Research on brand value improvement strategies of fresh products based on cluster analysis-taking cold fresh meat as an example

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Abstract. Aiming at the strategies to improve the brand value of fresh products, this paper uses the field research data, official data, public information data in the industry, etc. in the cold fresh meat market as the data basis of the research, and uses cluster analysis to divide the cold fresh meat consumer groups into potential group and main force group, conservative group and follow-suit group. And it uses SPSS and mathematical modeling to analyze the characteristic portraits of the four categories of people, and gives strategies to improve the brand value of fresh products through correlation analysis.

1. Introduction
China is the world's largest consumer of pork, most of which is hot fresh meat, while cold fresh meat is a minority. Traditional hot fresh meat is usually marketed immediately after slaughter. The meat temperature after slaughter is as high as 40°C, which is in the period of stiffness of the meat without undergoing the change of sufficient maturity. The meat is tough and relatively rough in taste. At the same time, the high temperature of hot fresh meat will breed lots of microorganisms, easy to deteriorate the meat and produce harmful substances. Cold fresh meat is quickly cooled and acid-treated after swine slaughtering. The pork falls to 0-7°C within 24 hours and undergoes the process from stiffness after slaughtering to the maturity of the meat, which improves the meat quality. In addition, the production, transportation, and storage of cold fresh meat are all under low temperature conditions, which can effectively inhibit the growth of microorganisms [1].

At present, in the fresh meat market in the northern region, hot fresh meat still accounts for more than 80% of the market share. Consumers have low awareness of cold fresh meat, and market expansion is difficult. However, the cold fresh meat in developed countries accounts for over 90% of the market share. Therefore, this paper will carry out investigation and research on the brand value of cold fresh meat in combination with the new media environment to provide a certain reference for the return of the cold fresh meat market to the standardized, stable and healthy development environment.
2. Research Principles and Materials

2.1. Overall design
The investigation and research in this paper takes the national pork purchasing decision-makers as a whole, and investigates the people who have had pork consumption behaviors in the past month. The consumer group is mainly people aged from 21 to 65.

The investigation was conducted in two stages. The first stage was the pre-investigation period, which lasted five days. Cold fresh meat wholesale markets, large supermarkets in the city center and rural communities were treated as the sampling population for random sampling, and a total of 188 questionnaires were collected. 149 valid questionnaires were selected, and SPSS and mathematical modeling were used to analyze and form the final results. The second stage was the formal investigation period that took 15 days. Main consumers of cold fresh meat from four provinces were chosen as the sampling population for random sampling, and a total of 913 questionnaires were selected. After selection, 848 valid questionnaires were obtained. Finally, we entered the information of 848 valid questionnaires into the software of SPSS for subsequent analysis.

2.2. Concept and method selection
Cluster analysis is to classify according to the characteristics of individuals, and it aims to make individuals within the same category have a higher similarity, while different categories have greater differences, so as to effectively analyze according to the characteristics of different categories.

According to the attribute of the title, we adopted the hierarchical cluster method, which treats the cases participating in the cluster as one category, and then gradually merges them according to the distance or similarity between the two categories until the final case is merged into one large category.

2.3. Data sources

2.3.1 First-hand research data
- Collect data on the awareness of urban residents and promotion and suggestions on cold fresh meat in various places through questionnaires.
- Interviews relevant experts, manufacturers, distributors, and business (sales) personnel in the industry to obtain the latest first-hand market information.

2.3.2 Second-hand research data
- Official statistics: Statistics and information of government departments and official institutions such as the National Bureau of Statistics, the National Development and Reform Commission, the Development Research Center of the State Council, industry associations, the General Administration of Customs, and industrial and commercial taxation bureaus.
- Public information in the industry: Quarterly reports and annual reports of key enterprises in the cold fresh meat industry and upstream and downstream enterprises; articles, comments, opinions, etc. of the mainstream media; and opinions delivered by senior experts in the industry.
- Literature retrieval: Literature of various Chinese and English journal databases, libraries, research institutes, and colleges and universities.

3. Cluster Analysis Experiments and Discussion
After sorting out and analyzing the data, the cluster analysis was carried out to 500 consumers, who were classified as groups with different characteristics. And four factors were used to describe and name different consumers to more intuitively see their types and characteristic portraits.

