

■ 論 文 ■

The Price Elasticity in the Parcel Service Market by Benefit Segmentation

택배시장의 효익세분화에 따른 가격탄력성에 관한 연구

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Key Words : Benefit Segmentation, Parcel Service, Price Elasticity, Conjoint Analysis, Factor Analysis

요 약

본 논문은 현재 물류부문에서 그 비중이 증가하고 있는 택배시장의 고객을 대상으로 고객의 선호도에 따른 적절한 시장세분화의 구축과 그 필요성을 제시하였다. 본 연구에서는 택배서비스의 가격탄력성을 측정하기 위해 Conjoint 분석을 이용한 효익세분화 방법을 이용하였다. 분석결과 택배고객은 그 특성에 따라 상이한 가격탄력성을 가지고 있으며, 그 탄력성에 따라 고객을 세분화할 수 있었다. 따라서 이러한 분석은 향후 택배고객을 세분화 할 경우 유용한 도구로 사용될 수 있으며, 고객의 욕구를 만족시킬 수 있는 기회를 제공해 줄 수 있을 것이다.

I. Introduction

An object of company is to make interest giving a goods and services to customers with a proper price. In order to achieve this purpose, companies establish a variety of marketing plan. With a variety of the customer's needs and changing structure of parcel service marketplace, however, they have not satisfied customers with a same prices and services. Parcel service companies also no relying on the traditional method of market segmentation.

Companies try to segment their customers by identifying groups of customers with need structure that are as homogeneous as possible within each groups and significantly heterogeneous between groups(Smith, 1956). Following this trend, companies establishing customer discrimination marketing strategy are increasing using customer segmentation analysis.

With the growth of the E-commerce and Cyber shopping mall, parcel service market has increasing dramatically in recent years. The competition for ensuring market share of their companies has accelerated as a result of the entrance of new companies that want to engage in this business.

Parcel service company sets the marketing plan depends on the competitive company without taking into account investigation of customer preference and information so far. However this unilateral marketing strategies may reduce their advantage because of the customers are consisted of various consumer groups who has a variety of characteristics.

For the reasons mentioned above, it is need to segment customers with identifying preference when they choice parcel service company. While a great number of papers have been written of this market segment subject, the study about parcel service market has not performed. This study thereby for separating customer groups of this market using benefit segmentation has significant meaning. According to Haley(1968), the rationale behind this segmentation approach is that benefits sought

by consumers are the fundamental reasons for the existence of true market segments and they determine the consumers' behavior.

The goal of this paper is to present the necessity of benefit segmentation for the first time to the parcel service marketplace and to estimate price elasticity by segment groups using conjoint analysis.

After calculating price elasticity by groups of customer, we compared the advantage of benefit segmentation with ex-ante segment methods.

II. Review of Existing Literature

The concept of market segmentation has introduced by Wendell Smith(Smith, 1956). Advantage of the market segmentation is provides a structured means of viewing the marketplace confronting the firm (Wilkie, 1994). Segmentation is central to marketing strategy because different customer groups imply the need for different marketing mix(Doyle, 1987).

The research as to segment has performed at a number of industry sectors. Minhas and Jachobs (1996) have undertaken to investigate one of the great shortcoming in market segmentation in banks and building societies used traditional segmentation strategy. They have presented that typical variables, geographic, demographic, socie-economic and psychographic characteristics, have been found to be poor predictors of future buying behavior. They identified benefit factor using factor analysis.

Jang, Morrison and O'Leary(2002) conducted a benefit segmentation study on the Japanese travel market. They defines the goal of market segmentation as the segment that are most interested in specific goods and services and to focus marketing efforts on them in the most effective way. Using factor-cluster analysis, this research segmented the market into three clusters, which were named novelty/nature seekers, escape/relaxation seekers and family/outdoor seekers. The researchers calculated the profitability and risk by segments and selected target market based on this analysis.

Machauer and Morgner(2001) studied the benefit segmentation of bank customer. These researchers also used cluster analysis for identifying positioning of groups in a strategic matrix. This study segmented the market into four cluster as a transaction oriented, service oriented, technology opposed and generally interested.

Matear and Gray(1995) have examined the benefit segmentation in a freight transport market. Five components, carrier, route, time, price and control characteristics, with a varimax rotation were produced in this study.

Bhatnagar and Ghose(2003) have studied segmenting customer of Internet shopping based on risks and benefits factors.

