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Price Framing Effect in Online Shopping

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ABSTRACT

The research had two major objectives. The results obtained in the research on behavioral decision theory undertaken in the present study suggest that contexts, or "framing" effects, have important implications for the manner in which individuals evaluate decision alternatives. This study examined the impact of option framing of price framing on consumer perceived value and buying behavior.

The research used a questionnaire survey to validate the hypothesis. A 2 (option framing: +OF, -OF) * 2 (product: hedonic product, utilitarian product) * 2 (promotion limit: three days, three months) between subjects design was used in which subjects were randomly assigned to one of eight experimental treatments. A total of 400 questionnaires were handed out; 344 valid, completed questionnaires were returned. ANOVA was used to test the different effects of price framing on perceived value.

In the present study, we found that price framing has an effect on perceived value, but that additive option framing of price framing does not have an effect on perceived value. We also found that subtractive option framing of price framing has an effect on perceived value, and that price reduction has a greater influence on perceived value than price discount and free shipping.

Keywords: Price framing; Option framing; Perceived value; Purchase intention

Price Framing Effect in Online Shopping

Ⅰ. Research Background

E-Commerce websites and online self-service are becoming more and more popular (Modahl, 2000). Given that both vendors and buyers always seek to maximize profit, the question of how the growth of e-commerce and online self-service lowers the cost to buyers of acquiring information about vendor prices and product offerings, and how that affects consumer decision-making behavior, is a research topic of great interest to both researchers and marketing managers.

Increasingly, marketing is becoming "customized"; customers are more and more often allowed to decide for themselves on forms and arrangement of product, and to choose voluntarily (Stigler, 1968; Stremersch and Tellis, 2002). Nagle (1987) states that: "price differences for the same product should always be presented as a discount from the higher price rather than as premiums over the lower price." Thus, the concept of framing has its genesis in prospect theory (Kahneman and Tversky, 1979); Thaler's (1985) model of consumer choice is a combination of economic reasoning, principles of psychophysics, and cognitive psychology.

In the past, the results obtained in price framing research based on the prospect theory have been inconsistent. Johnson and Fader (1993) find that loss aversion for product quality (utility) is greater than aversion to price (economic losses). The research presented in this article therefore focuses on price framing with subtractive option framing (-OF) and additive option framing (+OF), and their impact on consumer behavior in online shopping.

Dhar and Wertenbroch (2000) found that consumer behavior varies depending on whether it is driven by hedonic or utilitarian considerations; Grewal and Compear (1992) speculated as to the impact on consumers of semantic cues indicating a time limit. The present study therefore also examined the effect that hedonic versus utilitarian products, and promotion limits, had on purchase intention.

The present study targets consumers who engage in online consumption, whether in the form of online shopping, online auctions or group buying; all of these are distribution channels that business enterprises are working actively to develop. The aim of these study is to determine whether consumers experience different perceived value when presented with different forms of price framing and "+of" or "-of", and whether this affects their willingness to purchase goods and services. It is anticipated that the results obtained in the study will provide a useful reference for firms engaged in e-commerce.

Ⅱ. Literature Review

1. Price Framing

This concept could hold value in how to present prices to consumer when there are differential prices for the same product. If the price difference can be presented as an opportunity cost rather than as a loss, consumers' perceived value of the offer may be higher because an opportunity cost can be seen as a foregone gain rather than a more a painful, outright loss (Laurie, 1995).

Behavioral research into price framing has been guided by Kahneman and Tversky's (1979) prospect theory and Thaler's (1985) model of mental accounting. Prospect theory posits that individuals evaluate choice alternatives with respect to a reference point, which is a "zero point" against which alternatives are assessed on a relative basis as either gains or losses.

Bitta et al. (1981) find if the price reduction is too small, consumers may perceive little price difference between the two offers. Das (1992) established the consumers are less likely to infer price and quality from the value of the coupon and higher coupon values are more likely to increase deal evaluations and purchase intentions. Harlam et al., (1995) findings suggested that different presentation formats for describing the price influence purchase intention, and consumer are more sensitive to price increase than to price decrease of equal amounts.

Mental accounting research suggests that bundling should have very different effects on consumer evaluations of product offering depending on the type of price information involved, prices or price discounts (Johnson, Herrmann, and Bauer, 1999).

