

Effect of Attentiveness in Purchase behavior and Consumer Knowledge on use of unit Price Information

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Abstract : The purpose of this study is to evaluate consumer use of unit price information introduced in Korea 1999. A total of 571 observations were analyzed by frequency, percent, and paired t-test using SPSS.

The main findings are (1) consumers use unit price information to make better purchase decisions, (2) consumers with higher than average attentiveness in purchase behavior utilize unit price information to make better buying decisions, and (3) consumers with higher than average knowledge utilize unit price information to make better buying decisions. (4) Also if either attentiveness in purchase behavior or consumer knowledge is lower than average, unit price information helped consumers make better purchase decisions. (5) However, there was no difference among those consumers with below average or above average attentiveness and knowledge.

Key Words : unit pricing, attentiveness in purchase behavior, consumer knowledge

One of the most important factors affecting consumer purchase decisions is the product price. The purchase decision is largely affected by the perceived price at the point of sale, especially with low-involvement goods which have a lower probability of consumer dissonance after a purchase (i.e relatively low risk).

Consumers expect low unit price when buying larger bulk goods as there is a general implicit perception on economies of scale. A survey conducted by the Korea Consumer Protection Board in 1996 showed that Korean consumers have the same expectations. However, the survey found that unit prices of some larger package

goods were higher than smaller package goods, so in turn, consumers may be paying more when purchasing larger package. This can be stated as an inefficient consumer decision caused by incomplete or complex information, since consumers tend to use given information without advanced cognitive processing effort as Creyer and Poss (1997) pointed out.

The unit prices for consumers goods may vary depending on packaging size as store prices include the packaging cost in the total price. Therefore, it can be expected that reasonable consumers will buy a lower unit priced package if unit price information is presented along with total

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prices of goods.

This study analyzes 1) whether unit price information increases efficiency in buying decision and 2) the effect of attentiveness in purchase behavior and consumer knowledge on use of unit price information in Korea.

I. Background

Products can be categorized as high and low involvement goods depending on the importance of the purchase decision and how much consumers are concerned about the goods. In general, high involvement products require more information search and expanded decision-making, whereas low involvement products occupy routinized decision-making which may omit several decision-making processes. Price may be more important in the case of low involvement products since quality of such goods does not vary much, purchase decisions of such goods are not risky, and consumers can easily switch to another product if they are dissatisfied.

In Korea, unit pricing was introduced for 10 processed food products and 5 commodities in 1999, and now has been expanded to a total of 21 products. Products that require unit price information along with the total price can be described as low involvement products. Hypothetically purchase decisions are affected by 1) unit price information, 2) attentiveness in purchase behavior and 3) consumer knowledge. Therefore, consumers are likely to make more efficient buying decisions when unit price information is given, and attentiveness in purchase

behavior and consumer knowledge are related to the use of unit price information.

II. Questionnaire, Data and Analysis

Attentiveness in purchase behavior was studied based on 10 questions using the five-Point Likert scale and Cronbach's α was 0.6607. Consumer knowledge about everyday life related to common regulations was analyzed based on 10 binary response questions, and 1 point was given for each correct answer.

Respondents were asked to mark their selection of products 1) when only packaging size and total information were given and 2) when unit price information was also given in addition to packaging size and total prices for 20 products which require presentation of unit price information (diapers were excluded in the survey since they are not a usual purchase item for most consumers). All alternatives in a question were selected from the same brand to control effects that may be caused by characteristics other than unit price. Only general names of product categories were given to respondents, along with an explanation that all alternatives are from the same brand. Also, basic demographic questions were included in the questionnaire.

Data was collected from samples of 574 Korean housewives living in a large city. A total of 571 observations were analyzed by frequency, percent, and paired t-test using SPSS, excluding 3 unfinished questionnaires.

