RESEARCH ON THE INFLUENCING FACTORS OF CONSUMERS' INTENTION TO PURCHASE GREEN ORGANIC MEAT: A CASE STUDY OF URBAN RESIDENTS IN SHANGHAI

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Received July 10, 2022; **Revised** November 2, 2022; **Accepted** December 25, 2022

Abstract

Green organic food is famous for its rich nutrition. Notably, it can also protect the social environment and promote the harmonious development of man and nature. In addition to social and economic development, the consumption of green organic meat is closely related to the quality of people's lives. This paper uses literature research, questionnaire survey, statistical analysis and other research methods to investigate the consumption of green muscle food in Shanghai residents. Based on the statistical analysis of 4228 valid questionnaires, it is found that consumers' subjective norms, moral concepts, environmental concerns, and health awareness have a significant positive impact on consumers' willingness to purchase green meat. The research results show that some measures can effectively promote the marketing of green organic meat products in Shanghai, such as increasing the publicity of green products in terms of environmental protection and health, establishing a good social awareness, and improving consumer satisfaction.

Keywords: Purchase Intention; Subjective Norm; Environmental Concern; Health Awareness; Green Organic Meat.

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Introduction

1. Research on the purchase intention of green organic food

Since the 1980s, people have gradually attached importance to the relationship between diet, nutrition and health (WHO, 2004). Social development and improvement of living standards strengthen people's awareness of ecological environment protection, which also increase the public's concern and demand for efficient and sustainable production of organic green food (El-Hage Scialabba, 2007). Chinese scholars began to study green food in the 1990s, mainly focusing on three aspects: the definition of green agriculture, the development stage of green agriculture and the development measures of green agriculture. Based on the quantitative analysis of the sales volume, output and number of enterprises of green agricultural products, Jin and Zhao (2008) used the Logistic curve equation to obtain that China's green organic food is in a period of rapid growth. According the theory of industry lifecycle, Han (2010) calculated the change direction and speed of the number of green food certification enterprises by using the difference method. It was found that China's green organic food industry is in the middle and later stage of growth, which is transitioning to maturity. Song (2011) took the sales volume of China's green food as a variable and concluded that China's green organic food industry was in a period of rapid growth through the fitting of Logsti curve and Gonbertz curve. Yang (2017) and Wang et al. (2018) both pointed out that China should strengthen the green development concept and actively cultivate the concept of green consumption. Meng (2019) believed that China ought to make full use of science and technology in the field of green organic food to improve the efficiency and quality of green production.

2. Research on green organic meat

Fishbein (1975) and Ajzen (2002) pointed out that behavioral intention directly affects purchasing behavior. From the perspective of global food consumption trend, green organic meat consumption shows an increasing tendency year by year. According to the study of Danish scholar Torben, the motivation of consumers includes three aspects: health, environmental protection and social benefits.

Rousseau et al. (2013) combined perspectives from various fields and finally concluded that consumer trust is a positive psychological expectation for merchants. There are many factors affecting the consumption behavior of green organic meat, including the quality, price, packaging and other product factors, among which the price has a significant negative impact on the consumption behavior (Zhao, 2016; Hwang, 2016). In addition, consumers' own characteristics will also affect their buying behavior of green organic food, such as gender, age, stable income, family background, cultural and educational level, occupational and social status, food safety awareness, health awareness and environmental awareness, safety risk perception, cognition degree of green muscle food and trust degree, etc. According to the survey by Birgit Roitner-Schobesberger, the increasing concern about food safety is the main reason for the consumption of green and organic food. Meantime, Manuela Vega-Zamora's (2019) research showed that lack of trust is considered to be the most important barrier to green organic food consumption. In China, green food was widely promoted, resulting in a lack of consumer awareness of green organic food, which has a positive impact on the consumption of green organic food (Chen and Yang, 2018).