3.1 Hierarchical cluster
The 500 respondents were firstly treated as a category, then the distance between categories was specified. The pair with the smallest distance was merged into a new category, and the distance between the new category and other categories were calculated, and the two categories with the closest
distance were merged, and each time one category was reduced, and all the variables were divided into four categories. Through frequency statistics, we found that the number of the first category is the largest, and followed by the second and the third categories, and the number of the fourth category was the smallest. Please refer to Table 1 for the specific frequency.

**Table 1. Final cluster center**

|                          | Cluster 1 | Cluster 2 | Cluster 3 | Cluster 4 |
|--------------------------|-----------|-----------|-----------|-----------|
| Province                 | 3.20      | 1.56      | 2.57      | 2.61      |
| Family information       | 1.30      | .71       | 1.22      | 1.07      |
| Age                      | 3.5       | 3         | 3         | 3         |
| Current family monthly income (yuan) | 2 | 4 | 3 | 3 |
| Education background     | 3         | 4         | 3         | 4         |
| Frequency of family pork purchasing | 4 | 3 | 3 | 3 |
| Total score              | 1         | 3         | 1         | 3         |
| After you buy the cold fresh meat, do you feel that the quality and taste are better than those of the traditional pork? | 3 | 2 | -3 | 2 |
| The production of cold fresh meat needs to go through a very complicated process. | 2 | 2 | 2 | 2 |
| Compared with traditional pork, how much higher the price of cold fresh meat can you accept | 11 | 14 | 2 | 2 |
| How many kilograms of pork you buy in your daily life (1 kg = 500 g) | 1 | -3 | 1 | -3 |
| After learning about the cold fresh meat, are you willing to buy it? | 1 | -3 | 2 | -3 |
| Cold fresh meat, hot fresh meat, and frozen meat, which one do you think more healthy? | 1 | 1 | 1 | 1 |
| Are you willing to promote cold fresh meat to the people around you | 2 | 1 | 2 | 2 |
| Do you think that cold fresh meat will replace the traditional pork in recent 5 years? | | | | |

### 3.2 Analysis of clustering results

After clustering, the four categories of people are named and characterized. The formula of the consumption intensity is obtained by the principal component analysis method (please refer to Table 2), and the scores of factors are calculated according to the factor score calculation formula table, and the consumers are named according to the scores of the four types of factors.

**Table 2. Factor score calculation formula table**

| Consumption attitude | \( a_1 F_1 \) |
|----------------------|----------------|
| Consumption capacity | \( a_2 F_2 \) |
| Consumer preference  | \( a_3 F_3 \) |
| Consumption level    | \( a_4 + F_4 \) |

The four categories of consumers are described and the people are named according to the factor score table of each category of people. Please refer to Table 3.
Table 3. Division of people

| People division | Potential group | Main force group | Conservative group | Follow-suit group |
|-----------------|----------------|-----------------|-------------------|------------------|
| Beijing         | 4%             | 28%             | 31%               | 31%              |
| Shandong        | 13%            | 26%             | 17%               | 28%              |
| Hunan           | 22%            | 23%             | 25%               | 21%              |
| Gansu           | 60%            | 23%             | 27%               | 20%              |

3.2.1 The first category of people (potential group):

Table 4. Wilcoxon Signed Rank Test table for the potential group

| Original hypothesis | Test                                | Significance | Decision                      |
|---------------------|-------------------------------------|--------------|-------------------------------|
| The difference of the median between the understanding way and the way to try to understand is 0 | Wicoxon symbol test of relevant samples | 0.0036        | Refusal of the original hypothesis |

The potential group consists of two parts: the general potential group and the competitors. The so-called potential group refers to the people who have the intention to buy but have not become members of any similar products or organizations, as well as people who once were the population of certain organizations but when they make purchase decisions, they have more casual recognition of the brand (namely, the organization); the so-called competitor group is relative to the group of the enterprise, that is, the group owned by the competitors; this group of people can be intermediate people (such as agents, wholesalers, retailers), and they can also be the final consumers, that is to say, they are what we call the group in the general sense.

In this paper, the consumption behavior of this category of people is relatively low with relatively small income, who are aged at 30 - 50 in developing cities. They know little about cold fresh meat, but they are optimistic about it. We named this category of people the potential group, that is, this group of people do not know much about the cold fresh meat, and they seldom buy products of cold fresh meat. However, they have an optimistic attitude to the future development of it. This group of people may have not consumed the cold fresh meat due to some factors, but there is a great development room among them.

