

Analysis of Consumers' Willingness to Buy Organic Food and Its Influencing Factors Based on Logit Model: A Case Study of Shenzhen

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Abstract. In the past few years, Chinese consumers have shown a growing preference for organic food due to the rise in their salaries and better living standards. Additionally, there is an increasing concern among individuals about personal well-being and the safety of food, which has contributed to the popularity of organic products in China. In the process of buying organic food, consumers are affected by their own factors and the objective environment, which leads to a change in purchase intention. In order to explore the main factors that affect consumers' purchase intention in reality. Based on the network survey data of 329 urban consumers in Shenzhen, this paper establishes a logit model to analyze the organic food purchase intention of consumers in Shenzhen and its influencing factors. The results show that the main factors affecting consumers' organic food purchases are personal monthly income, educational level, and food safety concerns. According to the results of the empirical study, the relevant policy suggestions for improving the organic food industry were put forward.

Keywords: Organic food, consumer awareness, purchase decision, logit model.

1. Introduction

Nowadays, With the ongoing enhancement of individuals' financial status and consumption structure of Chinese residents, as well as the further understanding of ecological organic agriculture by consumers, organic agriculture and the organic food market have developed rapidly. According to the statistics of the World Organic Movement Federation, in 2012, the global sales of organic food reached 63 billion US dollars, and the production and planting area of organic food reached 30.4 million hm², and it still maintains a 20% growth rate every year [1]. Organic food, which is mainly characterized by "health and environmental protection", has developed rapidly in developed countries such as Europe and the United States, but the domestic market of organic food in China is still in the growth stage. From the existing research, there is more research on the organic food market in Western countries such as the United States and Austria [2]. In Asia, there are few researchers in this regard [3].

At present, there exists an imbalance in the market distribution of organic products, with certain regions experiencing a shortage in supply compared to the high demand observed in first-tier cities like Shenzhen, Shanghai, and Beijing. However, due to factors such as elevated production costs, challenging transportation conditions for these goods, and an unpredictable consumer base, organic products continue to maintain their expensive nature within the current Chinese market. Consequently, producers of organic items primarily focus on targeting the middle-class population residing in first-tier cities [4]. Therefore, the author takes Shenzhen, a major city in the first tier, as a research area to explore the specific factors that affect consumers' purchase of organic food. Based on China's huge consumer population and the rapid development of people's living standards, the market potential for organic products must be huge. Therefore, the study of urban consumers' willingness to buy organic food and the influencing factors can effectively guide the consumption of organic food actively, on the one hand, promote the formation of green consumption concept of urban consumers, on the other hand, help to further expand the market size of organic food and promote the healthy and scientific development of organic agriculture.

In addition, considering that the market research on organic food in China is still in a blank period, many empirical studies need to draw on international experience for theoretical analysis, and give reasonable suggestions on promoting the development of organic food in China [5]. Therefore, This paper attempts to collect a survey on consumers' purchase intention and influencing factors of organic food by means of an online questionnaire survey. Taking Shenzhen City of Guangdong Province as an example, this paper analyzes Chinese urban consumers' purchase intention and influencing factors of organic food decisions through investigation and further builds a Logit model. SPSS13.0 was used to analyze the influencing factors of urban consumers' purchase of organic food, and the decision-making process of Chinese urban consumers' purchase of organic food was studied. On this basis, the paper puts forward some suggestions to promote the development of China's organic food market.

2. Literature References

2.1. The theoretical model of organic food purchasing decision

When consumers make purchase decisions, they are typically influenced by internal factors that generate purchase desire and motivation, leading to actual purchasing behavior. These internal factors primarily encompass consumer demographic variables, such as gender, age, and educational attainment levels. From the perspective of consumer behavior, the purchasing process is relatively intricate as it necessitates information search and selective evaluation in order to maximize overall utility. As shown in Fig.1, the consumer decision process model (CDP) specifically describes the decision-making behavior of consumption. This model is mainly one of the core paths of consumers' purchasing decisions. The decision-making process of this model consists of 7 steps: demand confirmation, data collection, pre-purchase evaluation, purchase, consumption, post-use evaluation and disposal. Among them, four important steps, namely, motivation → data collection → purchase decision → post-purchase evaluation and re-purchase intention, are the core aspects of this paper [6].

In this paper, the CDP model is used to make a logical analysis of consumers' organic food consumption decision links and related influencing factors. In the demand confirmation process, consumers' concern about food safety is increasing, which leads to the change in consumers' consumption desire for organic food; In the process of data collection, the difference in consumers' cognition and judgment ability of organic food leads to the occurrence of information asymmetry; In the purchasing decision-making process, consumers' decisions mainly depend on their preferences and the price of organic food, that is, they are affected by income constraints [7].