III. Parcel service in Korea

Parcel service introduced by increasing of customer's needs to transportation service and changing of customer's life-style is defined as the door-to-door service requiring rapid transport, time-definite delivery and the transportation of small quantities to the destination. Parcel service is providing to customer the timesaving and increased customer value from such business practices.

<Table 1> Sales of parcel service

(unit:a billion won)

Classification	2001	2002	2003
Major	510.39	743.41	990.00
Small and medium	297.92	458.32	643.50
Total	808.31	1,201.73	1,633.50

source : The Korea Chamber of Commerce & Industry, 2003.

With the growth of the EC(E-Commerce), online shopping mall, expansion of logistics outsourcing and an increase of the number of personal customer, this parcel service market has been expanding rapidly in this country(see <table 2>).

Reflecting these market trends and customer's intent, many of researchers and companies have been forecasting that this market will grow up continuously in this country.

As mentioned above, parcel service industry has presented high growth rate. But almost all the parcel service company in Korea has mainly executed low price strategy to secure their market share without preference research.

Every customer has different preference, some customer prefer low price, some customer may prefer high quality service or brand of company. Therefore unilateral low price policy has possibility that may decrease sales and brand. Thus, the

<Table 2> Growth factors of parcel service industry in Korea

Classification	Outsourcing	Personal customer	Electronic Commerce	Home shopping	Network marketing	Small quantity	Total
Major	15.0%	20.0%	30.0%	25.0%	5.0%	5.0%	100.0%
Small and medium	25.0%	14.0%	18.8%	21.9%	10.9%	9.4%	100.0%
Total	23.6%	14.9%	20.3%	22.3%	10.1%	8.8%	100.0%

source : The Korea Chamber of Commerce & Industry, 2003.

<Table 3> Parcel service volume by E-Commerce

Classification	2000	2001	2002	2003	2004	2005
Godae company Management Institute	28,990	41,390	55,610	71,610	89,350	107,220
Apply the growth rate of Japan	28,243	35,797	44,602	53,396	62,367	71,098
Average	28,116	38,593	50,106	62,503	75,858	89,159
Growth rate	-	37.3%	29.8%	24.7%	21.4%	17.5%

source : Internal data of H company.

research about customer preference is important to increase sales and to improve customer loyalty in parcel service industry at this point of time.

IV. Methodology

1. Sample

The data in this paper were obtained from a direct questionnaire. The advantages of direct questionnaire are its high response rate and reliability of data, which rate a list of items. In March 2003, questionnaires were sent to 300 persons who live in Busan, Korea. The company customers were excluded in this study because of the subject of survey is personnel customers(see <Table 4>).

The response rate lay at 83.3 per cent. In all, 250 replies were received and 218 responses were eligible for computer analysis. The computer program

used in this paper is SPSS 10.0, and data analysis involved factor analysis, cluster and conjoint analysis.

2. Questionnaire

Two different types of questionnaire were developed for surveying customer preference based on the researches concerning parcel service and transportation mode choice criteria. One questionnaire has developed for factor analysis to summarize a large number of variables with a small number of derived variables. We use Likert 5 point scale. The other questionnaire for obtaining conjoint coefficient consists of parcel service choice attributes. <Table 5> shows that developed combination of attribute and level for conjoint analysis. This questionnaire then consists of three parcel service choice attributes obtained from factor analysis and three types of level and respondents appraise compositions of levels for

<Table 4> Profile of respondents

(unit : 10,000 won)

Classification	Frequency			
	under 10	10~20	20 and over	-
Number of use	117(53.7%)	85(39.0%)	16(7.3%)	-
	male	female	-	-
Sex	143(65.6%)	75(34.4%)	-	-
	under 30	30~40	40~50	under 50
Age	136(62.4%)	25(11.5%)	19(8.7%)	38(17.4%)
	college student	office worker	housewife	etc.
Job	69(31.7%)	73(33.5%)	33(15.1%)	43(19.7%)
	under 99	100~199	200~299	300 and over
Average Income	51(23.4%)	71(32.6%)	48(22.0%)	48(22.0%)

<Table 5> Attributes and level

Attribute	Level		
Company ¹⁾	1. H-1	2. K	3. H-2
Price ²⁾	1. 4,500 won	2. 5,000 won	3. 5,500 won
Service ³⁾	1. Delivery reliability	2. Convenience	3. Kindness

1) Three of companies were selected so called "Big 3" in this country based on actual result of sale.

2) According to research on the actual condition of domestic parcel service companies, the service price of small and medium company was investigated as 4,469 won and big company's price examined to 5,125 won. Accordingly, the fundamental service price was determined to 5,000 won and addition and subtraction by 10 per cent.

