25, p < .001$. Participants considered the lower priced restaurant to be better value than the higher priced one. Odd pricing did not have a significant effect on the value perception of the restaurant, $F(1, 84) = .07, p = .79$, and there was no interaction between the two factors, $F(1, 84) = .80, p = .38$.

The Effect of Price Level and Price Type on Likelihood to Try the Restaurant

A final univariate ANOVA revealed that the effect of price level on the likelihood to try the restaurant was significant, $F(1, 84) = 10.40, p < .05$. Odd pricing had no effect on the willingness to try the restaurant, $F(1, 84) = .30, p = .58$, and there was no interaction between price type and price level, $F(1, 84) = .28, p = .60$.

Discussion

The Effect of Price Level on Perceptions of Quality

As hypothesized, a higher priced menu was shown to create the impression of a higher quality restaurant. The most likely explanation for this effect is that price is generally seen as an indicator of quality. Higher quality items or brands are generally priced higher, and people have come to associate high price with high quality (Dodds et al., 1991). This experiment confirms this association, despite the lack of any other premium quality signals. Because this finding conflicts with the observations made by Alpert et al. (1993), but supports those made by Dodds et al. (1991) and Venkataraman (1981), it seems that the nature of a price-quality relationship may be product specific and that such a relationship may exist in the context of a restaurant. In the Alpert et al. (1993) study, quality evaluations were made with full knowledge of store and brand name, whereas the strongest price-quality relationship in Dodds et al. (1991) was seen when no brand or store name was included. The design of this study did not involve brand or store name. Therefore, it seems that the price-quality relationship may be stronger when product information is limited to price and weaker when buyers have knowledge of brand and store name. When little is known about an item besides its price, consumers should be particularly cautious about assuming that higher prices are necessarily indicative of higher quality.

Another possible explanation for the perception of the higher priced restaurant as higher in quality is that participants may have been attempting to minimize cognitive dissonance. Cognitive dissonance can occur when people's actions conflict with their beliefs. In such situations, people seek to reduce mental tension by bringing their attitudes into concordance with their behavior (Cooper & Fazio, 1984). Since the experiment was conducted in an upper-middle class community, many participants may be used to buying high priced goods. In order to justify this behavior, they may believe that higher price means higher quality and may have accordingly rated the higher priced restaurant as a higher quality product. This finding raises the question of whether a less pronounced price-quality relationship might be observed in a lower income area.

A third reason participants may have associated price with quality is that they may have related higher price to a better overall dining experience. While it seems irrational to believe that one version of a product is of higher quality than an equivalent product simply because the former is priced higher (e.g., brand name vs. generic drugs), in the context of a restaurant, even if the food quality is no different, higher priced restaurants generally do offer better amenities, décor, and service. In fact, one of the items on the Quality Scale asked participants to evaluate the service of the restaurant, in some sense encouraging them to consider factors other than food when evaluating the restaurant's quality.

The Effect of Price Level on Perceptions of Value

A lower price level was demonstrated to increase the value-image of the restaurant in the minds of participants. This result is consistent with Dodds et al.'s (1991) finding that the strongest indirect price-value relationship existed when participants had no knowledge of store or brand name. In this experiment, price was the only information participants had to evaluate the restaurant so it had a large effect on perceptions of its value. To explain this indirect price-value relationship, it is helpful to return to the notion of value as the ratio of quality to price (Lambert, 1975). Though it was found that participants believed the higher priced restaurant to be of better quality than the lower priced restaurant, they may have felt that the higher priced restaurant did not offer enough of a quality upgrade from the lower priced restaurant to make the price increase worthwhile. Therefore, the value ratio for the higher priced restaurant was lower than that of the lower priced restaurant.

The Effect of Price Level on Likelihood to Try the Restaurant

Finally, people reported that they were more likely to try the low priced restaurant than the high priced restaurant. This finding is consistent with the demand curve (Kreul, 1982). The obvious

explanation for this finding is a greater willingness to try the restaurant that posed a lesser risk. Consumers knew nothing about the restaurant except the items on the menu and their prices. They simply may have been more open to trying the restaurant in which they would lose less if they did not have a good experience. This result is in accordance with participants' ratings of the lower priced restaurant as a better value. Value perception takes into consideration perceptions of both price and quality (Lambert, 1975) and has been shown to be a good indicator of willingness to try (Dodds et al., 1991).