3. Research on consumers' purchase intention of green organic meat

Western scholars began to study green organic meat in the middle of the 20th century. The factors that affect consumption intention are composed of internal factors and external factors. Among them, internal factors include product quality, price, packaging and other product factors, 16; Hwang), external factors include purchasing experience, purchasing convenience, reference group and other consumer behavior factors (Tobler, 2011; Agata M., 2014; Norazah, 2015; Ronnie, 2015). Among them, internal factors include product quality, price, packaging and other product factors, 16; Hwang), while external factors cover the purchasing experience, purchasing convenience, reference group and other consumer behavior

factors (Tobler, 2011; Agata M., 2014; Norazah, 2015; Ronnie, 2015). The survey shows that education status can significantly influence their organic food purchases, which can distinguish potential organic supporters with high consumption motivation from those with low demand. In addition, it was also found that the groups most inclined to buy green organic food are mothers, young people, highly educated people and wealthy people. Notably, consumers tend to have a high willingness to pay for green organic meat, which is directly related to the ongoing food safety incidents and the health and safety attributes of green organic meat. For instance, Jin et al (2019) discovered that the enhancement of consumers' awareness of safety and ecological environmental protection promoted the enhancement of consumers' willingness to consume green organic food. By constructing a binary Logistic selection model, Wang and Dai (2017) carried out detailed research on online consumption, finding that consumers' age, income level, education level, and health awareness all have a positive impact on online shopping for fresh products. Moreover, Wang et al. (2020) believed that under the COVID-19 pandemic, fresh e-commerce stimulated the online consumption of green and organic food to a certain extent, which fully reflected the industrial characteristics and social value.

Literature Review

Research Hypothesis

1. The subjective norm and intention to purchase green organic meat

Many scholars have pointed out that subjective norms can affect consumers' attitudes (Chang and Chang, 2017; Smith and Paladino, 2010；Tan et al., 2019). Wang et al (2015) found that people pay more attention to the current hot issues, such as green environmental protection, food safety, health, etc., and such awareness is closely related to people's educational level, which has a direct impact on consumption. Studies have shown that socially disadvantaged groups are more inclined to maintain social stability and pay more attention to collective interests, while highly subjective groups pay more attention to individual interests and are less willing to cooperate than disadvantaged groups (Liu and Hao Fang, 2015), which leads to the difference in consumption intention. In addition, there were some studies shown that the more positive the subjective norm, the stronger the consumption happiness (Pandey et al., 2019). For example, the upper classes have a strong sense of pride, so they have more motivation and higher intention to reach out to new consumption, including green organic meat. Based on this, this paper puts forward hypothesis 1.

Hypothesis 1: Subjective norms have a positive effect on consumers' intention to purchase green organic meat.

2. The moral idea and intention to purchase green organic meat

Studies have pointed out that there is no fundamental correlation between consumption intention and purchase behavior. However, when marketing experts design or adjust marketing strategies for products, many decision makers still believe that it is essential to predict consumer attitude tendency (Schwartz, 1998). Many previous studies usually choose consumption moral obligation or guilt as variables (Schwartz, 1998), which ignores the effect of expected positive emotions (Manstead, 2000). From the experience in recent years, consumers usually do not regard buying organic food as a moral requirement, so they will not feel guilty for choosing traditional food. According to Thøgersen and Noblet (2012), adding moral variables to the influencing factors of green organic food can improve the prediction accuracy of the model that only covers the factors of attitude and subjective norm. Others believe that the influence of morality on consumption is related to the maturity of a country's market (Katrin et al., 2010). Specifically, consumers are more familiar with the consumption of green organic food than those in countries with less mature markets. For example, in Denmark where the market is relatively mature, green organic food is highly recognized.

Conner, and Armitage (1998) found that the moral idea can improve the prediction of consumption intention, because moral ideas are closely related to attitudes, subjective norms and behavioral beliefs (Nuttavuthisit et al., 2017). On this basis, the following hypothesis is raised.

Hypothesis 2: The moral idea has a positive effect on consumers' intention to purchase green organic meat.

3. The environmental concern and intention to purchase green organic meat

Researchers considered the environmental concern as a strong incentive to consume (Pagiaslis and Krontalis, 2014). Bryła (2016) discovered that the price of green organic food, the health and environmental concern of consumers are the important factors that affect whether Polish consumers buy green organic food or not. Generally, people hold different attitudes towards the environment, and then show different consumption behaviors. Consumers who care about the environment often have a positive attitude and are willing to pay more for the cost of green and organic food for environmental protection, which is also a manifestation of the consumption behavior of respecting and protecting the environment (Vietoris et al., 2016). Behavioral theorists (Oreg and Katz-Gerro, 2006) believed that environmental concern and other variables can jointly act on people's environmental behavior and ultimately affect environmentally friendly consumption behavior. As in the Value-Belief-Norm Theory, Stern (2000) regarded the new ecological paradigm as an important mediator variable in eliciting various environmentally friendly behaviors. In empirical studies, environmental issues have also been verified as a driving factor for the purchase of green organic food (Hughner et al., 2007). For instance, environmental concerns in Australia, Taiwan, India, Japan and Europe have been found to have a positive impact on attitudes towards buying green and organic food (Smith and Paladino, 2010). Based on the above, the hypothesis of the paper is as follows.