3) Service contained three of level, delivery reliability, convenience and kindness, attracted by factor analysis.

the conjoint analysis experiment. Five attributes summarized to three to reduce the number of profile in order to rank(from 1 to 9) preference at questionnaire with no trouble.

3. Analysis

The analysis of this paper was completed in five steps.

- 1) Factor analysis : this analysis is to find some attributes to apply conjoint analysis. The list of 12 parcel service choice attributes was reduced to 5 attributes using factor matrix rotated with a varimax rotation. The object of factor analysis is to reduce a set of attribute to a smaller number of attributes.
- 2) Conjoint analysis⁴⁾ : this is to evaluate importance and part-worth of attributes derived from factor analysis. Attribute may be presented as "benefit" which the customer wishes to gain from the purchase of the parcel service(Matear and Gray, 1995). Questionnaire for conjoint analysis consists of nine conjoint cards which developed by fractional factorial design method.
- 3) Cluster analysis : this analysis is to group customers who has similar set of benefit which estimated conjoint analysis when choice parcel service. K-means cluster analysis was used for grouping customer.
- 4) Estimation of price elasticity : this step is to measure price elasticity among groups of customer using Choice simulation. Choice simulation is to identify the likely impact on market share under a variety of competitive environments.

- 5) Comparison: this step is to present demographic characteristics of each group by benefit segmentation. It may find that which segmentation give more useful information to segment parcel service market.

V. Result

1. Factor analysis

This paper has employed factor analysis to identify important factor to choice parcel service. Five factors were derived from varimax rotation. <Table 6> shows factor analysis result.

The first factor was named price, contained 3 factors of delivery price per weight, price per distance and price compared with competition company. The second factor, kindness, was comprised of goodness of visiting staff, helpfulness of call center. The third factor was labeled as company with three benefits of name value of company, finance stability and reputation of company. Convenience was the forth factor, including approximation of the branch, the number of branch. The fifth factor, delivery reliability, was comprised of rapid delivery, reliability of transport time.

The reliability of the five factors was tested by estimating Cronbach's alpha. The Cronbach's alpha for the Price was 0.96, for Kindness was 0.89, for Company was 0.68, for Convenience was 0.76 and for Reliability was 0.70. Nunnally(1978) has recommended that if the Cronbach's alpha is higher than 0.7, then the constructs are internally consistent. Most of constructs were estimated high cronbach's alpha, ranging from 0.68 to 0.93.

4) Conjoint analysis has different points with other multivariate in three distinct area : First, conjoint analysis is termed a decompositional model because the researcher needs to know only a respondent's overall preference for an object created by the researcher through specifying the value(level) of each attribute. Second, conjoint analysis employs a variate quite similar in form to what we have seen in other multivariate techniques. The conjoint variate is a liner combination of effects of the independent variable on a dependent variable. The important difference is that in the conjoint variate, the researcher specifies both the independent variables and value. Third, conjoint analysis differs from almost all multivariate methods in that it can carried out at the individual level, meaning that the researcher generates a separate "model" for predicting preference for each respondent (Kim, Jung and Kwak, 2002).

〈Table 6〉 Result of factor analysis

Factor	Price	Kindness	Company	Convenience	Reliability
Name value of company	0.069	0.162	0.860	0.062	-0.086
Finance stability	-0.064	-0.043	0.790	0.215	0.223
Reputation of company	0.325	0.614	0.523	0.134	0.008
Price per weight	0.920	0.106	0.122	0.045	0.128
Price per distance	0.933	0.187	0.051	0.038	0.119
Price compared with other company	0.843	0.220	-0.109	0.215	0.256
Goodness of visiting staff	0.225	0.848	0.071	0.263	0.226
Helpfulness of call center	0.149	0.848	0.031	0.324	0.103
Approximation of branch	0.155	0.233	0.116	0.849	0.135
Number of branch	0.057	0.321	0.218	0.797	-0.023
Rapid delivery	0.367	0.188	0.085	0.170	0.717
Reliability of time	0.115	0.087	0.035	-0.015	0.910
Cronbach's alpha	0.96	0.89	0.68	0.76	0.70

2. Conjoint analysis

The value of benefits in this paper were derived from survey using conjoint analysis. This study chooses fractional factorial design to avoid the evaluation of all possible combination. The stimulus design component of the computer program generated a set of 9 full-profile descriptions, allowing for the estimation of the orthogonal main effect for each factor.