<Table 1> Descriptive Statistics for the Sample

Categorical Variables		Freq(%)	Categorical Variables		Freq(%)
Age (n=537)	≤30	123(22.9)	Education (n=538)	≤ middle school	81(15.1)
	31-40	151(28.1)		High school	247(46.0)
	41-50	160(29.8)		≥ College	209(38.9)
	≥ 51	103(19.2)	Income* (n=548)	<1000000	72(13.1)
Family Size (n=538)	≤2	58(10.8)		≥ 1000000, <1500000	64(11.7)
	3	81(15.1)		≥ 1500000, <2000000	108(19.7)
	4	237(44.1)		≥ 2000000, <2500000	101(18.4)
	≥ 5	162(30.1)		≥ 2500000, <3000000	97(17.7)
Occupation (n=487)	Professional, Management professional technician	166(24.0)	Food Expenditures* (n=550)	≥ 3000000	106(19.3)
	Clerk	83(12.0)		<150000	83(15.1)
	Self-employed, Small business	56(8.1)		≥ 150000, <200000	69(12.5)
	Employee, Laborer	189(27.3)		≥ 200000, <250000	67(12.2)
	Sales, service	37(5.3)		≥ 250000, <300000	95(17.3)
	Housewife	35(5.1)		≥ 300000, <350000	101(18.4)
	Others	65(9.4)		≥ 350000	135(24.5)

* Total may vary due to no response.

* Currency(won), Exchange Rate(1,200 won= US \$1)

III. Results and Discussion

1. Utilization of Unit Price Information

Consumers' choice for each product without and with unit price information were presented in <Table 2>.

The results illustrate how often consumers use unit price information, and whether unit price information increases efficiency in buying decision. This was tested by comparing consumers' choices for 20 products without and with unit price information.

To test whether consumers chose a reasonable alternative (i.e product with lower unit price), the

choices were scored by the following method.

- 1) If there are two alternatives, 1 point was given when the consumer chose the product with the lowest unit price. The other choice scored none.
- 2) If there are three alternatives, 1 point was given when the consumer chose the product with the lowest unit price, and 0.5 points for the choice of product with the second lowest unit price. The other choice scored none.
- 3) If there are four alternatives, 1 point was given when the consumer chose the product with the lowest unit price, 0.6 points for (the choice of product with) the second lowest unit price, and 0.3 points for (the choice of product

<Table 2> Consumers' Choice of Low Involvement Products With or Without Unit Price Information

Product	Package Size	Total Price (won)	Unit Price (won)	Unit Pricing Unit	Consumer's Choice(freq, %)	
					w/o unit pricing	W unit pricing
Ham	450g	3,200	72	10g	315(59.9)	321(59.2)
	1kg	5,680	57		211(40.1)	221(40.8)
Cheese	180g	2,470	138	10g	324(64.2)	348(66.3)
	270g	3,700	137		181(35.8)	177(33.7)
Milk	200ml × 3	950	159	100ml	130(24.3)	141(25.3)
	500ml	700	140		130(24.3)	117(21.0)
	1,000ml	1,330	133		276(48.3)	300(53.8)
Cooking Oil	0.5l	1,050	210	100ml	101(19.4)	121(22.2)
	0.9l	1,750	195		124(23.8)	117(21.5)
	1.5l	2,440	163		296(56.8)	306(56.3)
Soy sauce	500ml	1,250	250	100ml	109(20.5)	142(25.6)
	1l	1,950	195		255(47.9)	265(47.7)
	1.8l	4,180	233		168(31.6)	148(26.7)
Imitation Crab Meat	190g	850	448	100g	254(49.5)	275(51.4)
	360g	1,700	473		168(32.7)	140(26.2)
	865g	3,000	347		91(17.7)	120(22.4)
Mayonnaise	300g	1,310	437	100g	248(47.6)	233(43.8)
	500g	1,940	388		155(29.8)	148(27.5)
	800g	2,710	339		61(11.7)	54(10.0)
	1kg	3,340	334		57(10.9)	103(19.1)
Condiment	130g	1,250	97	10g	230(44.5)	224(41.6)
	280g	2,270	81		130(25.1)	177(32.9)
	500g	4,280	86		96(18.6)	90(16.7)
	850g	6,940	82		61(11.8)	47(8.7)
Sesame Oil	80ml	1,450	182	10ml	246(47.6)	242(45.7)
	320ml	3,290	103		271(52.4)	287(54.3)
Vinegar	500ml	7,300	15	10ml	284(55.3)	323(60.3)
	900ml	1,080	12		230(44.7)	213(39.7)
Coffee	170g	3,490	206	10g	222(42.9)	217(40.6)
	300g	7,150	239		132(25.5)	128(23.9)
	500g	9,960	200		164(31.7)	190(35.5)
Tuna Can	100g × 3	2,590	87	10g	270(52.2)	256(47.3)
	300g × 2	3,450	58		148(28.6)	213(39.4)
	165g × 4	4,850	73		99(19.1)	72(13.3)