Hypothesis 3: The environmental concern has a positive effect on consumers' intention to purchase green organic meat.

4. The health awareness and intention to purchase green organic meat

Green organic meat is considered healthier than non-green organic meat (Lea, Worsley, 2003). Nuttavuthisit et al (2017) proved that there is an important correlation between health awareness and the purchase intention of green organic food. Mohamed et al. (2012) discussed the attitude of Cairo consumers towards organic food and their willingness to pay premium, finding that the healthy lifestyle is the main driving force for consumers to buy green organic food. In order to maintain their own health, consumers usually prefer healthier and safer food, thus consumers' strong concern for their own health will change their consumption attitude towards organic food. In fact, current scholars mostly regard the health awareness as the main motivation to buy green organic food (Lockie et al., 2002). For instance, Magnusson et al. (2000) proved that health consciousness can significantly affect consumers' attitude towards green organic food, purchase intention and purchase behavior. Bryła (2016) and Michaelidou and Hassan (2010) also reached the similar conclusion. In other words, the more health cognition knowledge and experience consumers have, the more positive attitude they have towards the purchase intention of green organic food (Paul and Rana, 2012). Accordingly, the Hypothesis 4 is proposed.

Hypothesis 4: The health awareness has a positive effect on consumers' intention to purchase green organic meat.

5. The concern for meat safety and intention to purchase green organic meat

Organic food produces chemical-free products in an ecologically balanced and natural way with an emphasis on sustainable farming. Therefore, buying green organic food is the only safe and proper way to avoid exposure to harmful residues of food pesticides and fertilizers. Haninger and Hammitt (2011) found that green and organic agricultural products in European countries brought less risk to consumers than traditional food. In the relevant studies on the purchase of fresh and high-priced green organic meat products, McEachern and Schroder (2004) pointed out that consumers' evaluation of meat safety plays a certain role in

aspects such as consumption intention, corporate social responsibility and purchasing behavior. Actually, many research indicated that food safety concerns are the main motivation for consumers to buy green organic food (Schifferstein and Zwartkruis-Pelgrim, 2008). However, the relationship between the attitude towards green organic food and the purchase intention remains to be verified theoretically. Food safety may be an important predictor of attitudes and purchase intentions toward green organic products. According to Michaelidou and Hassan (2008), food safety is one of the most relevant factors to explain consumers' attitude towards green organic food. Therefore, this paper assumes the following hypothesis.

Hypothesis 5: The concern for meat safety has a positive effect on consumers' intention to purchase green organic meat.

The overall research structure model is shown in Figure 1 below.

