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The Influence of Customer Equity Drivers on Specific Purchasing Behavior in Retail Industry

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Abstract: The characteristics of retail industry directly determine that customers play vital roles in its development. Therefore, it is extremely important to research on customer behaviors using customer equity theory. This study firstly analyzes the purchasing characteristics of customer and the meaning of customer equality drivers in retail industry. Then, it analyzes the effect of these drivers on specific purchasing behaviors and proposes research hypothesis. Finally, according to the characteristics of retail industry, this study uses survey data to do empirical research, to verify the research hypothesis, also to make clear how these drivers affect purchase frequency and spending amount, which is of great significance to grasp the purchasing pattern and further attract customers.

Key words: Customer equity, drivers, purchase frequency, principal component analysis

INTRODUCTION

The customer is the most valuable resources of enterprises, especially under the condition of customer-oriented market economy, enterprise cannot make correct marketing strategy without the understanding of the customer's psychology and behaviour. Only through thorough research of the purchasing behavior of customers, can enterprise formulate effective marketing strategies and achieve the aim of marketing. Many scholars have conducted studies on the purchasing behavior of customers and started to study the purchasing behavior of customers with customer equity theory (Vogel *et al.*, 2008; Richards and Jones, 2008; Tian *et al.*, 2008; Zhu, 2009; Zhou *et al.*, 2009; Shao and Zhang, 2009), however, there is still no comprehensive and systematic research on the influence of customer equity drivers on the purchasing behavior of customer, which is of great significance to marketing theory and practice. Therefore, this study takes retail industry as the research object to research the influence of customer equity drivers on the purchasing behavior of customer.

Since the purchase frequency and spending amount of many durable consumer goods in the retail industry are almost not affected by customer equity drivers, this study mainly researches on fast moving consumer goods and customer' long-term purchasing behaviors including the purchase frequency and spending amount of customers.

THEORETICAL BASIS

Rust has made the most systematic and profound research on customer equity drivers. They have built up a model of customer equity drivers (Rust *et al.*, 2000, 2004), in which customer equity is influenced by value driver, brand driver and relation driver. Value driver refers to customers' objective evaluation on corporate products or services and the sub-drivers of value driver are quality, price and convenience. Brand driver refers to customers' subjective evaluation on enterprises and its products or services. The sub-drivers of brand driver are customers' brand awareness, customers' attitude to brand and customers' feeling on brand morality. Relation driver refers to strength of relation between customers and enterprises. The sub-drivers of relation driver are retribution activities to frequent customers, special appreciation and special treatment activities, fellowship activities, customer group activities and knowledge learning activities.

RESEARCH HYPOTHESIS

Analysis on the influence of value on the purchasing behavior of customer: The quality of products and services provided by enterprise to customers will affect the purchasing behavior of customers and then influence the purchase frequency and spending amount of customer. When enterprises improve the quality of products and services, customer satisfaction will increase, which will in turn increase their purchase frequency and

spending amount. Parasuraman *et al.* (1994) have also confirmed that the quality of products and services provided by enterprise will have positive effect on customer' purchase frequency and spending amount. Hao and Gao (2008) thinks that the most effective promotional tool to increase consumer's spending amount is price discount but price discount may lead to the decrease of their purchase frequency. Besides, the convenience of products and services may have negative effect on spending amount but positive effect on purchase frequency. So, this study proposes the following hypotheses:

- **H11:** Quality has positive effect on customer' purchasing frequency
- **H12:** Price has positive effect on customer' purchasing frequency
- **H13:** Convenience has positive effect on customer' purchasing frequency
- **H14:** Quality has positive effect on customer' spending amount
- **H15:** Price has positive effect on customer' spending amount
- **H16:** Convenience has negative effect on customer' spending amount

Analysis on the influence of brand on the purchasing behavior of customer: The higher consumer' brand awareness is, the stronger their brand preference is, they are more willing to pay a higher price for the brand and increase purchase frequency (Yoo *et al.*, 2000; Bolton and Drew, 1991). In addition, Zeithaml (1988) also carried out a large number of empirical studies and draw the conclusion that, the better the customer' perception of the brand is, the more willing they are to purchase the products of this brand. And, this will lead customer to be more inclined to buy more of this products. So, this study proposes the following hypotheses:

