Analysis and Modeling of Influential Factors Based on Consumer Ambivalence Attitude Theory

--Take Beijing Prepared Foods Market as an Example

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Abstract. Based on ambivalence theory, this paper proposes a model of five types of factors affecting the ambivalence of consumers of prepared foods, surveys and collects questionnaires from the Beijing population, and at the same time applies the innovative and optimized ambivalence objective measurement formula for data collection and processing, and verifies that the price sensitivity, brand emotion, consumer knowledge , long-term outcome considerations, and subjective norms have a significant negative impact on consumers' ambivalence, of which the price sensitivity has the greatest impact and the subjective norms the least. The influence of price sensitivity is the largest, and subjective norms are the smallest. The conclusion of the study provides a theoretical basis and formula optimization direction for further research on consumers' ambivalence and purchase intention, and also provides management insights for prepared vegetable enterprises.

Keywords: Prepared foods, Consumer ambivalence, Marketing strategy

1 Introduction

It is undeniable that there are many controversies in the development of the prepared foods industry in recent years, in the academic world Li Yan[1] and others discussed the existing problems of the prepared foods industry in China such as the lack of product characteristics, flavor and nutrition, etc., and Jiang Ting [2] analyzed the many challenges and opportunities faced by the prepared foods industry in the supply chain management, and the existing multifaceted factors that make some consumers do not accept or even strongly resist the prepared foods, while the In order to enhance the acceptance of prepared foods in the minds of consumers, it is necessary to consider the theoretical and logical roots behind the phenomenon, i.e., the mediating role of ambivalent consumer attitudes. Among the existing studies, Lin Jiang [3] explored the theoretical logic of the multiple effects of ambivalence on consumers' purchasing decisions, and Jia Wanqiu [4] explored the mechanism of the influence of consumer ambivalence and purchasing willingness in the field of 5G mobile terminals, and it is

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obvious that ambivalence has a significant negative effect on purchasing willingness based on the existing literature reviewed. At present, academic research on ambivalence is involved in consumer products, Internet Word of Mouth (IWOM), etc. However, there is still a lack of specific research and analysis on the factors influencing consumer ambivalence in the prepared food industry, and this study explores the model of factors influencing consumer ambivalence in the field of prepared food based on the results of the previous research to fill the gaps in the field of this research.

2 Research Hypotheses and Model Construction

2.1 Hypothesis Formulation

Price sensitivity reflects the degree of consumer sensitivity to price changes, and consumer consumption, i.e., demand, will respond to price changes [5]. In real life, consumers may choose not to buy prepared vegetables in the face of high prices because of economic pressure or budgetary constraints, while in the face of promotional context of prepared vegetable products show a certain desire to buy. Therefore, this paper hypothesizes:

H1: Price sensitivity has a significant negative effect on consumers' ambivalence.

Brand emotion reflects consumers' emotional attachment and loyalty to a brand, and brands influence consumers' purchase loyalty and attitudinal loyalty [6]. Consumers with specific preference for a prepared foods brand may be reluctant to change their perception of the brand and are more inclined to ignore other negative information and firmly purchase the brand's goods, thus reducing internal conflicts. Therefore, this paper hypothesizes:

H2: Brand emotion has a significant negative effect on consumers' ambivalence.

The level of consumer knowledge refers to the degree of consumer understanding of a product or service, and existing research has found a correlation between the level of consumer knowledge and consumers making purchase decisions independently [7]. Consumers who are well informed about prepared foods may be better able to accurately assess the value and potential risks of a product, and be able to make more informed purchasing decisions by having a more complete understanding of the product's strengths and weaknesses. They may therefore be less likely to show ambivalence in the face of possible adverse outcomes. On the contrary, consumers with a low level of knowledge about prepared foods may be more easily misled and thus ambivalent when they find problems. Therefore, this paper hypothesizes:

H3: There is a significant negative effect of consumer knowledge on consumer ambivalence.

Existing research has found that the extent to which individuals consider the future impact of current activities influences their behavior [8], and that long-term outcome considerations involve consumers' consideration of long-term consequences when making purchase decisions. Some prefabricated foods consumers are more likely to evaluate purchase decisions from a holistic and long-term perspective, thereby reducing ambivalence due to short-term interests or impulses. Consumers may be less likely to show ambivalence when making a purchase if they believe that a consumption

decision will have a negative or positive impact on the future. Therefore, this paper hypothesizes:

H4: Long-term outcome considerations have a significant negative effect on consumers' ambivalence.