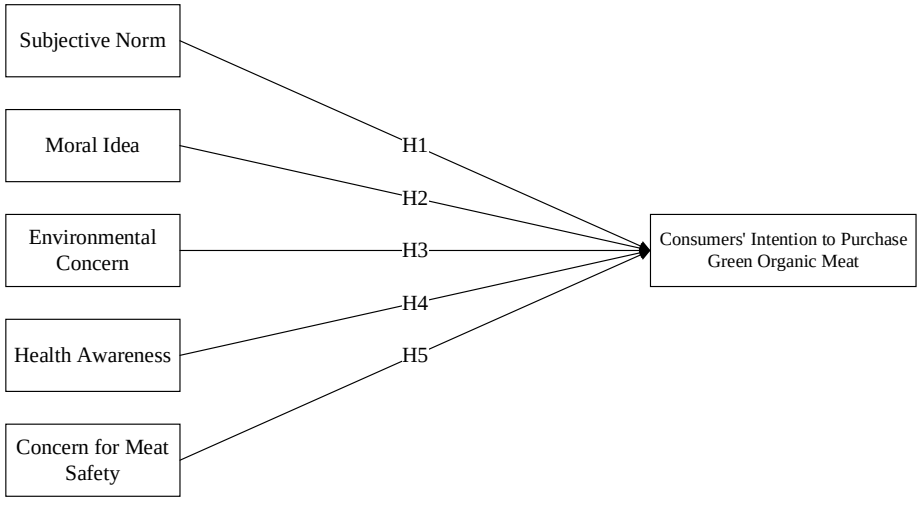

Fig. 1 Research structure model

Research Methods

Questionnaire design

The paper designs a questionnaire about the consumption of green organic meat. The first part of the questionnaire is about the perception of life health, living environment and food safety. Specifically, the health consciousness includes the sustainability of health concern and the degree of cognition of healthy food. The ling environment includes the awareness of environmental ecological balance, the concern of coordinated development between human and environment, environmental disasters caused by human factors, environmental abuse, etc. Food safety concerns include a series of variables, such as pesticide and fertilizer residues, the use of additives and preservatives, and the safety of green organic meat products; The second part is about the cognition of green organic meat, including the measurement of subjective norms, moral concepts and purchase intention of green organic meat; The third part is to investigate the basic family information of green organic meat consumers, including gender, age, occupation, education level, family income, children, family population, marital status, etc. The research adopts the method of Likert scale analysis, which can quantify the respondents' answers to relevant questions.

Data acquisition

With the assistance of the price survey institution of Shanghai Bureau of Statistics, the survey is effectively implemented and the relevant research data are obtained. The study covers 16 districts in Shanghai. As Shanghai was in the stage of epidemic prevention and control during the investigation, we decided to distribute the questionnaires online. It is expected that 400 questionnaires will be distributed to Pudong New Area with a population of more than 3 million, 300 to each area with a population of 600 thousand to 1 million, and 200 to each area with a population of 500 thousand to 600 thousand. Thus, we distributed a total of 4,500 questionnaires to Shanghai citizens through Questionnaire Star. Finally, a total of 4228 effective questionnaires were actually recovered after eliminating invalid questionnaires. The effective rate of the questionnaire is greater than 70%.

Table 1 Descriptive statistics of samples

Variable	Type	Amount	Proportion
Gender	Male	1430	32.3
	Female	2798	67.7
Age	22-39	1970	33.2
	40-59	1404	46.6
	Over 60	854	20.2
Income	Below 9000	2977	70.4
	Over 9000	1251	29.6
Children	With children	1937	45.8
	No children	2291	54.2
Education	Without higher education	1485	35.1
	Junior College and Undergraduate	1814	42.9
	Above Bachelor degree	929	12.0

Reliability and validity analysis

Reliability refers to the consistency of the results obtained when the same indicator or measurement tool is used to repeatedly measure the same thing. We use SPSS24.0 software to analyze the internal reliability of the scale. Cronbach's α coefficient is a commonly used index to evaluate the intrinsic reliability. When its value is higher than the critical level of 0.7, it indicates good reliability. When it is between 0.6 and 0.7, subsequent analysis can be performed. It can be seen from Table 2 that the Cronbach's α of green organic meat consumption attitude and moral concept are 0.936 and 0.911 respectively, both of which are above 0.9, indicating a relatively better reliability of relevant variables. The indicator of subjective criterion and purchase intention ware 0.883 and 0.872, respectively, indicating good reliability of variables. The Cronbach's α of environmental concern and meat safety concern are 0.726 and 0.717, respectively, manifesting that the reliability of variables is acceptable. Although the indicator of health awareness is 0.669, it is still between 0.6 and 0.7, which can support for subsequent analysis. The Cronbach's α coefficient of the questionnaire is 0.912, which is over 0.9. Therefore, the overall credibility is good.

Table 2 Results of reliability test

Variable	Cronbach’s α
Subjective norm	0.883
Moral idea	0.911
Environmental concern	0.726
Health awareness	0.669
Concern for meat safety	0.717
Intention to purchase green organic meat	0.872
Overall	0.912

Data source: Collated in this study

Validity refers to the consistency between the actual measured result and the checked content. In this paper, the contract validity of the green organic meat questionnaire was measured by KMO and Bartlett spherical test. According to Table 3, all tests are significant at the 1% level. As for the KMO value, the statistical value of all variables is greater than 0.5, among which the maximum value of moral idea is 0.729, and the overall variable is 0.902. As for the KMO value, the statistical values of all variables are greater than 0.5, among which the environmental concern is the largest with 0.736, the moral idea is 0.729, followed by the concern for meat safety with 0.675. In terms of factor load, Except for the concern for meat safety factor loading between 0.6 and 0.7, all subdivision factors of other variables are greater than 0.7. Among them, the factor loads of subjective norms and moral concepts are all greater than 0.9. Overall, the KMO value is 0.902 and significant at 1% level, indicating that the structural validity of this questionnaire is good.