- **H21:** Brand awareness has positive effect on customer' purchasing frequency
- **H22:** Brand preference has positive effect on customer' purchasing frequency

Zhu (2009) did an empirical research on the relationship between store reputation and customer satisfaction and customer loyalty and found that different store reputations have different effects on customer satisfaction, while customer satisfaction can positively influence customer loyalty. So, store reputation will have positive effect on customer' spending amount. Zhou *et al.* (2007) also shows that corporate social

responsibility has a positive impact on the purchasing intention of consumers. If enterprise undertakes more welfare activities, customers will pay more attention to the enterprise and correspondingly increase the amount of purchase. So, this study proposes the following hypotheses:

- **H23:** Corporate reputation has positive effect on customer' spending amount
- **H24:** Public benefit activities have positive effect on customer' spending amount

Analysis on the influence of relation on the purchasing behavior of customer: Enterprises with preferential policies and attractive loyalty rewards program to reward their loyal customers are more likely to retain customers. This will also increase customer' potential switching costs and increase customer loyalty, which will further increase the purchase frequency and spending amount of customer (Zhou *et al.*, 2007; Zhou and Chen, 2008). So, this study proposes the following hypotheses:

- **H31:** Loyalty rewards program has positive effect on customer' purchasing frequency
- **H32:** Preferential policy has positive effect on customer' purchasing frequency
- **H33:** Loyalty rewards program has positive effect on customer' spending amount
- **H34:** Preferential policy has positive effect on customer' spending amount

EMPIRICAL RESEARCH

This study chooses 'large-scale comprehensive supermarket' in retail industry to do empirical research, because its customers in general are individual consumers, although the money amount spent by them may be less, their purchase frequency is very high. Besides, it is very easy to collect data and more convenient to do empirical research. This research mainly uses the Internet questionnaire and random intercept approach to collect data, total 530 questionnaires are collected and 443 are valid. Then, the following index system (Table 1) is established.

Because purchasing frequency Y_1 and spending amount Y_2 are also influenced to a large extent by variables of population characteristics such as monthly income, career, age, marriage and sex, this study takes these variables of population characteristics as control variable into this model. This study firstly does principal

Table 1: Corresponding relationship between variable and index

| Variable | Index | Variable | Index |
|----------------|---------------------------|-----------------|--|
| Y ₁ | Purchasing frequency | X ₇ | Brand preference |
| Y ₂ | Spending amount | X ₈ | Loyalty rewards program |
| X ₁ | Quality | X ₉ | Preferential policy |
| X ₂ | Price | X ₁₀ | Special treatment |
| X ₃ | Convenience | X ₁₁ | Customer's understanding of enterprise |
| X ₄ | Advertising | X ₁₂ | Enterprise's understanding of customer |
| X ₅ | Corporate reputation | X ₁₃ | Group activities |
| X ₆ | Public benefit activities | X ₁₄ | Customer's trust on enterprise |

component analysis of these 15 variables and then uses the extracted principal components to do regression analysis.

Reliability and validity analysis: After the normalization of data collected, SPSS13.0 is used to do reliability analysis. The results show that the reliability coefficient of Alpha is 0.818, which means the scale's reliability can be accepted. Delete any item, the reliability coefficient of Alpha is still smaller than 0.818, so, this scale is reliable. In addition, since the questionnaire used by this research is not only based on Rust' original scale and make some changes according to the characteristic of retail industry, but also tested in small range before formal questionnaire survey is conducted, the content validity of this questionnaire meets requirements.

Principal component analysis: First of all, it is necessary to test the appropriateness of doing principal component analysis by KMO (Kaiser-Meyer-Olkin) sampling adequacy test and Bartlett test.

KMO statistic value is between 0 and 1, the greater this value is, the better the effect of factor analysis will be. The results show that KMO statistic value is 0.854 and the Sig value of Bartlett test is smaller than 0.05, which means it is appropriate to do principal component analysis.