<Table 2> Continue

Product	Package Size	Total Price (won)	Unit Price (won)	Unit Pricing Unit	Consumer's Choice(freq, %)	
					w/o unit pricing	W unit pricing
Sugar	1kg	930	93	100g	276(52.0)	269(49.3)
	2.7kg	2,450	90		255(48.0)	277(50.7)
Salt	1kg	700	70	100g	291(56.1)	279(51.7)
	3kg	1,880	63		228(43.9)	261(48.3)
Detergent	3.7kg	8,300	225	100g	219(41.7)	227(41.2)
	5kg	10,700	214		306(58.3)	324(58.8)
Fabric Softener	3.5l	3,900	112	100ml	308(59.6)	373(69.5)
	4.2l	5,800	138		209(40.4)	164(30.5)
Wrap	30cm × 50m	2,550	51	1m	289(56.2)	297(55.0)
	30cm × 100m	4,170	42		225(43.8)	243(45.0)
Bathroom tissue	60m × 12	5,650	79	10ml	184(35.2)	218(39.6)
	60m × 24	11,300	79		338(64.8)	333(60.4)
Aluminum Foil	25cm × 20m	2,200	110	1m	345(67.1)	296(54.7)
	25cm × 30m	3,000	100		169(32.9)	245(45.3)
Ramen	120g × 5	1,940	388	1개	319(61.1)	351(63.4)
	120g × 20	7,760	388		203(38.9)	203(36.6)

with) the third lowest unit price. The other choice scored none.

4) If unit price were same for all alternatives, 1 point was given irrespective of choice.

The points scored ranged from 0 to 20, and a higher point means a more reasonable consumer choice.

Utilization of unit price information was tested by comparing points without unit price information and points with unit price information. If consumers utilize unit price information, points with unit price information should be significantly higher than points without unit price information. The test result is summarized in <Table 3>.

Mean score without unit price information was 10.6272 (N=430) and mean score with unit price

information was 11.1534 (N=476). Mean score with unit price information was 0.5201 higher and statistically significant at the 1% level. This implies that consumers will use unit price information if it is provided and it will help consumers make better buying decision.

2. Effect of Attentiveness in Purchase Behavior on Use of Unit Price Information

Consumers' attentiveness in purchase behavior (CAPB) was measured based on 10 questions with 5 point likert scales: 1) composition of a shopping list, 2) comparison of package size and content before purchase, 3) whether purchase decision is

<Table 3> Analysis of Unit Price Information Utilization

		N	Mean	St. Dev.
Score of Choice Decision	Without unit price information	430	10.6272	3.5786
	With unit price information	476	11.1534	4.5594
Utilization of Unit Price Information	Without unit price information (1)	398	10.6749	3.6059
	With unit price information (2)	398	11.1950	4.5712
	(1) * (2) Correlation Coefficient = .734***			
	(1)-(2)	Mean	-0.5201	Paired T test Value = -3.300 **
St. Dev.		3.1155		

** p<0.01, *** p<0.001

affected by price more than a brand name, 4) preference for a famous brand even though it is little bit more expensive (reversed point), 5) whether they check expiration date on groceries, 6) engaging in impulse buying decisions (reversed point), 7) actively asks for an exchange or refund when dissatisfied with the purchased product, 8) takes a long time to check product quality and compare prices, 9) checks items and prices on a receipt, and 10) looks for information in newspaper or advertisement flier before going shopping. The

mean score of consumer attentiveness was 33.12(N=490).