Table 3 Results of validity test

Variable	Factor	Factor load	KMO	Bartlett's spherical test		
				Approximate chi square	Degree of freedom	Signi ficance
Subjective norm	S1	0.947	0.500	944.567	1	.000
	S2	0.947				
Moral idea	M1	0.901	0.729	2041.401	1	.000
	M2	0.947				
	M3	0.916				
Environmental concern	E1	0.662	0.736	799.154	6	.000
	E2	0.799				
	E3	0.708				
	E4	0.804				
Health awareness	H1	0.867	0.500	276.964	1	.000
	H2	0.867				
Concern for meat safety	FC1	0.604	0.675	552.738	3	.000
	FC2	0.675				
	FC3	0.637				
Intention to purchase green organic meat	I1	0.941	0.500	855.475	1	.000
	I2	0.941				
Overall			0.902	14382.544	253	.000

Data source: Collated in this study

Empirical Results and Analysis

Confirmatory factor analysis

The above statistical results show that the KMO and Bartlett sphericity test results are acceptable, so we further carry out confirmatory factor analysis through the software of AMOS 24.0. The composite reliability (CR) and average variance extracted (AVE) of the model are tested, wherein the combined reliability refers to the reliability of a new variable composed of the sum of several variables, and the set validity (AVE) refers to the similarity of the measured results when different measurement methods measure the same feature.

Generally, it is necessary for the confirmatory factor load to be greater than 0.6. Also, the composite reliability (CR) value should be higher than the acceptable limit of 0.6 (Bagozzi, Yi, 1988), and the average variance extracted (AVE) value should be higher than the critical value of 0.5 (Hair et al., 2011). According to Table 4, the standardized factor loads of subjective norms, moral ideas, health awareness and organic food purchase intention are all greater than 0.6, the relevant values of combination reliability are higher than 0.6, and the average variance extracted values are higher than 0.5, which is in line with the standards. However, the standardized factor load of environmental concern is less than 0.6, and the

aggregate validity is 0.435, which does not meet the standard. Moreover, the average variance extracted (AVE) value of concern for meat safety is less than 0.5, which did not meet the standard either. More specifically, the standardized factor loads for items E1 and E3 related to the variable of the environmental concern are below 0.6, so we remove them. Although the factor load of FC1 among the variables concerned with meat food safety is greater than 0.6, it has a large gap with other factor loadings. Additionally, since its factor load is only 0.607, which is far less than others, it is also deleted.

Table 4 Results of confirmatory factor analysis

Variable	Factor	Standardized factor load	SMC	CR	AVE
Subjective norm	S1	0.910	0.828	0.884	0.793
	S2	0.870	0.757		
Moral idea	M1	0.829	0.687	0.913	0.778
	M2	0.955	0.912		
	M3	0.858	0.736		
Environmental concern	E1	0.587	0.345	0.753	0.435
	E2	0.720	0.518		
	E3	0.587	0.345		
	E4	0.729	0.531		
Health awareness	H1	0.734	0.539	0.669	0.503
	H2	0.683	0.466		
Concern for meat safety	FC1	0.607	0.368	0.718	0.491
	FC2	0.744	0.554		
	FC3	0.679	0.461		
Purchase intention	I1	0.872	0.760	0.870	0.769
	I2	0.882	0.778		

Data source: Collated in this study

After deleting items E1 and E3 and FC1, the results of model confirmatory factor analysis are shown in Table 5. It is not difficult to find that the composite reliability (CR) values of all variables in the model are greater than 0.6, and the average variance extracted (AVE) value is greater than 0.5 except for the concern for meat food safety. In terms of environmental concern, the value of CR is 0.701 and the average variance extracted value is 0.501. It is worth noting that the average variance extracted value of meat food safety is 0.491, which is not fully satisfied, but still applicable to subsequent analysis.

Table 5 Results of confirmatory factor analysis

Variable	Factor	Standardized factor load	SMC	CR	AVE
Subjective norm	S1	0.909	0.826	0.884	0 .792
	S2	0.870	0.757		
Moral idea	M1	0.829	0.687	0.913	0.779
	M2	0.955	0.912		
	M3	0.859	0.738		
Environmental concern	E2	0.719	0.517	0.701	0.501
	E4	0.750	0.531		
Health awareness	H1	0.734	0.539	0.669	0.503
	H2	0.683	0.466		
Concern for meat safety	FC1	0.607	0.368	0.658	0.491
	FC2	0.744	0.554		
	FC3	0.679	0.461		
Purchase intention	I1	0.872	0.760	0.870	0.769
	I2	0.882	0.778		