Use SPSS13.0 to extract principal component. According to the standard that eigenvalue should be greater than 1, 4 principal components are extracted and their cumulative contribution rate is 54.099% (Table 2). These 4 principal components are defined as F₁, F₂, F₃ and F₄. According to the coefficient in principal component score matrix (Table 3), every principal component can be expressed as linear combinations of every drivers, reflecting the relationship between principal component and each of drivers.

The first principal component F₁ can be expressed by every driver as formula (1):

$$F_1 = 0.114X_1 + 0.145X_2 + 0.112X_3 + 0.087X_4 + 0.139X_5 + 0.134X_6 + 0.154X_7 + 0.146X_8 + 0.097X_9 + 0.110X_{10} + 0.140X_{11} + 0.134X_{12} + 0.134X_{13} + 0.149X_{14} + 0.013Income \quad (1)$$

Table 2: Cumulative contribution rate of principal components

| Component | Initial eigen values | | |
|-----------|----------------------|---------------|----------------|
| | Total | % of variance | Cumulative (%) |
| 1 | 4.241 | 28.270 | 28.270 |
| 2 | 1.709 | 11.392 | 39.663 |
| 3 | 1.111 | 7.409 | 47.072 |
| 4 | 1.054 | 7.027 | 54.099 |

Table 3: Linear coefficient between original variables and principal components

| Original variable | Principal component | | | |
|-------------------|---------------------|--------|--------|--------|
| | 1 | 2 | 3 | 4 |
| X ₁ | 0.114 | -0.313 | 0.233 | -0.373 |
| X ₂ | 0.145 | -0.167 | 0.026 | -0.127 |
| X ₃ | 0.112 | -0.287 | -0.44 | -0.174 |
| X ₄ | 0.087 | 0.012 | 0.161 | 0.690 |
| X ₅ | 0.139 | -0.217 | 0.058 | 0.024 |
| X ₆ | 0.134 | 0.101 | 0.151 | 0.163 |
| X ₇ | 0.154 | -0.088 | 0.159 | 0.159 |
| X ₈ | 0.146 | 0.216 | -0.089 | 0.249 |
| X ₉ | 0.097 | -0.029 | -0.567 | .039 |
| X ₁₀ | 0.110 | 0.282 | -0.027 | -0.071 |
| X ₁₁ | 0.140 | 0.205 | -0.068 | -0.310 |
| X ₁₂ | 0.134 | 0.131 | -0.020 | -0.314 |
| X ₁₃ | 0.134 | 0.294 | -0.004 | -0.012 |
| X ₁₄ | 0.149 | -0.170 | -0.077 | -0.115 |
| Income | 0.013 | 0.102 | 0.686 | -0.195 |

Table 4: Corresponding relationship between original variable and dummy variable

| Variable | Original variable | Dummy variable assignment |
|----------|---|---|
| Age | Age = 1 (30 and below) | All A _i = 0 |
| | Age = 2 (31-40) | A ₂ = 1, others A _i = 0 |
| | Age = 3 (41-50) | A ₃ = 1, others A _i = 0 |
| | Age = 4 (above50) | A ₄ = 1, others A _i = 0 |
| Career | Career = 1 (enterprise employee) | All C _i = 0 |
| | Career = 2 (free operator) | C ₂ = 1, others C _i = 0 |
| | Career = 3 (governments and institutions staff) | C ₃ = 1, others C _i = 0 |
| | Career = 4 (student) | C ₄ = 1, others C _i = 0 |
| Marriage | Marriage = 5 (other occupation) | C ₅ = 1, others C _i = 0 |
| | Marriage = 1, (single) | M = 1 |
| Sex | Marriage = 2, (married) | M = 0 |
| | Sex = 1 (male) | S = 1 |
| | Sex = 1 (female) | S = 0 |

Similarly, other three expressions between principal component and drivers can be obtained.

Multiple regression analysis: This study chooses multiple regression analysis to measure the relationship between 4 principal components F₁, F₂, F₃, F₄, dummy variable and Y₁ (purchasing frequency), Y₂ (spending amount). This study sets the dummy variable (Table 4).