We reported how do these three different types of price framing affect perceived value? For the purposes of this study, price framing included direct percentage-type discounts and direct cash discounts, and free shipping.

2. Perceived Value

Earlier, an economic concept established by economist Richard Thaler, which contents that individuals divide their current and future assets into separate, non-transferable portions. The theory purports individuals assign different levels of utility to each asset group, which affects their consumption decisions and other behaviors. Thaler (1985) established a new model of consumer behavior is developed using a hybrid of cognitive psychology and microeconomics. The development of the model starts with the mental coding of combinations of gains and losses using the prospect theory value function.

Perceived value means customer's opinion of a product's value to him or her. It may have little or nothing to do with the product's market price, and depends on the

product's ability to satisfy his or her needs or requirements. Zeithaml (1988) proposed that perceived value is a consumer's whole experience of purchase after comparing quality, quantity, subjective and objective factors and so on. Monroe and Krishnan (1985) showed that perceived quality has a direct and positive impact on the level of customer satisfaction, while, contrary to what was expected, total perceived value does not influence that satisfaction. Dodds and Monroe (1985) showed that price had a positive effect on perceived quality, but a negative effect on perceived value and willingness to buy.

3. Option Framing

In the marketplace, consumers often encounter framed scenarios for optional product features, whereby they can add desired product options to base model or delete undesired product options from a fully loaded model. Two different option framings subtractive option framing (-OF) and additive option framing (+OF), the former option framing method presents a fully loaded product and asks consumer to delete options they dislike. The latter presents is a basic model and asks consumers to add options they want.

Park el al. (2000) showed the effects of using a subtractive versus an additive option framing method on consumer's option choice decisions in three studies. They find consumer who were provided with a –OF options list tend to choose more options than those who got a +OF options list, and also showed that consumer found that the option choice task was more enjoyable when –OF versus +OF was used.

We conclude that option framing and price framing review, we make the following hypothesis:

Hypothesis 1: Price framing of additive option framing effect on perceived value.

H1a. Price reduction of additive option framing has a greater influence on perceived value than price discount.

H1b. Price reduction of additive option framing has a greater influence on perceived value than free shipping.

Hypothesis 2: Price framing of subtractive option framing effect on perceived value.

H2a. Price reduction of subtractive option framing has a greater influence on perceived value than price discount.

H2b. Price reduction of subtractive option framing has a greater influence on perceived value than free shipping

Generally, hedonic products are desired for pleasure, fantasy, and fun whereas utilitarian

items are sought to fulfill basic needs or help accomplish functional or practical tasks (Strahilevitz and Myers, 1998). Chu (2007) found buyers' purchase intention of a hedonic product and utilitarian product can be influenced by the perceived value of resale mental accounting and perceived payment amount.

"Hedonic products" and "utilitarian products" are important variables that are used extensively in marketing research to classify products. Past research has shown that the perceived value of hedonic products tends to be higher than that of utilitarian products; this variable was added into the present study to see how it affected the results. We make the following hypothesis:

Hypothesis 3: Hedonic product has a greater influence on perceived value than utilitarian product.

H3a. Hedonic product of additive option framing has a greater influence on perceived value than utilitarian product.

H3b. Hedonic product of subtractive option framing has a greater influence on perceived value than utilitarian product.

Price promotions are a commonplace promotional activity (Chandrashekaran and Grewal, 2003), normally aimed at enhancing consumers perceptions of value and increasing the likelihood of purchase (Grewal et al., 1998). Devlin, Ennew, Sally, and Smith (2007) showed the presence of a time limit promotional cue in a price promotion will increase purchase intention.

"Promotion limit" are important variables that are used extensively in marketing research to classify products. Past research has shown that the perceived value of short promotion limit tends to be higher than that of long promotion limit; this variable was added into the present study to see how it affected the results. We make the following hypothesis:

Hypothesis 4: Three days promotion limit has a greater influence on perceived value than three months promotion limit.

H4a. Three days promotion limit of additive option framing has a greater influence on perceived value than three months.

H4b. Three days promotion limit of subtractive option framing has a greater influence on perceived value than three months.