3.2.2 The second category of people (main force group):

Table 5. Wilcoxon Signed Rank Test table for the main force group

| Original hypothesis | Test                                | Significance | Decision                      |
|---------------------|-------------------------------------|--------------|-------------------------------|
| The difference of the median between the understanding way and the way to try to understand is 0 | Wicoxon symbol test of relevant samples | 0.000        | Refusal of the original hypothesis |

The consumption behavior of this category of people is the highest among the four categories of groups. They are at the age of 30 - 40, and they are usually office workers living in cities, or people who run their own businesses in cities, with greater demand and education. And they know well about the cold fresh meat, and they have an obvious preference for cold fresh meat. At the same time, this group of people are very optimistic about the future development of the cold fresh meat. We named this category of people the main force group, that is, based on their clear understanding of the cold fresh meat, a group of people who are willing to consume products of the cold fresh meat category due...
to their preference for the cold fresh meat or the attraction of the cold fresh meat to them, and who believe that the cold fresh meat will have a better development.

This category of people is very important for enterprises' achievement of their sales goals, and they account for or will account for a large proportion of sales revenue. If the cold fresh meat market loses this consumer group, the development of the market will be seriously affected, and it will be difficult for the sales performance to be recovered in a short term. At the same time, it is difficult to quickly establish other sales channels. That is to say, the cold fresh meat market has a certain dependency on this consumer group; there is a stable cooperation relationship between them, and they have a great potential for the future business of enterprises. Their developments are in line with the development goals of enterprises, and then the time is ripe, enterprises can carry out back-ward integrated strategy to form a strategic alliance relationship, and use the advantages of the main force group, which are beneficial to the growth of enterprises.

3.2.3 The third category of people (conservative group):

Table 6. Wilcoxon Signed Rank Test table for the conservative group

| Original hypothesis | Test | Significance | Decision |
|---------------------|------|--------------|----------|
| The difference of the median between the understanding way and the way to try to understand is 0 | Wilcoxon symbol test of relevant samples | 0.022 | Refusal of the original hypothesis |

The consumption behavior of this category of people is the lowest among the four categories, with medium income and lower education. They have not purchased cold fresh meat, and know little about cold fresh meat products. They have no obvious requirements and preferences for cold fresh meat, and they are not optimistic about the future development of it. We named this category of people the conservative group, namely, they are unwilling to know about new things, and they do not understand the products. And, limited by the traditional food concept, they do not think that the cold fresh meat has development room.

The consumption characteristics of this category of people are that they are unwilling to undertake any risks. They are sensitive to price and critical to products. However, they believe in the recommendation of experts and good friends. For this category of consumers, enterprises must provide mature products that are thoroughly tempered, and become recognized brands in the society. Conservative consumers refer to consumers with characteristics of pursuing reality, low price, convenience, savings, and popularity. Seeking reality: their main purpose is to pursue the use value of the commodity; seeking low price: they pay great attention to the price, and they pursue good products with low price under the circumstances the needs are basically met; seeking convenience: they aim at convenience; seek savings: this is caused by various psychologies, such as saving money for purchase, and endowment insurance; seeking popularity: in fact, this is a psychology of fear of losses.

3.2.4 The fourth category of people (follow-suit group):

Table 7. Wilcoxon Signed Rank Test table for the follow-suit group

| Original hypothesis | Test | Significance | Decision |
|---------------------|------|--------------|----------|
| The difference of the median between the understanding way and the way to try to understand is 0 | Wilcoxon symbol test of relevant samples | 0.048 | Refusal of the original hypothesis |

The consumption behavior of this category of people is the highest among the four categories of groups. However, they do not know much about the cold fresh meat, and their demand for pork is less. At the same time, they are not optimistic about the future development of the cold fresh meat. We
named this category of people the follow-suit group. In fact, this category of people do not know about the cold fresh meat and they are not optimistic about its future. Although their consumption on cold fresh meat is high, this is not out of their love to it, but may be due to its popularity on the Internet or many recommendations, and they are just following the trend.

4. Conclusion

4.1 Marketing strategy for the potential group

4.1.1 Keeping real customers
This is the most basic way to compete for potential customers, and enterprises must pay great attention to it. To keep real customers, it is a must to make them satisfied and cultivate their loyalty. The loyalty of customers not only can make them resist the temptation of the promotion of other brands and purchase again or purchase products or services of the same enterprise in large amounts, but also can make them actively recommend products or services of the enterprise to relatives and friends and people around them. Cultivating customer loyalty is the highest pursuit of an enterprise [2] or organization's customer satisfaction quality strategy.