The related coefficient of regression equation all pass test, so the regression equation can be obtained as follows:

$$Y_1 = 3.385 - 0.379 F_1 - 0.618 F_3 - 0.815 F_4 + 0.473 M \quad (2)$$

$$Y_2 = 1.618 + 0.142 F_3 \quad (3)$$

Table 5: Coefficient between drivers and purchase frequency

| Original variable | Coefficient | Original variable | Coefficient |
|-------------------|-------------|-------------------|-------------|
| X ₁ | 0.117 | X ₉ | 0.2820 |
| X ₂ | 0.325 | X ₁₀ | 0.0329 |
| X ₃ | 0.372 | X ₁₁ | 0.2420 |
| X ₄ | 0.695 | X ₁₂ | 0.2170 |
| X ₅ | 0.108 | X ₁₃ | 0.0385 |
| X ₆ | 0.277 | X ₁₄ | 0.0848 |
| X ₇ | 0.286 | Income | 0.2700 |
| X ₈ | 0.203 | M | 0.4730 |

Table 6: Coefficient between drivers and spending amount

| Original variable | Coefficient | Original variable | Coefficient |
|-------------------|-------------|-------------------|-------------|
| X ₁ | 0.03310 | X ₉ | 0.08050 |
| X ₂ | 0.03690 | X ₁₀ | 0.00383 |
| X ₃ | -0.06250 | X ₁₁ | 0.00966 |
| X ₄ | 0.02290 | X ₁₂ | 0.00284 |
| X ₅ | 0.00824 | X ₁₃ | 0.00057 |
| X ₆ | 0.02140 | X ₁₄ | 0.01093 |
| X ₇ | 0.02260 | Income | 0.09740 |
| X ₈ | 0.01260 | | |

Based on the relationship between the principal components and the original variable, as well as Eq. 2 and 3, this study gets the coefficient between drivers and purchase frequency (Table 5), coefficient between drivers and spending amount (Table 6).

ANALYSIS RESULT

- By using the method of principal components analysis, four principal components were extracted from the 14 sub-drivers of customer equity and monthly income, which is a very good solution to the problem of information overlap between index
- By multiple regression analysis, the F value of fitting model passes test and it also means that the choice of variables and control variables in this study is correct, the dependent variable can be explained on the whole, the fitted model is statistically significant, at least some variables have strong explanatory power. However, the variable choosing is not very full, in addition to the above factors, purchase frequency and spending amount are also affected by many other factors such as personal consumption habits and social environment factors
- Income, gender, age, marriage are added as control variables into the model and the results show that income and marriage have significant influence on purchasing frequency and the influence coefficient of marriage has reached 0.473, meaning that the purchasing frequency is greatly influenced by marriage, married people may patronize supermarkets more often than single people. As for the influence on spending amount, only income (0.0974) has significant effect, which is also consistent with the fact, because, to some extent, income determines purchasing power

- There is great difference in coefficients between drivers and purchasing frequency and spending amount, which reflects their different effects on the purchasing frequency and spending amount. For example, the influence coefficient of advertising on purchasing frequency is 0.695, which shows that advertising has extremely significant effect on purchasing frequency, while the influence coefficient of group activities on spending amount is only 0.00057, showing that the influence of group activity on purchasing amount is relatively small
- As can be seen from the above table, among the coefficient between drivers and spending amount, only the coefficient of convenience is negative, which means that convenience has negative effect on spending amount. This is consistent with the hypothesis. In addition to convenience, all other driver's coefficient are positive, which means that they all have positive effects on spending amount. As far as the effect of drivers on purchase frequency is concerned, the coefficient of advertising is the largest (0.695), which is reasonable in retail industry, because if customers see their needed goods that are often advertised, they will frequently patronize this supermarket. The second is convenience (0.372), which is also reasonable, in that if it is more convenient to go shopping, the purchase frequency of customer is higher. The third is price (0.325) and the fourth is preferential policies (0.282), which mean that what customers concern most is still commodity prices and preferential policy. The last two are respectively special treatment (0.0329) and group activities (0.0385). This is also consistent with the fact of China, because this study finds in the survey that there is almost no membership in Carrefour and WAL-MART and no organized group activities to enhance the relationship between enterprise and customer

As far as the effect of drivers on spending amount is concerned, the coefficient of preferential policies is the largest (0.0805), the second one is convenience (-0.0625), then there is price (0.0369) and quality (0.0331). This means that customers are extremely sensitive to the preferential policies and price, the changes of which will significantly affect the customer's spending amount.