4. Purchase Intention

A primary goal of marketers is to enhance target customer willingness to purchase products. Purchase intention means the likelihood, the probability of purchase this product; it's the real action of buyers (Dodds et al., 1991). Purchase intention affected

by perceived value (Dodds et al., 1991). Review from the previous literatures, the higher the perceived value, the higher the customers' will to buy the product (Dodds and Monroe, 1985; Zeitaml, 1988; Grewal and Monroe, 1998), from this point of view.

When considering the adoption of any given marketing method, business enterprises' ultimate goal is always to increase consumers' willingness to purchase their goods or services, so we conclude the following hypothesis:

Hypothesis 5: Perceived value will have a positive influence on purchase intention.

Ⅲ. Methodology

1. Research Framework

This research framework is based on Johnson, Hermann, and Bauer (1999) model. This framework puts how price framing of additive and subtractive option influences perceived value in online auction about mental accounting. This study presents the research framework in Figure1.

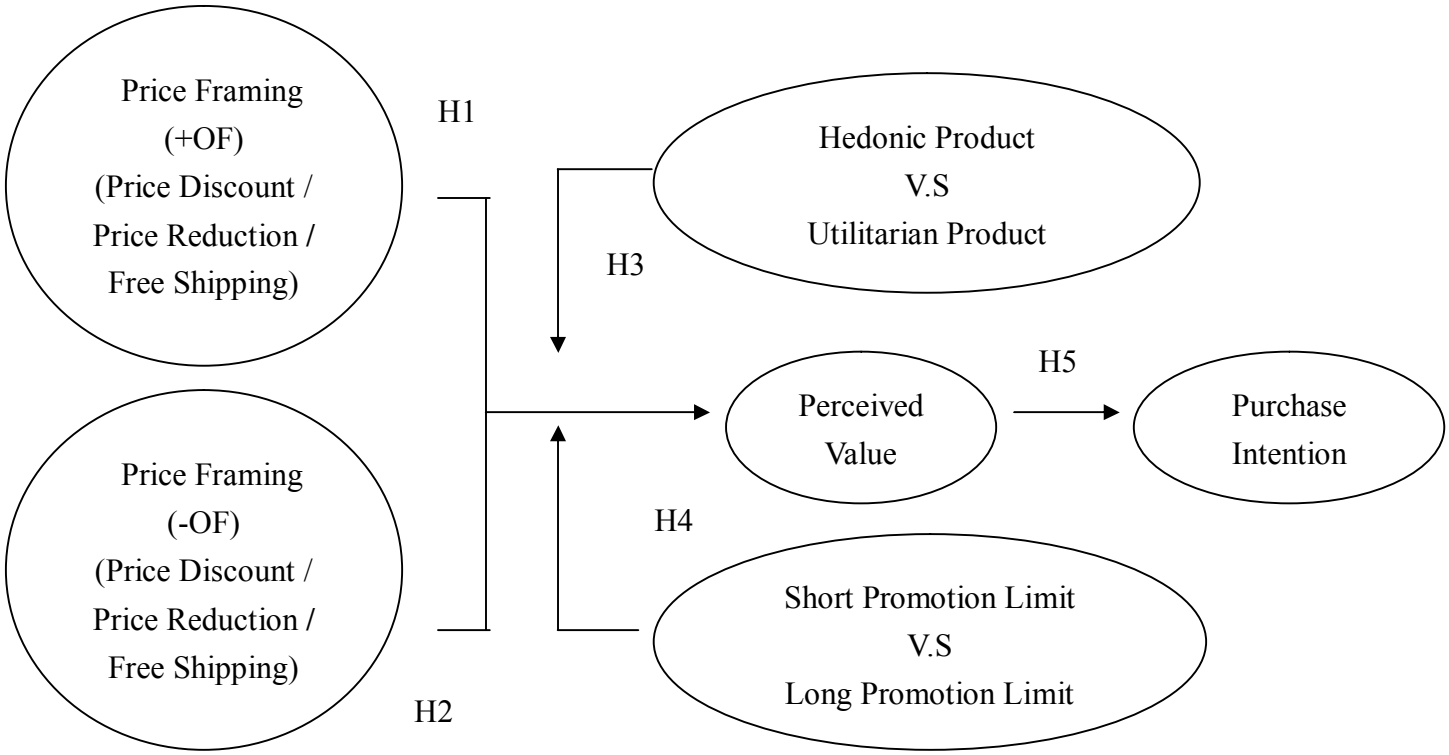

Figure1. Research Framework

2. Questionnaire Design

2.1 Pretest

First, we tested consumer recognition of hedonic products and utilitarian products. Respondents were asked to indicate their level of agreement with each statement, from 1 = strongly disagree to 5 = strongly agree. We selected the largest difference between hedonic products and utilitarian products. Finally we considered how convenient it was for consumers to purchase goods, and the likelihood of goods being available from online auction sites; we chose a cell phone to substitute for a utilitarian product, and an MP4 player to substitute for a hedonic product.