Interestingly, this finding seems to contradict research that has shown high priced brands are favored when dealing with socially significant products (Lambert, 1970; Rachman, 1999). This discrepancy implies that the value of this restaurant may have been more important to consumers than its social significance. On the other hand, it is entirely possible that the restaurant's social significance was minimized by the exclusion of signals such as a familiar name, chef, or fancy address. This difference calls for further research about how such signals influence people's decisions to try or not to try a restaurant.

The Effect of Price Type

Counter to the hypotheses and many past studies (e.g., Bartsch & Paton, 1999; Schindler & Kibarian, 2001), odd pricing did not affect participants' perceptions of the quality or value of the restaurant. Collectively, the lack of any odd pricing effect may be explained by the idiosyncrasies in the experimental design. Schindler and Warren (1988) showed that odd priced products were favored when chosen off a restaurant menu that had similar prices to the menus used in this study, but their study was conducted 15 years ago on university students who may have been more careful with money and therefore significantly more willing to try items that looked inexpensive. In addition, these researchers placed both odd and even priced items on every version of their menu, and odd prices may appear even cheaper when placed near even prices. However, most restaurants seem either to use odd prices or even prices, making it important to understand the effects under these conditions. Schindler and Warren's (1988) participants also had to select items to buy, and this action may have caused the situation to seem more real and their decisions to be more cautious. These differences suggest that it might be useful to explore the effects of odd pricing in situations in which odd and even prices appear next to each other and participants actually have to choose items to buy.

Alternatively, the lack of an odd pricing effect can be explained in terms of memory. Bettman (1979) posited that only the most

important (or left-most) digits of prices are stored in short-term memory. As a result, the decimal portion of the odd price is often disregarded, creating the rounding down effect. In accordance with Bettman's (1979) suggestions, many past experiments in which odd pricing was shown to alter perceptions and create additional demand employed a design in which participants were allowed to view the prices for a limited amount of time and had to evaluate the prices from memory (e.g., Lambert, 1975; Schindler & Warren, 1989). In this experiment, however, participants were shown the prices of the menu items for as long as they needed, as is the case in real restaurants. In fact, they were allowed to look back at the prices even when filling out the restaurant perception survey, which may have negated any effects created by having to remember the prices. Therefore, a follow-up experiment was conducted to explore this possible explanation for the lack of any odd pricing effects. Although the design did not create an experience that mimicked a real restaurant setting, the experiment was conducted solely to eliminate this theory as an explanation for the lack of any odd pricing effects.

Experiment 2

Hypotheses

The hypotheses were the same as those used in Experiment 1.

Method

Participants

The method of sampling was identical to the first experiment. Again, no incentive to participate was provided, and approximately 50% of the people approached agreed to participate. The 99 participants ranged from 22 to 85 years old, with a mean age of 51. There were 38 males, 60 females, and one person who did not report his/her gender.

Materials and Procedure

The same materials and procedures were employed as those used in the first experiment with one alteration. In the second experiment, participants were given the menu for no more than one minute. They were asked to fill out the survey only after returning the menu.

Results

As in the first experiment, the data were analyzed using a MANOVA. Once again, the constraints of this test reduced the number of participants used in the data analysis to 92, excluding seven people who failed to respond to one or more of the questions. Table 2

displays the means of each of the groups. A significant multivariate effect was found for price level, $F(3, 86) = 22.59, p < .001$. No significant effect emerged for price type, $F(3, 86) = .63, p = .60$, and no interaction was found between price level and price type, $F(3, 86) = .57, p = .64$. Follow up analyses employed univariate ANOVAs.

	Price Type	Price Level	Mean	SD	N
Quality	Odd	Low	4.33	.93	22
		High	4.97	.83	25
		Total	4.67	.93	47
	Even	Low	4.42	1.21	24
		High	4.75	1.41	21
		Total	4.57	1.30	45
	Total	Low	4.38	1.07	46
		High	4.87	1.12	46
		Total	4.62	1.12	92
Value	Odd	Low	5.05	.92	22
		High	3.90	1.01	25
		Total	4.44	1.12	47
	Even	Low	4.94	1.15	24
		High	3.57	1.06	21
		Total	4.30	1.30	45
	Total	Low	4.99	1.04	46
		High	3.75	1.04	46
		Total	4.37	1.21	92
Likelihood to Try	Odd	Low	4.86	1.28	22
		High	4.21	1.18	25
		Total	4.52	1.26	47
	Even	Low	4.89	1.21	24
		High	3.54	1.44	21
		Total	4.26	1.47	45
	Total	Low	4.88	1.22	46
		High	3.91	1.33	46
		Total	4.39	1.37	92

The Effect of Price Level and Price Type on Perceptions of Quality

An ANOVA once again revealed that a higher price level created a significant increase in quality perception, $F(1, 88) = 4.39, p < .05$. Participants again saw the higher priced restaurant as a better quality product than the lower priced restaurant. As in the first study, odd pricing had no effect, $F(1, 88) = .10, p = .77$, and there was no interaction between the two variables $F(1, 88) = .45, p = .50$.