4.1.2 Fighting for general potential customers
The number of the people in the potential group that choose the publicity means of (mobile phone tweets) is the most. Therefore, this marketing method is currently effective. Through the above-mentioned Wicoxon symbol test of relevant samples, consumers believe that there are differences and improvements shall be made. Through the above picture analysis, the combination of (mobile phone tweets and government promotion and publicity) is the most effective for the potential group [6]. In daily life, it is not difficult for us to find that most of people in the potential group of the cold fresh meat are the middle aged. Although these people do not know much about the cold fresh meat, they pay much attention to mobile phone network and new policies and regulations and so on. Therefore, the adoption of mobile phone tweets can strengthen their understanding of the information of the cold fresh meat. And the publicity of the government can make the potential consumers trust it and want to have a try. In the case that the potential group only accounted for 4% in Beijing, we can focus on the use of mobile phone tweets supplemented by the government publicity. While for Gansu where the potential group accounted for 60%, the government publicity shall be mainly carried out to achieve the goal of widespread popularization in a short time.

4.1.3 Key links
- Establishing brands, creating brands, and winning the market with quality and reputation.
- Grasping services, shaping images, and pleasing customers with sincerity and integrity.
- Strengthening communication, expanding publicity, and timely and effectively disseminating enterprise information to every customer.

4.2 Marketing strategy for the main force group
The number of the people in the main force group that choose the publicity means of (indicate cold fresh meat at the brand trademarks of pork) is the most. Therefore, this marketing method is currently effective. Through the above-mentioned Wicoxon symbol test of relevant samples, consumers believe that there are differences and improvements shall be made. Through the above picture analysis, the combination of (brand trademarks of pork and newspaper and journal publicity) is the most effective for the main force group. In daily life, the main force group of the cold fresh meat has already had enough understanding of it. Therefore, in terms of promotion and publicity, we can appropriately weaken the role of the network. Under the premise of sufficient understanding of the cold fresh meat, what we need to do is to enable them to buy the genuine cold fresh meat at ease, and marking is no doubt the best way to make them to buy with confidence. The cold fresh meat pursues nutrition and
health more. For the main force group of cold fresh meat, what they pursue is definitely a healthy and upward lifestyle. As a kind of paper media, newspapers and magazines will undoubtedly produce more positive psychological hints for these people.

4.3 Marketing strategy for the conservative group
The number of the people in the conservative group that choose the publicity means of (pork varieties and popularity of the sales person in the market) is the most. Therefore, this marketing method is effective. Through the above-mentioned Wicoxon symbol test of relevant samples, consumers believe that there are differences and improvements shall be made. Through the above picture analysis, the combination of (advertising on TV and marketing) is the most effective for the conservative group. The conservative group are mostly of the middle-aged and the aged. The age characteristics of this category of people determine their suspicious psychology of the virtual network. The popularity of the pork brand by the sales persons can not only make use of the more leisure time of this category of people who are willing to listen to you, but also can make it easier for them to accept. There is also the phenomenon that this category of people often watch lots of TV programs, and TV advertising is also an important way for them to obtain information, just like that most of the health care products for the elderly choose TV advertising.

4.4 Sales strategy for the follow-suit group
The number of the people in the follow-suit group that choose the publicity means of (mobile phone tweets) is the most. Therefore, this marketing method is effective. Through the above-mentioned Wicoxon symbol test of relevant samples, consumers believe that there are differences and improvements shall be made. Through the above picture analysis, the combination of (mobile phone tweets, marketing and government promotion and publicity) is the most effective for the follow-suit group. Although the follow-suit group do not know much about the cold fresh meat, they are the consumers of it. They just follow the footsteps of some people to consume, which indicates that they rely on Internet more. Popularization of pork varieties through mobile phone tweets, and sales persons in the market can make re-recognize the taste, nutrition, etc. of cold fresh meat under the circumstance that they have consumed it. This can be compared to a kind of "hindsight", achieving the effect of synchronization of consumers' feelings and information. For those who have not yet consumed, it is undoubtedly a driving force for their consumption, which makes them feel that buying the cold fresh meat is a trend. And the government publicity will have an effect on those follow-suit people.

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