Next, we performed a pre-test to check whether subjects were confused about the subject matter of the questionnaire. We then modified any unclear items, and adjusted the statistic verification items. Finally, we refined and finalized the appearance and format of the questionnaire.

2.2 Experiment Design

A 2 (option framing: +OF, -OF) * 2 (product: hedonic, utilitarian) * 2 (promotion limit: three days, three months) between subjects design was used in which subjects were randomly assigned to one of eight experimental treatments. There were additive or subtractive option framing, hedonic product (MP4) or utilitarian product (cell phone), and three days or three months promotion limit to the subjects. Table 1 illustrates our experimental design.

Table 1 Experiment Design

	Three day		Three week	
	Hedonic Product	Utilitarian Product	Hedonic Product	Utilitarian Product
+OF	Group 1	Group 3	Group 5	Group 7
-OF	Group 2	Group 4	Group 6	Group 8

We designed the web page as the experimental instrument. The data were gathered through an Internet questionnaire survey carried out over a period of two months from the middle of March, 2010, to the middle of May, 2010, including three pilot tests and one final survey. The survey was conducted online (www. my3q.com). We controlled 50 subjects for each group.

First, we designed eight questionnaires. When the subjects were randomly assigned to 1

and clicked the "start" button, the following pages showed questions relating to three types of price-framing, including price discount, price reduction, and free shipping. The subjects were eight to 1 and were asked to answer five questions about perceived value (based on Sweeney et al., 1999). Each item was measured on a five-point Likert scale. Respondents were asked to indicate their level of agreement with each statement, from 1 = strongly disagree to 5 = strongly agree.

The following pages showed four questions relating to purchase intention (based on Dodds, et al., 1991, and Mackenzie, Lutz, and Belch, 1986). Each item was measured on a five-point Likert scale. Respondents were asked to indicate their level of agreement with each statement, from 1 = strongly disagree to 5 = strongly agree. There were given 15 minutes to make the decision; at the end of that time, they were asked to make a decision immediately, and were then made to leave the e-storefront to answer the remaining part of the questionnaire.

Ⅳ. Data Analysis

1. Results of Additive Option Framing (Group 1, 3, 5, & 7)

1.1 Reliability of Measure

Table 2 we test the reliability of the price framing measurement. To construct reliability all above 0.70 that recommend by Nunnally (1987), so we can conclude that the reliability in our study is appropriate to test our hypothesis.

Table 2 Reliability

Construct	Cronbach's α
Perceived Value	0.807
Purchase Intention	0.834

1.2 Relationship between Price Framing and Perceived Value

Table 3 shows the regression results of the influence of price framing on perceived value. The results show that price framing not has effect on perceived value (F=1.549, P=.215), we can thus conclude that H1 is partly supported.

Table 3 Influence of Price Framing on Perceived Value

Construct	Type Ⅲ of the Sum of Square	df	Average of the Sum of Square	F	P
Perceived Value	0.000	2	0.000	1.549	.215
Purchase Intention	0.000	2	0.000	5.271*	.004

*p ≦ 0.05, **p ≦ 0.01, ***p ≦ 0.001

1.3 Relationship between Hedonic Product / Utilitarian Product and Perceived Value

Table 4 and figure 2 shows the regression results of the influence of hedonic product and utilitarian product on perceived value (F=5.847, P=.001). Further find that hedonic product (M=3.83) has a greater influence on perceived value than utilitarian product (M=3.27), we can thus conclude that H3a is supported.