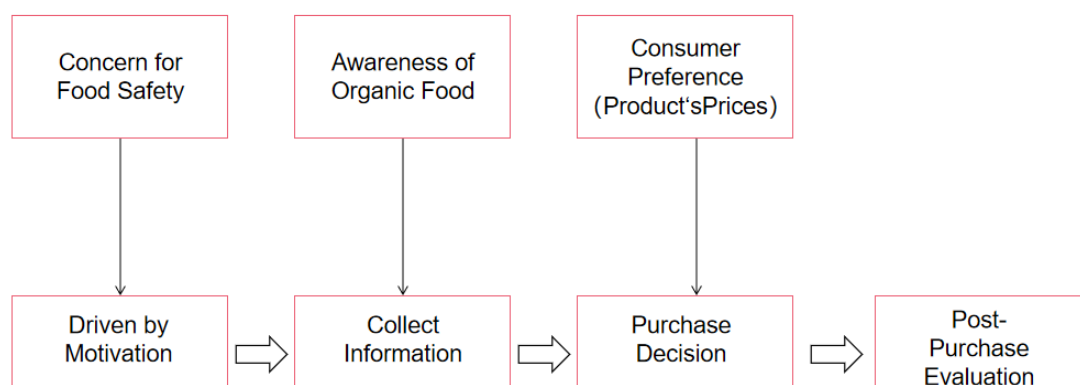


Fig. 1 Simulation of Consumer Organic Food Consumption Decision Process
(Photo credit: Original)

From the perspective of motivation, as consumers pay more and more attention to food safety, their desire to consume organic food becomes stronger and stronger, and their purchasing power and trust in organic food gradually increase [8]. Numerous research results show that with the increase in consumers' concern about food safety, their willingness to pay for green and organic agricultural products also increases [9,10].

Considering consumers' cognitive asymmetry, the primary objective of consumers' information search is to effectively address problems and make informed purchasing decisions by identifying and differentiating the inherent quality, value, and functionality of products. However, research findings indicate that domestic consumers generally possess limited knowledge about organic food compared to the international market, resulting in lower consumer demand. Enhancing consumers' awareness regarding organic food through increased provision of relevant information can contribute to boosting demand.

From the perspective of the purchasing decision, because consumers will be affected by internal factors when purchasing, that is, when the average monthly income of consumers with different education levels is significantly different, the purchasing ability of organic food will be different. For example, compared with conventional agricultural products, safe agricultural products have higher production costs, which will inevitably lead to higher prices of safe agricultural products than conventional products. Take organic agricultural products as an example, their prices are generally 2 to 6 times higher than the price of similar conventional agricultural products.

Based on the above analysis, the author believes that consumers' age, education level, consumer income, consumer's attention to food safety, consumer's cognition level, consumer's price perception of organic food, and degree of trust in organic food will all affect consumers' final decision on organic food, which is the theoretical model of this paper. But do these factors have an impact on consumers' organic food purchase decisions? In what direction and to what extent? The research of these aspects is the main research direction of this paper.

3. Logit model and analysis of influencing factors of organic food purchase decision

3.1. Basic information about the sample

There are a large number of organic food categories and items, so the author chooses organic vegetables with relatively high market coverage and recognition in China as the main research objects to improve the validity and representatives of the research data. By making and publishing online questionnaires, the author accurately located the respondents' IP addresses in Shenzhen City to conduct city-based consumer survey statistics. A total of 329 questionnaires were collected, out of which 322 were deemed valid. In terms of the respondents' gender distribution, females constituted 52.28% while males accounted for 47.72%. The proportion of males to females was nearly equal, suggesting no significant disparity between genders in terms of being the primary purchasers of vegetables in the market. In terms of age distribution, the average age of the respondents is about 36 years old, 23% are under 30 years old, 45% are 30-40 years old, and 32% are over 40 years old. In terms of education, 48.3% of the respondents have a high school education, 51.06% have a bachelor's degree, and only 0.6% have a master's degree or above. In terms of the monthly personal income of the respondents, 77.81 percent had a monthly income of less than 5,000 yuan, 17.02 percent had a monthly income of 5,000 to 10,000 yuan, and 5.17 percent had a monthly income of more than 10,000 yuan, among which none had a monthly income of more than 20,000 yuan.