The Effect of Price Level and Price Type on Perceptions of Value

Price level had a significant effect on value perception, $F(1, 88) = 33.18, p < .001$. People considered the lower priced restaurant a better value than the higher priced restaurant. Odd pricing had no effect on the value perception, $F(1, 88) = 1.00, p = .32$, and there was no interaction between price level and price type, $F(1, 88) = .26, p = .61$.

The Effect of Price Level and Price Type on Likelihood to Try the Restaurant

The effect of price level on likelihood to try the restaurant was significant, $F(1, 88) = 14.10, p < .001$. Consumers were unmistakably more likely to try the lower priced restaurant than the higher priced restaurant. Odd pricing again had no effect, $F(1, 88) = 1.48, p = .23$, and there was no interaction between the two factors, $F(1, 88) = 1.72, p = .19$.

General Discussion

The Effect of Price Level

As in the first experiment, a higher price created perceptions of higher quality, lower value, and a lower likelihood to try the restaurant. The main difference between the two experiments was that in the first study participants were allowed to look back at the menu while filling out the survey, while in the second study they were required to answer the questions from what they remembered. Memory was not a factor in any of the explanations for these effects, so intuitively it makes sense that these results remained the same.

It remains likely that price is a strong indicator of quality or that participants in the high priced conditions may have been trying to minimize cognitive dissonance resulting from dining in similarly priced restaurants. In terms of value, it seems that while restaurant quality can vary tremendously, participants may have believed that the quality of the restaurant was unlikely to be so poor that it would not be sufficiently compensated for by the low price, thereby

making the low priced restaurant better value. Finally, it is probable that participants may have been more willing to try the restaurant that posed a lesser risk, and therefore reported that they were more likely to try the lower priced restaurant than the higher priced one. While the equating of low price with greater value and willingness to try makes sense, consumers' association of high price with high quality leaves them open to manipulation. It is critical that people become cognizant of our tendency to assume that high price connotes high quality and learn to look for other, more substantive indicators of quality.

The Effect of Price Type

The odd pricing effect did not emerge in either experiment, and no interactions between price level and odd pricing were present in either case. There are a number of possible reasons for the failure of this oft-demonstrated effect to materialize. Odd pricing may reduce the quality perception of products only if the most important attribute is high quality. This conditional effect can be inferred from the results of Schindler and Kibarian (2001) who showed that odd pricing only reduced quality perceptions of products in stores that were considered high in quality and had no effect on the perceived quality of products from other stores. Although one restaurant was markedly more expensive than the other, neither was exceptionally so, given the affluence of the community. Therefore, value may have been more of a factor than quality in shaping people's likelihood to try either restaurant. The price may not have been sufficiently high to create the impression of a restaurant of such high quality that the lure of value is virtually eliminated. Using the same community, it would be interesting to test the effect of odd pricing on quality perceptions of an extremely expensive restaurant, where it is likely that the expectation of high quality is the main reason one would try it.

In addition, the relative affluence of the community may have negated the odd pricing effect, because the apparent price difference between an odd price and its corresponding even price may not have produced a significant enough downward distortion to create a difference in value perceptions of the restaurant. If the study had been conducted in an area in which participants were not willing to spend as freely, the slight rounding down caused by the odd prices may have had a larger impact on their perceptions of value. It is also possible that the amount of money participants typically spend when dining out was a confound; future studies should control for this variable. Finally, the effect of odd pricing should be examined on a higher priced product where, as suggested by Kreul (1982), the odd prices could be a full dollar under a round number.

Thirdly, the predicted interaction between odd pricing and price level on likelihood to try the restaurant again failed to emerge. The observation that retailers tend to use even prices over odd prices in pricing expensive goods (Stiving, 2000) suggests that retailers expect odd pricing to reduce the demand for high priced items. The lack of such an interaction illustrates that odd pricing, even when used on the more expensive restaurant menu, did not negatively impact the participants' reported likelihood to try it. On the other hand, it is possible that the more expensive restaurant was simply not expensive enough to be hurt by its association with odd pricing.