Table 4 Influence of Hedonic Product/ Utilitarian Product on Perceived Value & Purchase Intention

Construct		Type Ⅲ of the Sum of Square e	df	Average of the Sum of Square	F	P-value
Perceived Value	Price Framing	0.000	2	0.000	2.695	.071
	Product	0.000	1	0.000	6.284	.013
	Price Framing * Product	0.000	2	0.000	5.847**	.001
Purchase Intention	Price Framing	55946520.1	2	2797326.1	6.108*	.003
	Product	406977.5	1	40697.5	.889	.147

	Price Framing * Product	1128942.7	2	457986.46	1.233*	.004

*p ≦ 0.05, **p ≦ 0.01, ***p ≦ 0.001

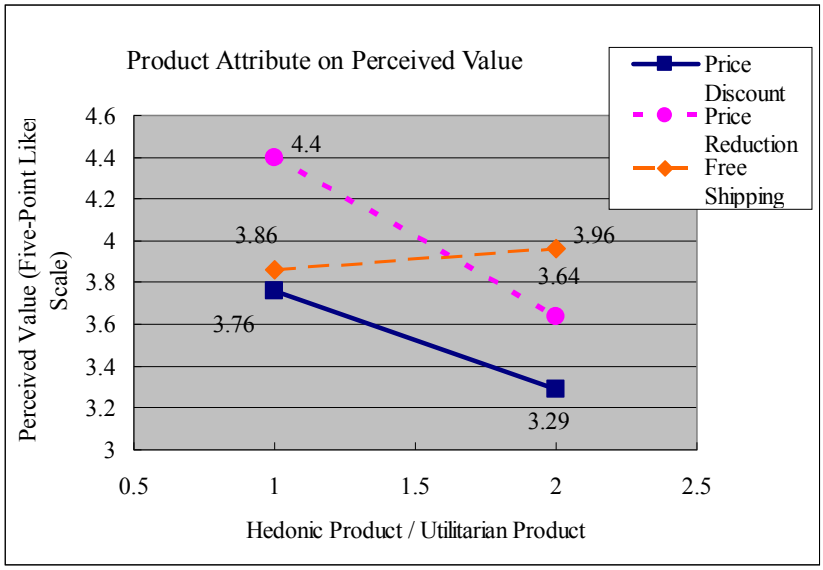

Figure2. Influence of Hedonic Product/ Utilitarian Product on Perceived Value

1.4 Relationship between Promotion Limit and Perceived Value

Table 5 and figure 3 shows the regression results of the influence of promotion limit on perceived value (F=1.092, P=.000). Further find that three days promotion limit (M=3.78) has a greater influence on perceived value than three months promotion limit (M=3.16), we can thus conclude that H4a is supported.

Table 5 Influence of Promotion Limit on Perceived Value

Construct		Type Ⅲ of the Sum of Square	df	Average of the Sum of Square	F	P-value
Perceived Value	Price Framing	0.000	2	0.000	1.450	.237
	Promotion Limit	0.000	1	0.000	7.493*	.003

	Price Framing * Promotion Limit	0.000	2	0.000	1.092***	.000
Purchase Intention	Price Framing	4715055.9	2	235727.9	5.297	.006
	Promotion Limit	895368.1	1	895368.1	2.012**	.001
	Price Framing * Promotion Limit	486326.8	2	243163.3	.546***	.000