3.2. The Logit model of organic food purchase decision

Drawing from the theoretical framework, this paper assumes that the demographic variables of whether consumers purchase organic food or not include Gender, Age, Education level, the average monthly Income of the consumer and the consumer's knowledge level of the product. Whether consumers pay attention to Food Safety Demand (SD), consumers' Perceived Value of organic food (Perceived Value, PV is related to psychological attributes and characteristics such as consumers' Confidence in organic food, where whether consumers are concerned about food safety is a dummy variable. In this paper, consumers' purchase intention to buy organic food (very reluctant to buy =1 ~ very willing to buy =5) is taken as the dependent variable, and its Logit model is as follows:

$$Z = \beta_0 + \beta_1 \text{Gender} + \beta_2 \text{Age} + \beta_3 \text{Education} + \beta_4 \text{Income} + \beta_5 \text{Knowledge} + \beta_6 \text{PV} + \beta_7 \text{Confidence} + \beta_8 \text{FSD} + \mu_i \quad (1)$$

Table 1 gives definitions of the relevant variables. According to the mean value of relevant variables of the respondents, the mean cognitive level of organic vegetables is 3.76, indicating that the respondents have a high cognitive level of organic vegetables on the whole; In the questionnaire, the question "If the average market price of common vegetables is divided into 5 levels, from low to high, what level do you think the price of organic vegetables is? To directly obtain the respondents' perceived price level of organic food. According to the average perceived value of 3.66, consumers' perceived value of organic food is generally higher than the price of ordinary vegetables 0.66. This statistic is of great significance for suppliers of organic vegetables in price decision-making, indicating that there is the price of organic vegetables is less than 1 times higher than the price of ordinary vegetables, only within the range of the perceived value of most consumers, otherwise too high pricing will appear the phenomenon of price without market. The average value of the attitude toward the degree of trust in organic vegetables is 3.76, slightly higher than the median value, indicating that overall, the market holds a weak positive evaluation of organic food. 78% of the respondents had bought organic food, and 22% had never bought organic food.

Table 1. Definitions and mean values of variables in the model

Notation for argument variables	Argument name	Value Range	Definition	Mean
Gender	Gender	1-2	Male =1, female =2	1.53
Age	Age	18-60	Age data filled in directly by the respondent	35.92
Education	Level of education	1-5	High school =1, undergraduate =2, graduate =4, PhD and above =5	1.51
Income	Personal monthly income	1-5	Less than 5,000 yuan = 15,000-10,000 yuan =2, 10,000-20,000 yuan =4, 20,000 yuan and above =5	1.27
Purchase	Organic food purchases	1-2	Purchased organic =1, not purchased organic =2	1.22
Knowledge	Level of knowledge about organic foods	1-5	Very Unfamiliar (1) - Very Familiar (5)	3.76
PV	Perceived value of organic food	1-5	Through comprehensive calculation of respondents' evaluation of organic food price attributes, the price is very low (1) -- the price is very high (5)	3.66
Intention	Willingness to buy organic food	1-5	By comprehensively calculating the attributes of the respondents' willingness to buy organic food, we can get: very unwilling to buy (1) - very willing to buy (5)	3.71
Confidence	Level of trust in organic foods	1-5	Level of trust in the safety of direct choice of organic food by respondents, low food safety (1) - High food safety (5)	3.61
FSD	Concern for food safety	1-2	Concerned about food safety =1, not concerned about food safety =2	1.19

3.3. Correlation analysis of variables

The author conducted Spear-man correlation analysis on the relationship between independent variables and dependent variables involved in the model, and according to relevant theories and experience, the correlation direction between independent variables and organic food purchase could be known in advance. Bivariate correlation analysis was adopted and spss19.0 software was used to run the analysis. The results are shown in Table 2. Consumer cognition level, price perception, food safety trust level and purchase intention were significantly correlated at 0.05 level; However, gender,

age and education level had no significant relationship with whether to buy or not, so they were set as the control variables in the questionnaire survey when the model was running.

Table 2. Correlation coefficients among variables of the model tested by Spear-man

	Sex	Age	Education level	Personal monthly income	Purchase experience	Cognitive level	Price perception	Level of trust	Concern for food safety	Willingness to buy
Gender	1	0.092	0.082	0.037	0.041	0.072	0.037	0.043	0.114*	0.048
Age		1	0.080	0.006	0.064	0.064	0.054	0.092	0.064	0.066
Educational level			1	0.075	0.024	0.088	0.051	0.113*	0.004	0.065
Personal monthly income				1	0.126	0.018	0.055	0.019	0.026	0.088
Buying experience					*	1	0.037	0.095	0.004	0.020
Cognitive level						1	0.582**	0.574**	0.022	0.649**
Price sense							1	0.476**	0.022	0.514**
Level of trust								1	0.005	0.475**
Food safety concerns									1	0.021
Willingness to buy										1

Note :** indicates that the correlation is significant when the confidence (double measure) is 0.01; * means that the correlation is significant when the Note :** indicates that the correlation is significant when the confidence (double measure) is 0.01; * means that the correlation is significant when the confidence (double measure) is 0.05.

3.4. Analysis of operation results

DSPSS19.0 statistical software is also used to calculate the model. From the running results, the variance expansion factor VIF of the independent variables in the model is greater than 1 and less than 5, which indicates that there is a moderate correlation between the variables, but there is no multi-correlation.