Subjective norms refer to the influence from social norms, cultural values, or personal moral standards that consumers are subjected to when making purchase decisions, reflecting the consumption standards and behavioral guidelines formed by consumers in the process of social interaction. In life, consumers are more willing to meet the expectations of people around them and buy the recommended prepared foods recommended by their family and friends, on the contrary, if people around them give a bad evaluation of the prepared foods products, then people will be more and more resistant to the prepared foods. Therefore, this paper hypothesizes:

H5: Consumer's subjective norms have a significant negative effect on consumer's ambivalence.

2.2 Model Construction

Based on the above analysis, the final research model established in this paper is as follows (Figure 1):

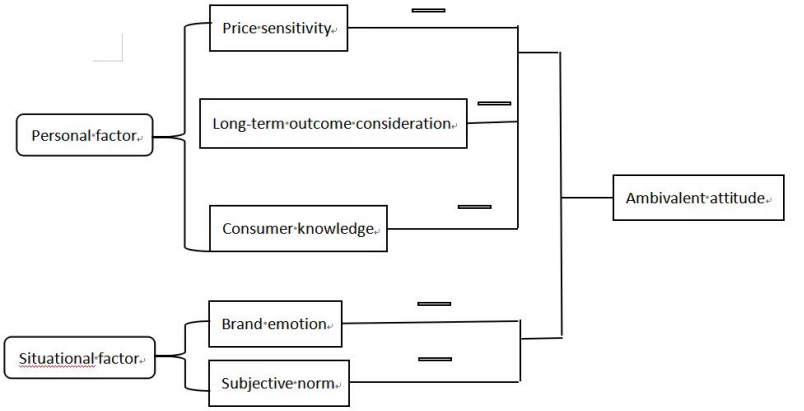

Fig. 1. Research Model

3 Data Analysis and Formula Optimization

3.1 Data Analysis

3.1.1 Reliability Analysis.

Formal survey we distributed 550 questionnaires, recovered 515 valid questionnaires, the recovery rate is about 93.6%, the scale in the questionnaire for the overall reliability test.

Table 1. Reliability statistics

Cronbach's Alpha	Cronbachs alpha based on standardized terms	item count (of a math. expression)
.977	.975	37

From Table 1, it can be seen that the value of the Cronbach Alpha reliability coefficient based on standardized items is 0.975, which is greater than 0.8, thus indicating that the quality of the reliability of the research data is high, which also indicates the scientific and reasonable design of the questionnaire structure.

3.1.2 Validity Analysis.

Table 2. KMO and Bartlett's test

The Kaiser-Meyer-olkin measure of sampling adequacy		.989
approximate chi-square (math.)		######
Bartlett's test of sphericity	df	703.000
	Sig	0.000

Validity was verified using KMO and Bartlett's test, as can be seen in Table 2: KMO value is 0.989 and KMO value is greater than 0.8.The research data is very suitable for extracting information (which side by side reflects that the validity is acceptable). And the significant value sig value is 0.000 less than 0.05, the original hypothesis is rejected and the data is considered reliable.3.1.3 Goodness of fit RMR, GFI

Table 3. Model Fit

Model	RMR	GFI	AGFI	PGFI
Default model	.027	.950	.936	.744
Saturated model	.000	1.000		
Independence model	.769	.121	.053	.112

As can be seen from Table 3, the RMR of all five predicted influences is <0.05, which means that it is a small gap between the sample covariance distance matrix and the implied covariance matrix, and the GFI and the AGFI of adding the model's degrees of freedom and estimating the parameters are all >0.9, which indicates that the model has a good fit, and therefore the model has a good degree of fit. Therefore hypotheses 1, 2, 3, 4, and 5 are valid, and the five influencing factors price sensitivity, brand emotionality, consumer knowledge level, long-term outcome considerations, and consumer subjective norms all have a significant negative effect on consumer ambivalence.

3.2 Formula Optimization

3.2.1 Rationale and Formula Innovation.

The application of ambivalent attitude theoretical model is inevitably inseparable from the measurement of ambivalent attitudes, and at present, the measurement of ambivalent attitudes proposed by domestic and foreign scholars in the existing research mainly includes subjective measurement method, objective measurement method and comprehensive measurement method.

For the research theme of consumer ambivalence under the prefabricated vegetable market, this paper selects the specific analysis focusing on the positive and negative evaluation of consumers, so the article chooses the objective analysis method for the measurement of ambivalence. Currently,more scholars agree and apply the most widely used formula is the objective measurement of ambivalence "Griffin" formula , namely:

$$A = \frac{P+N}{2} - |P-N| + C \tag{1}$$

(A represents ambivalence; P represents positive attitude; N represents negative attitude; C is a constant to ensure that ambivalence is not negative) to calculate the value of ambivalence.