And apparently, quality is another significant factor influencing customer's spending amount, with the gradual improvement of living standards, customers are more and more concerning quality, high-quality goods will increase customer's spending amount. The influence of special treatment and group activities are still the least, with coefficient 0.00383 and 0.00057, respectively.

CONCLUSION

Based on the coefficient calculation, this study concludes that advertisement has the largest effect on purchase frequency, followed by convenience, price and preferential policies, while special treatment and group activities have the least effect. Preferential policy has the largest effect on customer's spending amount, followed by convenience, price and quality. Special treatment and group activities still have minimal influence coefficient.

Considering the influence of customer equity drivers on specific purchase behavior, especially the influence of value, enterprises should, from the point of quality of goods, price, convenience, advertising and preferential policies etc., increase customer's purchase frequency and spending amount, so as to realize the enterprise's marketing goal.

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REFERENCES

- Bolton, R.N. and J.H. Drew, 1991. A multistage model of customers' assessments of service quality and value. *J. Consum. Res.*, 17: 375-384.
- Hao, L.G. and C.Y. Gao, 2008. Research on consumer behavioral response to sales promotion. *J. Beijing Technol. Bus. Univ.*, 23: 43-46.
- Parasuraman, A., V.A. Zeithaml and L.L. Berry, 1994. Reassessment of expectations as a comparison standard in measuring service quality implications for further research. *J. Market.*, 58: 111-124.
- Richards, K.A. and E. Jones, 2008. Customer relationship management: Finding value drivers. *Ind. Market. Manage.*, 37: 120-130.
- Rust, R.T., V.A. Zeithaml and K.N. Lemon, 2000. *Driving Customer Equity: How Customer Lifetime Value is Re-shaping Corporate Strategy*. The Free Press, New York.
- Rust, R.T., K.N. Lemon and V.A. Zeithaml, 2004. Return on marketing: Using customer equity to focus marketing strategy. *J. Marketing*, 68: 109-127.
- Shao, J.B. and M.L. Zhang, 2009. Research on the measuring model of the customer equity of multi-brand enterprises based on the brand utility. *Forecasting*, 28: 23-29 (In Chinese).
- Tian, J.M., C.X. Wang and W.E. Qi, 2008. A study on the relationship among customer equity drivers, customer satisfaction and loyalty in airlines. *Chin. J. Manage. Sci.*, 16: 182-186.
- Vogel, V., H. Evanschitzky and B. Ramaseshan, 2008. Customer equity drivers and future sales. *J. Marketing*, 72: 98-108.
- Yoo, B., N. Donthu and S. Lee, 2000. An examination of selected marketing mix elements and brand equity. *J. Acad. Market. Sci.*, 28: 195-211.
- Zeithaml, V.A., 1988. Consumer perceptions of price, quality and value: A Means-end model and synthesis of evidence. *J. Market.*, 52: 2-22.
- Zhou, L., X.Y. Tian and G.Q. Zang, 2009. An empirical study on influencing factors of the income deadline of customer assets-taking commercial bank credit card customer as example. *Soft Sci.*, 23: 136-139.
- Zhou, W.H. and X.H. Chen, 2008. An empirical research of the relationship among store image, customer satisfaction and customer loyalty. *Forecasting*, 27: 27-37.
- Zhou, Y.F., W.E. Luo and W.J. Xiao, 2007. Corporate social responsibility behavior and consumer responses-the moderator effects of consumer personal characteristic and price signal. *China Ind. Econ.*, 228: 62-69.
- Zhu, Z.D., 2009. Research on the customer share value based on customers assets. *Forecasting*, 28: 72-76.