Model fit analysis

Based on the model frame diagram of the consumption intention of green organic meat in Figure 1, we adopt the software AMOS24.0 to test the fit of the model, as shown in Table 6. The chi-square value of the overall fit of the model is 324.565, and the degree of freedom (DF) is 99. The absolute fitness statistic CMIN/DF is 3.271. Although this index does not fall within the standard interval 1 to 3, it does not exceed 5, so no correction is required. RMSEA value is 0.048, which is less than the critical value of 0.08. RMR value is 0.028, which is less than the critical value of 0.05. GFI value is 0.961 and AGFI value is 0.939, which are all greater than the critical value of 0.9. In summary, the above indicators all meet the adaptive indicators. Among the value-added fitness statistics, NFI is 0.968, TLI is 0.973, CFI is 0.978, RFI is 0.958, IFI is 0.979, and their values are all greater than 0.90, which conforms to the model fitting index. The values of PNFI and PGFI are 0.706 and 0.624, respectively, which are both larger than the fitting standard 0.5 and meet the standard. Therefore, all the indicators of this model are in line with the standard.

Table 6 The results of the overall fit of the model

Fitness statistics	Fit index	Fit standard	Value
Absolute fit statistics	$\chi 2$	——	324.565
	CMIN/DF	1~5	3.271
	RMSEA	<0.08	0.048
	RMR	<0.05	0.028
	GFI	>0.90	0.961
	AGFI	>0.90	0.939
Value-added fitness statistics	NFI	>0.90	0.968
	TLI	>0.90	0.973
	CFI	>0.90	0.978
	RFI	>0.90	0.957
	IFI	>0.90	0.979
Contracted adaptation statistics	PNFI	>0.50	0.706
	PGFI	>0.50	0.624

Data source: Collated in this study

Hypothesis testing

Further, we use the software AMOS24.0 to verify five research hypotheses in this paper. The results are shown in Table 7.

Table 7 The results of the model path coefficient

Path	Unstandardized coefficients	Standardized error	Critical ratio	Significance	Standardizedcoefficient
Subjective norm --Purchase intention	0.233	0.044	5.321	***	0.257
Moral idea-- Purchase intention	0.118	0.029	4.236	***	0.139
Environmental concern-- Purchase intention	0.626	0.151	4.157	***	0.601
Health awareness-- Purchase intention	0.012	0.249	4.265	**	0.010
Concern for meat safety-- Purchase intention	0.080	0.068	1.164	0.243	0.064

Note: *** means significant at 1% level

According to the data, the first four groups of path tests are all significant at the 1% level. The standardized path coefficients of subjective norm, moral idea, environmental concern and health awareness on purchase intention are 0.233, 0.118, 0.626 and 0.012,

respectively, which provide strong evidence for the first four hypotheses presented in this paper. However, the standardized path coefficient from meat safety concerns to organic food purchase intention is 0.064, with the significance level of 0.243, which fails to pass the hypothesis test. Thus, it can be believed that there is no significant relationship between meat food safety and intention to purchase green organic food among consumers in Shanghai.

Conclusions

According to the above empirical results, subjective norms, moral ideas, environmental concerns and health awareness are important factors to improve consumers' purchase intention of organic meat, while consumers' concerns for meat safety does not play a significant role. Among them, environmental concern has the greatest influence, followed by subjective norms. Compared with moral idea, the influence of health awareness on consumers' intention to purchase organic meat decreased in both the influence coefficient and significance level. First, it can be believed that environmental concern is the key factor to determine the consumption of organic food. With the concept of environmental protection and low carbon deeply rooted in people's hearts, green consumption has penetrated into every aspect of people's life. Second, subjective norms, which are highly related to consumer attitudes, will affect consumers' consumption habits and willingness to a certain extent. It is a feasible measure to strengthen the subjective norms of consumers by improving social cognition and culture, thus enlarging the promotion of organic food. Third, the expected positive moral will motivate consumers to purchase specific products and thus achieve emotional satisfaction. In the environment where the whole society advocates organic food, the moral concept will become a potential driving force to expand the sales of organic products. Fourth, consumers' concern for meat safety has not significantly improved their consumption of green organic meat. The possible reason is that compared with other green products, the safety, greenness and quality of green organic meat products lack wider publicity and promotion, so that there is no significant difference between them and other meat products in consumers' cognition. In conclusion, marketers can enlarge the promotion of green organic meat products from the perspectives of increasing the publicity of green products in environmental protection, health and other aspects, establishing good social awareness and improving consumer satisfaction.

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