In terms of results, the higher the value calculated by this formula, the higher the degree of ambivalence it represents.With reference to objective measures by Kaplan, Thompson, this paper innovatively wanted to portray the degree of ambivalence in a more intuitive and concise way, so this paper applied the five-point scoring method, and found that by setting the constant C in the formula as the sum of the product of the total number of valid samples, F, and the number of quoted question items, Q, the data were successfully calibrated[9][10]. Expressed in mathematical language it is:

$$C = F \bullet Q \tag{2}$$

$$\therefore A = \frac{(P+N)}{2} - |P-N| + F \bullet Q \tag{3}$$

Afterwards the overall data is divided by the constant C to obtain a value between [0, 1].

Expressed in mathematical language it is:

$$\begin{aligned} A &= \frac{(P+N)}{2F \bullet Q} - \frac{|P-N|}{F \bullet Q} + \frac{F \bullet Q}{F \bullet Q} \\ \therefore A &= \frac{(P+N)}{2F \bullet Q} - \frac{|P-N|}{F \bullet Q} + 1 \end{aligned} \tag{4}$$

where A stands for ambivalence; P stands for positive attitude; N stands for negative attitude; F is the total number of valid samples and Q is the number of quoted question items

The objective measurement formula of ambivalent attitude optimized in this paper is the above formula, and it is found that the obtained value is exactly negatively correlated with the ambivalent attitude, i.e. the closer to 1, the lower the ambivalent attitude, and the closer to 0, the higher the ambivalent attitude.

Next it is proved that the value of completely biased attitude is 0:

$$\begin{aligned} A &= \frac{(P+0)}{2F \bullet Q} - \frac{|P-0|}{F \bullet Q} + 1 \\ &= 1 - \frac{P}{2F \bullet Q} \end{aligned} \tag{5}$$

At the same time:

$$\begin{aligned} P &= 2F \bullet Q \\ \therefore A &= 0 \end{aligned} \tag{6}$$

Assuming at this point that the premise is a perfectly positive attitude, the premise is that P exists but N does not, proving the above formula.

$$\begin{aligned} A &= \frac{(0+N)}{2F \bullet Q} - \frac{|0-N|}{F \bullet Q} + 1 \\ &= 1 - \frac{N}{2F \bullet Q} \end{aligned} \tag{7}$$

At the same time:

$$\begin{aligned} N &= 2F \bullet Q \\ \therefore A &= 0 \end{aligned} \tag{8}$$

Assuming at this point that the premise is a completely negative attitude, the premise is that N exists but P does not, proving the above formula.

Next prove that the value of the fully ambivalent attitude is 1.

$$\begin{aligned} A &= \frac{(0+0)}{2F \bullet Q} - \frac{|0-0|}{F \bullet Q} + 1 \\ &= 1 \end{aligned} \tag{9}$$

At this point, assuming that the premise is a completely ambivalent attitude, the premise is that neither P nor N exists, proving the above formula. To summarize, the

formula includes both extremes of its two ends (i.e., complete ambivalence and complete bias) and calculates the relevant values of ambivalence in a more intuitive way of objective measurement, which has universal value.

3.2.2 Correlation Analysis.

Using the data from the three associated questionnaires as support to calculate the values of ambivalent attitudes of their directly related influencing factors, we found that the sample population's attitude bias towards unipolarization is more significant, and the ambivalent attitudes are calculated as shown in Table 4 (the following data are retained to two decimals):

Table 4. Ambivalent Attitudes Statistics

Influencing Factors	Values calculated by the optimized formula
Brand emotion	0.90
Subjective norms	0.73
Price sensitivity	0.88
Long-term outcome considerations	0.85
Consumer Knowledge	0.87

It can be observed that the values are significantly skewed towards 1. It can be concluded that these five influencing factors have an overall negative trend with ambivalence.

4 Conclusions

This paper explores the influencing factors of consumers' ambivalent attitudes and establishes a relevant research model. Through the survey and collection of questionnaires, empirical analysis was conducted, and it was found that price sensitivity, brand emotion, consumer knowledge , long-term outcome considerations, and subjective norms all have a significant negative impact on consumer ambivalence. The novelty of this study is: (1) The use of the formula in previous studies is more inclined to compare the high and low scores obtained by the formula to determine, and can not do the comparison of the degree of importance between the influencing factors, while the optimized formula in this paper is to fill this gap, which can complete the comparison of the degree of importance and intuitively feel the difference of the ambivalence of ambivalent attitudes; (2) The previous consumer ambivalent attitude towards prepared foods influencing factors of the concrete This study fills the gap in this research field by exploring the influencing factors of consumers' ambivalent attitudes in the field of prepared foods, and seeks to weaken consumers' ambivalent attitudes in order to enhance the influencing paths of consumers' purchasing intentions, which is an important reference value for the development strategies of prepared foods merchants.

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