*p ≦ 0.05, **p ≦ 0.01, ***p ≦ 0.001

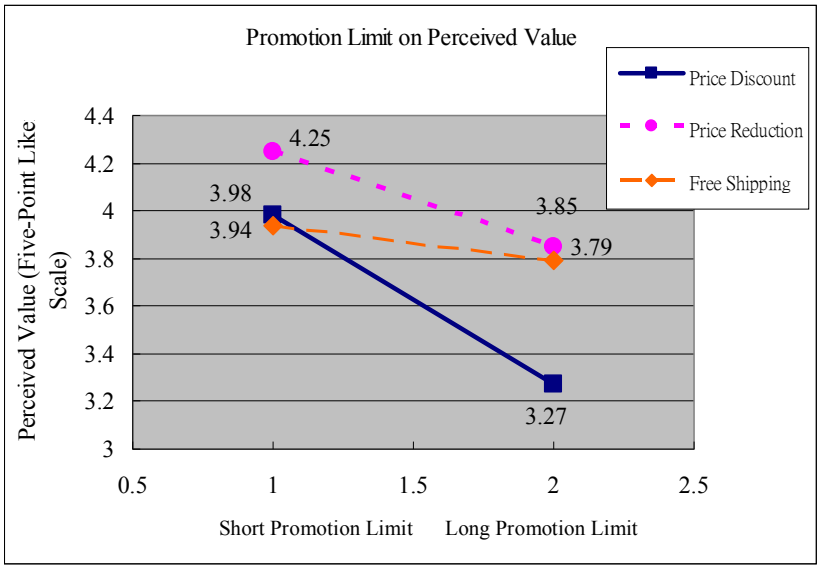

Figure3. Influence of Promotion Limit on Perceived Value

1.5 Relationship between Perceived Value and Purchase Intention

Table 6 show that perceived value has a significantly positive influence on purchase intention (F=10.834, P=.001), we can thus conclude that H5 is partly supported.

Table 6 Influence of Perceived Value on Purchase Intention

Construct	Sum of Square	df	Average of the Sum of Square	F	P
Purchase Intention	4913173.522	1	4913173.522	10.834**	.001

*p ≦ 0.05, **p ≦ 0.01, ***p ≦ 0.001

2 Results of subtractive Option Framing (Group2, 4, 6, & 8)

2.1 Reliability of Measure

Table 7 we test the reliability of the price framing measurement. To construct reliability all above 0.70 that recommend by Nunnally (1987), so we can conclude that the reliability in our study is appropriate to test our hypothesis.

Table 7 Reliability

Construct	Cronbach's α
Perceived Value	0.821
Purchase Intention	0.840

2.2 Relationship between Price Framing and Perceived Value

Table 8 shows the regression results of the influence of price framing on perceived value. The results show that price framing has a significantly positive influence on perceived value (F=2.510, P=.003). Further find that price reduction (M=4.31) of additive option framing has a greater influence on perceived value than price discount (M=4.06) and free shipping (M=3.72), we can thus conclude that H2 is fully supported.

Table 8 Influence of Price Framing on Perceived Value

Construct	Type Ⅲ of the Sum of Square	df	Average of the Sum of Square	F	P-value
Perceived Value	0.000	2	1.617E8	2.510*	.003
Purchases Intention	0.000	2	187638.8	2.403**	.001

*p ≦ 0.05, **p ≦ 0.01, ***p ≦ 0.001

2.3 Relationship between Hedonic Product / Utilitarian Product and Perceived Value

Table 9 and shows the regression results of the influence of hedonic product and utilitarian product on perceived value (F=.816, P=.144), we can thus conclude that H3b is not supported.

Table 9 Influence of Hedonic Product/ Utilitarian Product on Perceived Value

Construct		Type Ⅲ of the Sum of Square	df	Average of the Sum of Square	F	P-value
Perceived Value	Price Framing	0.000	2	0.000	.393	.046
	Product	0.000	1	0.000	3.019	.149
	Price Framing * Product	0.000	2	0.000	.816	.144
Purchase Intention	Price Framing	3.45712.2	2	172856.12	.696	.090
	Product	116840.9	1	116840.9	8.331*	.002
	Price Framing * Product	496967.303	2	248483.65	19.540**	.001

*p ≦ 0.05, **p ≦ 0.01, ***p ≦ 0.001

2.4 Relationship between Promotion Limit and Perceived Value

Table 10 and figure 4 shows the regression results of the influence of promotion limit on perceived value (F=14.270, P=.000). Further find that three days promotion limit (M=4.20) has a greater influence on perceived value than three months promotion limit (M=3.36), we can thus conclude that H4b is supported.

Table 10 Influence of Promotion Limit on Perceived Value

Construct		Type Ⅲ of the Sum of Square	df	Average of the Sum of Square	F	P-value
Perceived Value	Price Framing	0.000	2	1.836E8	12.969*	.002
	Promotion Limit	8.722E8	1	8.772E8	26.679***	.000
	Price Framing * Promotion Limit	2.831E7	2	1.415E7	14.270***	.000
Purchase Intention	Price Framing	368959.6	2	184479.8	4.353**	.001
	Promotion Limit	3447540.8	1	3447540.8	7.558***	.000
	Price Framing * Promotion Limit	1045283.1	2	522641.7	3.357**	.001