Consumers were divided into two groups by mean score of attentiveness in purchase behavior and utilization of unit price information of these two groups were compared. The test result is summarized in <Table 4>.

In the consumer group for which attentiveness in purchase behavior is below average, choice decision scores were 10.4595 and 11.1368, without unit price information and with unit price information

<Table 4> Analysis of Unit Price Information Utilization by Attentiveness in Purchase Behavior

CMPB	Unit Price Information Utilization		Mean	St. Dev.
Below Average (N=185)	Score of Choice Decision	Without unit price information (1)	10.4595	3.4371
		With unit price information (2)	11.1368	4.4562
	(1) * (2) Correlation Coefficient = .655***			
	(1)-(2)	Mean	-0.6773	Paired T test Value = -2.703**
St. Dev.		3.4077		
Above Average (N=166)	Score of Choice Decision	Without unit price information (1)	10.9723	3.7179
		With unit price information (2)	11.3958	4.7983
	(1) * (2) Correlation Coefficient = .786***			
	(1)-(2)	Mean	-0.4235	Paired T test Value = -1.840
St. Dev.		2.9647		

** p<0.01, *** p<0.001

respectively. The score difference (0.6773) was significant at 1% level. Therefore, it can be concluded that provision of unit price information will accelerate consumers' reasonable purchase decisions in the group for which attentiveness in purchase behavior is below average.

However, in a consumer group for which attentiveness in purchase behavior is above average, the score difference was not statistically different which implies provision of unit price information had no effect on consumers' purchase decision in this group. This could imply that consumers in the group for which attentiveness in purchase behavior is above the average were already making reasonable purchase decisions even without unit price information. This is due to the fact that questions used to measure attentiveness in purchase behavior include price checking and quality comparison. If consumers are attentive, unit price can be easily calculated when price and package size information were given. Therefore, it is assumed that provision of

unit price information only reduces information processing effort.

3. Effect of Consumer Knowledge on Use of Unit Price Information

Consumers' knowledge (CK) was measured by 10 questions on regulations and rules related to purchase, payment method, exchange or refund, and warranty.

The consumer knowledge score mean was 5.82(N=514) and standard deviation was 1.38. This implies that consumers don't have sufficient knowledge considering that there was a 50% possibility of getting a correct answer (all questions were constructed as a binary choice question).

Consumers were divided into two groups by mean score of consumer knowledge and utilization of unit price information of these two groups was compared. The test results are summarized in <Table 5>.

<Table 5> Analysis of Unit Price Information Utilization by Consumer Knowledge

CK	Unit Price Information Utilization		Mean	St. Dev.
Below Average (n=154)	Score of Choice Decision	Without unit price information (1)	11.2812	3.4209
		With unit price information (2)	12.2610	4.4093
	(1) * (2) Correlation Coefficient = .703***			
	(1)-(2)	Mean	-0.9799	Paired T test Value = -3.858***
St. Dev.		3.1519		
Above Average (n=216)	Score of Choice Decision	Without unit price information (1)	10.4745	3.5960
		With unit price information (2)	10.6972	4.5737
	(1) * (2) Correlation Coefficient = .746***			
	(1)-(2)	Mean	-0.2227	Paired T test Value = -1.072
St. Dev.		3.0528		

*** p<0.001

In a consumer group with below average consumer knowledge scores, choice decision scores were 11.2812 and 12.2610 without unit price information and with unit price information respectively. The score difference (-0.9799) was significant at the 0.1% level. Therefore, it can be concluded that provision of unit price information will accelerate consumers' reasonable purchase decisions among those with below average consumer knowledge scores.

However, the score difference did not vary in the consumer group with above average consumer knowledge, which implies provision of unit price information has no effect on consumers' purchase decision in this group. This could imply that consumers in this group were already making reasonable purchase decisions even without unit price information, and this consumer group have sufficient knowledge to get unit price information from the given total price and content information.

4. Effect of Attentiveness in Purchase Behavior and Consumer Knowledge on Use of Unit Price Information

Paired T-Tests were pursued to analyze how unit price utilization changes when both attentiveness in purchase behavior and consumer knowledge were counted. The results are summarized in <Table 6>.