The importance of attributes can evaluate with ratio of the range among part worth. 〈Table 7〉 shows part worth for every factor. For example,

〈Table 7〉 Part worth and importance

Attribute	Level	Part worth	Importance
Company	H-1	-0.57	23.53%
	K	0.16	
	H-2	0.41	
Price	4,500 won	1.06	43.89%
	5,000 won	-0.29	
	5,500 won	-0.77	
Service	reliability	-0.73	32.58%
	convenience	0.09	
	kindness	0.63	
Reliability	Pearson's R=0.912 Sig.=0.0003 Kendall's tau=0.778 Sig.=0.0018		

the suggested price is more important than brand of company and service as a result of evaluated entire customer preference in the overall results. This means that price is the most important factor for attracting customer in parcel service market.

3. Estimation of price elasticity using benefit segmentation

Analysis of price elasticity was completed in three steps using Choice simulation. Choice simulation is to forecast prospective volume of each company using estimated coefficients. To apply Choice simulation, this paper use cournot model (Yoo and Park, 2002). To apply this simulation, we divided groups of customer using Cluster analysis. Because this simulation is to identify difference of price elasticity by groups. The detail of the procedure is as follow.

First, it is assumed that when the parcel service price of competitive company change, remained companies in same marketplace is not changed on their market price.

Probability selecting one company is calculated from choice probability of some company of customer i divided by total utility of customer i get from one company.

$$P_{ik} = \exp(U_{ik}) / \sum \exp(U_{ik})$$

P_{ik} : Probability selecting service company k of customer i

U_{ik} : Derived total utility of customer i from service company k

Second, the total volume of specific company was calculated with the choice stochastic multiply personnel volume.

$$S_k = \sum_{i=1}^m P_{ik} \cdot s_i$$

S_i : Used volume of customer i

s_i : Expected annual volume of customer i

Third, price elasticity was estimated using general simple equation.

$$E_p = \frac{\partial Q}{\partial P} \cdot \frac{P}{Q}$$

Following above process, the price elasticity of total level was estimated as -2.47. This is standard value to compare the price elasticity derived from ex-ante segmentation and from ex-post segmentation.

1) Ex-ante segmentation

Ex-ante segmentation is to identify segment market based on respondents profile. Three segmented market were identified based on the number of used using K-means cluster analysis. Importance and part worth of each segmented market is presented (Table 8).

The customers in "under 10" market thought that service attribute was the most important factor when they choose the parcel service company. Customer groups used parcel service "10-20" and "20 and over" estimated that brand of company and service attributes was more important than price of parcel service. Price elasticity shows same result with this importance by segment market. The price elasticity of segmented market were calculated -2.12("under 10"), -3.43("10-20") and -3.78("20 and over"). Price elasticity of "20 and over" group that prefer price attribute in selection factor was higher than "10-20" and "20 and over". This means that group of customer that considers price attribute presents higher elasticity when they buy parcel service and used much time.

The range of price elasticity in this way was calculated with 1.66(3.78-2.12). This range of price elasticity among segment market is for that which segmentation way is more useful to

<Table 8> Ex-ante Segmentation by used number

Attribute	Level	Total		Used Number					
		part-worth	importance	under 10		10~20		20 and over	
Company	H-1	-0.57	23.5%	-0.63	26.5%	-0.50	21.4%	-0.59	24.3%
	K	0.16		0.05		0.21		0.53	
	H-2	0.41		0.60		0.31		0.15	
Price	4,500 won	1.06	43.9%	1.00	35.5%	1.26	56.0%	1.18	42.7%
	5,000 won	-0.29		-0.26		-0.34		-0.28	
	5,500 won	-0.77		-0.66		-0.87		-0.79	
Service	reliability	-0.73	32.6%	-0.88	38.0%	-0.47	22.6%	-0.99	33.0%
	convenience	0.09		-0.01		0.11		0.49	
	kindness	0.63		0.90		0.39		0.54	
Price Elasticity		-2.47		-2.12		-3.43		-3.78	

divide customer based on their preference and benefit.

2) Ex-post segmentation by benefits

(1) Segmentation using important of attributes

Three segmented markets were divided with Cluster analysis. The first-way ANOVA(Analysis of Variance) was used to identify whether the significant differences existed among groups of customer(see <table 9>) with importance as independent variable and each cluster as dependent variable. The significant differences were found in company, price and service attribute. This means that customer groups were very well fastened.