*p ≦ 0.05, **p ≦ 0.01, ***p ≦ 0.001

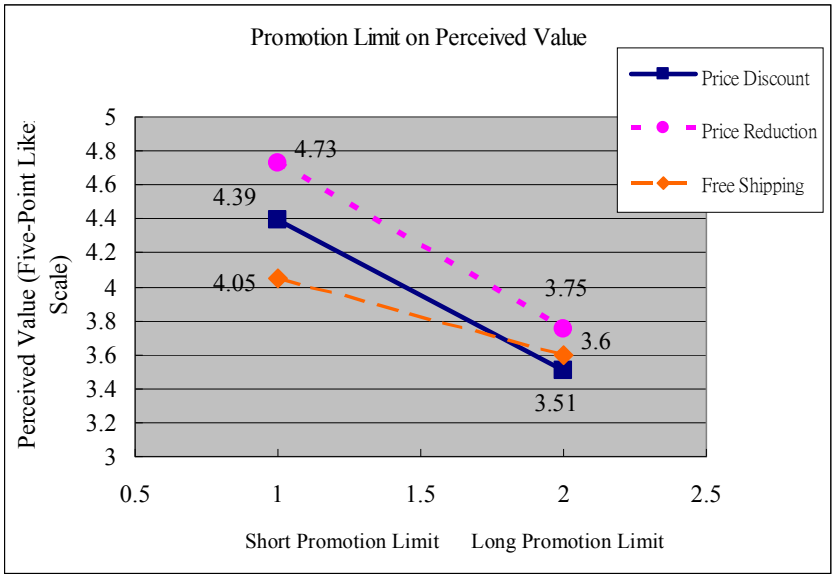

Figure4. Influence of Promotion Limit on Perceived Value

2.5 Relationship between Perceived Value and Purchase Intention

Table 11 show that perceived value has a significantly positive influence on purchase intention (F=5.048, P=.000), we can thus conclude that H5 is partly supported.

Table 11 Influence of price framing on perceived value

	Sum of Mean Square	df	Average of the sum of square	F	P
Purchase Intention	0.000	1	0.000	36.335***	.000

*p ≦ 0.05, **p ≦ 0.01, ***p ≦ 0.001

Ⅴ. Conclusion

1. Research Conclusions

Firstly, the research results did not support Hypothesis 1, which is different from the results obtained in past research in this area.

Past studies have found that the effect of price farming on perceived value was significant. In the present study, when the "+of" constraint was added in, the hypothesis was not supported. This suggests that, from the point of view of online vendors, if you want consumers to display a significant "+of" effect, then no matter which type of price framing you choose it will have no particular effect on consumers. This is because consumers are not interested in spending extra money to purchase add-on products, even when there is a special promotion on those add-on products.

The results obtained in the present study did support the "-of" hypothesis, indicating that, with respect to "-of", different forms of price farming create different perceived value in consumers' minds, and we also found price reduction of "-of" has a greater influence on perceived value than price discount and free shipping. This is something that online vendors may want to keep in mind when making marketing decisions.

Next, when a product characteristics variable is added, the results seen are the opposite of those noted above; the hypothesis is supported with respect to the "+of" part, but not the "-of" part. This suggests that offering "basic" models is an effective way of attracting consumers' interest; the perceived value that this marketing strategy creates in consumer's minds remains unchanged regardless of the characteristics of the product concerned. This is another result that has not been seen in past research in this area.

On the basis of our research results, we would recommend to online vendors that, if they wish to make use of the "+of" marketing method, they can do so by offering multi-function products. For example, if utilitarian products are made to also offer entertainment functions, this will increase the perceived value to consumers.

Finally, when a promotion limit variable is added, the H4 is fully supported. This is something that online vendors may want to keep in mind when making marketing decisions. Another recommendation that can be made to online vendors is that the "-of" strategy is more suited to use in combination with the promotion limit marketing method, and relatively unsuited to use in combination with the alteration of product features.

2. Future Research Directions

The main factor influencing the use of mobile phone handsets as the product in the present study was the average amount that consumers spend in online transactions; this

was why a notebook PC was not used as the utilitarian product. Another point is that, while free shipping was one of the price framing items used in the present study, shipping charges in Taiwan usually do not exceed NT$100; this fact needed to be taken into consideration when deciding which product to use.

The range of marketing methods suitable for use in online marketing is extremely wide; the methods used by bricks-and-mortar stores can provide a useful reference here.

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