Table 3 shows the multiple Logistic regression results of various factors influencing whether the respondents in 322 cities buy organic food. According to the B value of each variable, in the model, purchasing experience, extremely low commodity price, food safety concern and college education all have positive effects on organic food purchase intention, but the degree of significance is different. At 0.01 level, the only significant variable is consumer cognition, while at 0.05 level, the average monthly personal income of 10,000 yuan is significant, and the cognition is very low, and very low cognition, while the consumer trust coefficient lacks significance. Combined with the actual situation of China's organic food market, organic food is in the late growth stage of the product life cycle. Although most consumers have the experience of buying organic food, they have not formed a strong consumption preference, the repeat purchase rate is low, and the willingness to buy again is not strong enough. Consumer trust is the main factor affecting consumer loyalty, which plays an important role in cultivating consumer preference. Therefore, this paper holds that internal factors such as consumer education level, family income level, cognition level and food safety concerns have a positive impact on Chinese consumers' organic food purchase decisions. However, according to the analysis results, female consumers have stronger consumption intentions than male consumers, and regardless of the

gender of consumers, the average monthly personal income of less than 10,000 yuan has a negative correlation with purchase intention. Secondly, it can be seen from the data that only organic food at a very low price can stimulate consumer consumption, and the cognition of organic food can not effectively strengthen consumer willingness but can weaken the motivation of unwillingness to buy. Most consumers have a high degree of trust in the safety of organic food. At the same time, the more consumers with higher education pay attention to food safety, the stronger the willingness to buy organic food.

Table 3. Results of multiple analysis of factors influencing

Name of variable	B	Standard error	Standard coefficient	t	Sig.	Tolerances	VIF
Constant	4.353	0.283		15.368	0.000		
Gender (male)	0.062	0.092	0.026	0.673	0.502	0.943	1.061
Monthly income five thousand	0.141	0.214	0.050	0.661	0.509	0.253	3.953
Monthly income of 10,000	0.487	0.235	0.156	2.074	0.039	0.255	3.914
Buying experience	0.058	0.111	0.021	0.523	0.601	0.936	1.068
Very low cognition	2.288	0.267	0.533	8.578	0.000	0.377	2.651
Lower cognition	2.241	0.232	0.625	9.666	0.000	0.348	2.873
Cognitively ordinary	0.168	0.163	0.043	1.030	0.304	0.837	1.194
Higher cognition	0.066	0.108	0.027	0.615	0.539	0.742	1.347
Very low price	0.148	0.281	0.029	0.526	0.599	0.479	2.086
Cheaper price	0.228	0.271	0.049	0.844	0.399	0.428	2.338
Price normal	0.121	0.125	0.048	0.972	0.332	0.587	1.704
Higher price	0.111	0.122	0.042	0.914	0.361	0.684	1.462
Security trust is very low	0.178	0.243	0.036	0.730	0.466	0.607	1.648
Low security trust	0.083	0.256	0.015	0.326	0.745	0.646	1.549
Higher security trust	0.016	0.126	0.006	0.127	0.899	0.669	1.494
The level of security trust is very high	0.123	0.122	0.046	1.007	0.315	0.694	1.442
Focus on food safety	0.059	0.117	0.020	0.508	0.612	0.960	1.042
Education (University)	0.014	0.092	0.006	0.157	0.876	0.949	1.054

4. Conclusion

In this paper, CDP model is used to explore the psychological decision-making path of consumers to buy organic food. The questionnaire is designed from three steps: motivation, data collection and decision purchase, and the results are analyzed by logit regression model. Finally, the following conclusions are drawn: food safety concerns, price of organic food, and educational background have a significant impact on consumers' decision-making, and thus affect consumers' purchase intention. At the same time, the author found that consumers with a monthly household income of more than 10,000 yuan and more awareness of organic food have a significant difference in their intention to buy again compared with consumers with a low per capita monthly income and low awareness. In addition, the author also found that the cognition level did not have a significant positive impact on consumers' consumption stimulus, but the price of organic food greatly stimulated consumers' purchase intention, especially when the price of organic food was lower than that of common agricultural products. The results of this analysis show that in order to further promote the development of the organic food industry, firstly, such enterprises should strengthen the information exchange and product publicity of organic food. Employing diverse methodologies enhances public comprehension of the organic food industry encompassing production, processing, distribution, and sales processes to engender consumers' inquisitiveness for exploration. The primary target audience for organic food comprises individuals with elevated levels of education, income, and awareness; thus, it is imperative to categorize products based on their quality and processing methods to facilitate customized marketing strategies that cater to distinct consumer segments. Establish a robust system

for supervising food safety by augmenting oversight from pertinent government agencies and implementing authoritative certification protocols for high-quality organic produce.

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