Market 1 consisted of price-oriented customer who are seeking low or elastic that the company brand is the most important factor when they select parcel service(see <table 10>). This result presents that it is possible to separate groups of customer more clearly than ex-ante segmentation according to importance coefficient.

It shows also that customer groups have different

purchasing characteristics, price, brand name of some company and service.

The price elasticity of market 1 shows the highest value with -4.30. The other segment market shows price elasticity as -2.10 and -1.26. In case of market 2 and 3, however, the price elasticity was calculated to low rather than ex-ante segmentation.

The range of price elasticity(3.04) in this result was estimated to higher than price elasticity(1.66) of ex-ante segmentation.

Then it may possible to attract price-oriented customer in market 1 with price discrimination strategy. It can, also, induce brand-oriented customers with improving brand name of company and service-oriented customers with service discrimination marketing plan.

(2) Segmentation using coefficient of part worth

Three number of market were grouped in this method. The one-way ANOVA were used to identify whether significant differences existed among clusters (see <table 11>). This result also presents most of variable have significant difference excluding one variable, price 4,500.

Price-oriented customers contained market 1 select price as the most important factor for purchasing parcel service.

Service-oriented customers belong to Market 2 and brand-oriented customers of company are

<Table 9> ANOVA by importance among groups

Attribute	Average			F	Sig.
	market1	market2	market3		
Company	2.36	2.34	4.24	157.35	0.00
Price	3.82	2.43	1.74	112.13	0.00
Service	2.17	4.55	1.93	284.23	0.00

<Table 10> Estimation by importance of attribute

Attribute	Level	Total	Market 1		Market 2		Market 3	
Company	H-1	-0.57	23.5%	-0.63	21.4%	-0.65	19.5%	-0.88
	K	0.16		0.60		0.21		0.11
	H-2	0.41		0.03		0.46		0.82
Price	4,500 won	1.06	43.9%	1.84	57.7%	0.93	27.9%	0.69
	5,000 won	-0.29		-0.25		-0.65		0.05
	5,500 won	-0.77		-1.46		-0.22		-0.70
Service	reliability	-0.73	32.6%	-0.56	20.9%	-1.75	52.6%	0.03
	convenience	0.09		-0.01		0.52		-0.37
	kindness	0.63		0.63		1.24		0.35
Price Elasticity			-2.47	-4.30		-2.10		-1.26

<Table 11> Result of ANOVA

Attribute		Average			F	Sig.
		market 1	market 2	market 3		
Company	H-1	-0.072	-1.39	0.70	103.97	0.000*
	K	0.96	0.74	-1.38	118.35	0.000*
	H-2	-0.82	0.70	0.70	33.17	0.000*
Price	4,500 won	1.00	1.08	1.30	2.30	0.102
	5,000 won	0.33	-0.49	-0.31	10.75	0.000*
	5,500 won	-1.28	-0.51	-0.93	10.71	0.000*
Service	reliability	0.082	-1.49	0.25	54.52	0.000*
	convenience	1.02	0.36	-0.94	56.13	0.000*
	kindness	-1.06	1.15	0.70	84.92	0.000*

<Table 12> Estimation according to part worth coefficient

Attribute	Level	Total	Market 1		Market 2		Market 3	
Company	H-1	-0.57	-0.07	29.9%	-1.39	33.5%	0.30	39.1%
	K	0.16	0.96		0.74		-1.38	
	H-2	0.41	-0.89		0.70		1.10	
Price	4,500 won	1.06	1.00	36.7%	1.08	25.0%	1.31	35.2%
	5,000 won	-0.29	0.33		-0.49		-0.31	
	5,500 won	-0.77	-1.28		-0.51		-0.93	
Service	reliability	-0.73	0.08	33.48%	-1.49	41.5%	0.26	25.7%
	convenience	0.09	1.02		0.36		-0.94	
	kindness	0.63	-1.06		1.15		0.70	
Price Elasticity		-2.47	-3.64		-0.18		-2.02	

contained market 3(see <table 12>). The benefit segmentation using part worth also can separate customers more obviously than ex-ante segmentation.

The price elasticity of market 1 has the highest value with -3.64 in this way same as above finding. Price elasticity of market 2 and market 3 were calculated with -0.18 and -2.02 respectively. Although this way divided customer groups more clearly,

the range of price elasticity was estimated with 1.18 that is lower than ex-ante segmentation. It can presume that improper segmentation method may be likely to reduce the revenue of some company.