Alternatively, it is possible that no odd pricing effect emerged because consumers are becoming savvier. Marketing professor Stephen Brown points out numerous advertising techniques that no longer work because buyers know the tricks of the trade. He believes consumers today welcome upfront, gimmick-free sales pitches (Brown, 2003). Buyers may no longer be fooled by odd prices, or they may be wary of odd pricing and be turned off by it. Walmart is a value-conscious store that does not use traditional odd pricing. Its recent advertising campaign features prices ending in all different digits, instead of the conventional 5 or 9 endings. Such prices may appear lower than odd prices by creating the impression of prices that have reduced to the lowest possible level. It would be interesting to compare the impact of traditional odd prices to those with such unusual endings to see if consumers have found a way to compensate for many pricing tactics or, alternatively, if the Walmart approach effectively circumvents consumers' defenses.

In the past, odd pricing has been shown to create a positive kink in the demand curve, caused by greater-than-expected increases in demand for the one-cent price reduction. This experiment showed that price level has a much greater impact on participants than odd pricing. In addition, it demonstrated an instance in which odd pricing had no effects on perceptions of a restaurant or participants' willingness to try it, highlighting a need to study the conditions under which the effect does emerge. The results suggest that small businesses, especially individual restaurateurs, that are unlikely to conduct their own market research should think twice before employing odd pricing, as this technique may simply be causing them to lose money. Most importantly, this study should serve to caution consumers against concluding that higher prices are necessarily indicative of higher quality and to call attention to the need to recognize and not fall prey to marketers' widespread use of pricing strategies.

References

- Alpert, Frank, Beth Wilson and Michael T. Elliot (1993), "Price Signaling: Does It Ever work?" *Journal of Consumer Marketing*, 10 (4).
- Bartsch, Robert A. and Vivian I. Paton (1999), "The Presence of Odd Pricing in the Texas State Lottery," *Journal of Applied Social Psychology*, 29 (November), 2394-2409.
- Bettman James R. (1979), "Memory Factors in Consumer Choice: A Review," *Journal of Marketing*, 43 (Spring), 37-53.
- Brown, Stephen (2003), "Marketing to Generation®," *Harvard Business Review*, (June), 16-17.
- Cialdini, Robert B. (1993), *Influence: The Psychology of Persuasion*, New York: William Morrow.
- Cooper, Joel and Fazio, Russel H. (1984), "A New Look at Dissonance Theory," *Advances in Experimental Social Psychology*, ed. L. Berkowitz, 17, New York: Academic Press.
- Dodds, William B., Kent B. Monroe and Dhruv Grewal (1991), "Effects of Price, Brand, and Store Information on Buyers' Product Evaluations," *Journal of Marketing Research*, 28 (August), 307-319.
- Gendall, Philip, Judith Holdershaw and Ron Garland (1997), "The Effect of Odd Pricing on Demand," *European Journal of Marketing*, 31 (11-12), 799-813.
- Kreul, Lee M (1982), "Magic Numbers: Psychological Aspects of Menu Pricing," *Cornell Hotel and Restaurant Administration Quarterly*, 23 (August), 70-75
- Lambert, Zarrel V (1970), "Product Perception: An Important Variable in Price Strategy," *Journal of Marketing*, 34 (October), 68-71.
- Lambert, Zarrel V (1975), "Perceived Prices as Related to Odd and Even Price Endings," *Journal of Retailing*, 51 (Fall), 13-22.
- Little, John D. C. (1975), "BRANDAID: A Marketing-Mix Model, Part 2: Implementation, Calibration, and Case Study," *Operations Research*, 23 (November), 656-673.
- Rachman, Gideon (1999), "Christmas Survey: The Price Puzzle," *The Economist*, 353 (8150), 95-97.

Schindler, Robert M. and Thomas M. Kibarian (1996), "Increased Consumer Sales Response through Use of 99-Ending Prices," *Journal of Retailing*, 72 (Summer), 187-199.

Schindler, Robert M. and Thomas M. Kibarian (2001), "Image Communicated by the Use of 99 Endings in Advertised Prices," *Journal of Advertising*, 30 (Winter), 95-99.

Schindler, Robert M. and Lori S. Warren (1988), "Effect of Odd Pricing on Choice of Items from a Menu," *Advances in Consumer Research*, 15, 348-353.

Schindler, Robert M. and Alan R. Wiman (1989), "Effects of Odd Pricing on Price Recall," *Journal of Business Research*, 19 (November), 165-177.

Stiving, Mark (2000), "Price-Endings when Prices Signal Quality," *Management Science*, 46 (December), 1617-1630.

Venkataraman, V. K. (1981), "The Price-Quality Relationship in an Experimental Setting," *Journal of Advertising Research*, 21 (August), 49-52

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