In the consumer group (n=75) with below average scores for both attentiveness in purchase behavior and consumer knowledge, choice decision scores were 11.0533 and 11.8600 without unit price information and with unit price information respectively. However, the score

difference (-0.8067) was not significant. This means that consumers in this group did not utilize given unit price information and that utilization of unit price information can not be expected among those consumers who do not have enough knowledge to understand what a unit price is, even if unit price information is more processed to provide easier price comparison.

In the consumer group (n=101) with below average attentiveness in purchase behavior scores and above average consumer knowledge scores, choice decision scores were 10.1317 and 10.8069 without unit price information and with unit price information respectively. The score difference (-0.6752) was significant at the 5% level. This means that consumers in this group utilize given unit price information so that they are making better purchase decisions in terms of price.

In the consumer group (n=67) with above average attentiveness in purchase behavior scores and below average consumer knowledge scores, choice decision scores were 11.5896 and 12.9388 without unit price information and with unit price information respectively. The score difference (-1.3493) was significant at the 0.1% level. This means that consumers in this group benefit more from unit price information than any other group. Interestingly this implies that consumers who are attentive in their purchase behavior, but don't have enough knowledge to process a total price information, benefit from unit price information.

In the consumer group (n=91) with above average scores for both attentiveness in purchase behavior and consumer knowledge, choice decision scores were 10.4308 and 10.7824 without unit price information and with unit price

<Table 6> Analysis of Unit Price Information Utilization by Attentiveness in Purchase Behavior and Consumer Knowledge

CMPB	CK	Unit Price Information Utilization		Mean	St. Dev.
		Score of Choice Decision			
Below Average (n=176)	Below Average (n=75)	Without unit price information (1)		11.0533	3.2523
		With unit price information (2)		11.8600	4.3052
		(1) * (2) Correlation Coefficient = .596***			
		(1)-(2)	Mean	-0.8067	Paired T test Value = -1.982
		St. Dev.	3.5252		
	Above Average (n=101)	Without unit price information (1)		10.1317	3.4837
		With unit price information (2)		10.8069	4.4832
		(1) * (2) Correlation Coefficient = .673***			
(1)-(2)		Mean	-0.6752	Paired T test Value = -2.028*	
	St. Dev.	3.3466			
Above Average (n=158)	Below Average (n=67)	Without unit price information (1)		11.5896	3.6272
		With unit price information (2)		12.9388	4.5369
		(1) * (2) Correlation Coefficient = .784***			
		(1)-(2)	Mean	-1.3493	Paired T test Value = -3.918***
		St. Dev.	2.8186		
	Above Average (n=91)	Without unit price information (1)		10.7824	3.7412
		With unit price information (2)		10.4308	4.7634
		(1) * (2) Correlation Coefficient = .816***			
(1)-(2)		Mean	0.3516	Paired T test Value = 1.217	
	St. Dev.	2.7567			

* p<0.05, *** p<0.001

information respectively. However, the score difference (0.3516) was not significant which implies provision of unit price information does not have any effect on consumers' purchasing decisions.

Unit price information can help consumers who have below average scores for either attentiveness in purchase behavior or consumer knowledge to make efficient purchase decisions. Consumers with below average attentiveness scores and above average consumer knowledge scores can be described as consumers who can not process total

price information fast enough to make an efficient purchase decision.

Consumers with above average attentiveness scores and below average consumer knowledge scores have the knowledge to process total price information, but do not wish to waste time due to the fact that savings obtained from it is not a big deal with these low involvement products. Thus provision of unit price information will be beneficial to those groups of consumers since it will reduce consumers' information processing effort.

In this study, provision of unit price information did not make any difference in purchase decisions of consumer groups with below or above average scores for both attentiveness in purchase behavior and consumer knowledge. However, it should be considered that this study was framed with differently sized alternatives among the same brand, so that consumers would choose a smaller size package even if its unit price is high due to a small family size. Therefore, more research with similar size alternatives from similar quality (and different brands) is needed to draw a conclusion regarding these groups.

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Received October 13, 2004

Accepted December 2, 2004