4. Comparison of price elasticity by market segment

<Table 13> shows that the difference of price

<Table 13> Price elasticity of segmented market using importance

Classification	Total	Segmentation Method		
		used number	importance	part worth
Market 1	-2.47	-2.12	-4.30	-3.64
Market 2		-3.43	-2.10	-2.65
Market 3		-3.78	-1.26	-2.46
Range of Price Elasticity		1.66	3.04	1.18

elasticity depending on segmented market. The range of the price elasticity was estimated through the gap between the highest elasticity and the smallest elasticity.

Range of the price elasticity of importance attribute was presented with a value 3.04.

Yoo and Park(2002) argues that the range of price elasticity by importance factor is more extensive than price elasticity from ex-ante segmentation and part worth factor.

In case of benefit segmentation according to part worth, elasticity range is small than price elasticity from ex-ante segmentation. This results previews that inappropriate customer segmentation can reduce profits of its company.

To identify the difference between ex-post segmentation and ex-ante segmentation, this paper has estimated respondents profile by segment market with demographic criteria. The result is shown (table 14).

Customers who use parcel service "over than 10", "student or office worker" in the profession and average income is "100-199" were contained in the market 1 consisted of price-oriented customer. "Under 10" and "office worker" have a higher proportion in the Market 2 and the customer of market 3 are comprised mainly "under 10" based on used number and "more than 300" on average income.

In benefit segmentation by part worth, it is possible to separate profile of respondents clearly in line with the number of used. The other, however, characteristics were not presented noticeably.

This result indicates that benefit segmentation by important is replicate parcel service market characteristic more useful when certain company segments their customer in this market.

W. Conclusion

The studies associated with benefit segmentation have conducted a variety of industry sector. Accordingly, it is also need to find customer's needs for marketing of parcel service. However, the research about parcel service has not been performed widely regardless increase of its growth rate. This paper therefore has identified the usefulness of benefit segmentation and price elasticity in the parcel service marketplace and then has estimated, thereby, the price elasticity by segmented market using conjoint analysis.

The major output of this paper are as follows: First, the price attribute was estimated as the most important attribute when individual customers select parcel service company. Importance of each attribute was evaluated as 43.98 percent(Price), 23.53 percent (Company) and 32.58 percent(Service). This result

<Table 14> Characteristic of sample by segmentation method

(Unit:%)

Classification		Market 1		Market 2		Market 3	
		importance	part worth	importance	part worth	importance	part worth
Used Number	under 10	33.3	48.7	63.6	55.5	61.1	53.2
	10 and over	66.7	51.3	26.4	45.5	38.9	46.8
Job	office worker	38.8	35.1	33.0	34.5	29.2	30.7
	student	40.3	56.8	22.7	26.0	33.3	27.4
	housewife	7.5	5.4	19.0	18.5	18.1	14.5
	etc.	13.4	2.7	25.3	21.0	19.4	27.4
Average Income (10,000 won)	under 99	28.4	40.6	16.5	20.2	26.4	19.4
	100~199	38.8	29.7	34.2	29.4	25.0	40.3
	200~299	11.9	18.9	32.9	27.7	19.4	12.9
	300 and over	20.9	10.8	16.4	22.7	29.2	27.4

presents that customers response to price sensitively and then it may possible to induce customer using price discrimination.

Second, the range of price elasticity by importance was calculated wider than by part worth and by ex-ante segmentation. This result indicates that the benefit segmentation method by importance of purchase attribute is more useful to find segment groups of customer at parcel service market.

Third, the improper segmentation may reduce revenue of company. In findings, price elasticity by part worth was estimated as low level rather than ex-ante segmentation. Thus, the parcel service company has to establish prudently segment market of customer through investigation customer's preference for purchasing service.

Forth, this paper has conducted comparison analysis for identifying which segment method is more useful to segment individual customer between by importance and by part worth. The customers who use parcel service have heterogeneous characteristic by segment market. Customers were divided more obviously by importance of attributes as a result of this comparison than by part worth of attributes.

Thus, when a parcel service company segment groups of customer, segmentation based on customer benefit according to purchasing behavior may improve customer satisfaction. It is, also, possible to maximize their advantage and competition power.

Limitations

One limitation of this paper concerns the respondents. This study surveyed only to individual customers who live in Busan, Korea. Therefore, it has limitation to generalize of this paper's result according to restricted respondents and area. Thus, future study needs to analyze the difference of customer's purchasing characteristic among areas.

Although the benefit segmentation applied in this paper was effective and provided useful information for customer marketing, it is just one of many alternate segmentation. Therefore, it is need to compare with other segmentation method in the future research.

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