Hindawi
Mathematical Problems in Engineering
Volume 2022, Article ID 7028499, 10 pages
https://doi.org/10.1155/2022/7028499

Research Article

Research on Influencing Factors of Consumption and Purchase Intention of Camellia Oil in Coastal Areas Based on Logistics Model

Xue Wu

School of Economics and Management, Kaili University, Guizhou, Kaili City, China

Correspondence should be addressed to Xue Wu; wuxuesisi@xs.ustb.edu.cn

Received 25 July 2022; Accepted 18 August 2022; Published 1 September 2022

Academic Editor: Wei Liu

Camellia oil contains a variety of active substances, which have the functions of strengthening the heart and lowering cholesterol, and can prevent a variety of cardiovascular and cerebrovascular diseases caused by vascular sclerosis edible oil. Based on the logistics model, this paper builds a research model on the influencing factors of consumption and purchase intention and analyzes the coastal areas of camellia oil. Using this model, it makes an empirical analysis and research on the differences in the purchase intention and influencing factors of different consumers of camellia oil. Based on the results of empirical analysis, the main research conclusions of this paper are extracted, including the influencing factors of consumers' camellia oil purchase willingness and the differences in the influencing factors of consumers' camellia oil purchase willingness under different income levels, and put forward some corresponding measures and policy suggestions in a targeted manner. Based on the research model of the influencing factors of purchase intention established by logistic algorithm, this paper analyzes the coastal areas of Chashan oil and finds that the factors affecting consumers' purchase intention are positively related to education and personal monthly income and negatively related to gender. "Educational education" is significant at 1% and has a positive correlation with a coefficient of 0.864; personal income is significant at 5% with a coefficient of 0.762; for gender, it is negatively correlated with a coefficient of -0.259, indicating that other variables remain unchanged. Education can promote consumers' willingness to buy camellia oil, and consumers with higher education are more likely to buy camellia oil. In the same regression prediction model, the regression prediction efficiency of this model is better. In general, this shows that the model in this paper has certain superior performance.

1. Introduction

Food safety is an important issue related to the stability and economic development of any country. Edible oil is an important part of diet, necessarily consumable for people's life, and an indispensable food ingredient in people's daily diet. Camellia oil is one of the traditional edible oils of residents, with high nutritional value. It not only is edible, but also has medicinal value and can be used as a beauty and skin care product. Its structure is very similar to that of olive oil, especially monounsaturated fatty acids, and its component content is slightly higher than that of olive oil, while the price of camellia oil is only about 1/3 of that of olive oil. It conforms to the Mediterranean dietary pattern generally recommended by nutritionists all over the world today and has a certain competitive advantage in the international market. It is of great significance to improve dietary structure and national physical quality. Camellia oil contains a variety of active substances, which have the functions of strengthening heart and lowering cholesterol, and can prevent a variety of cardiovascular and cerebrovascular diseases caused by arteriosclerosis. Therefore, it is called "Changshou oil," and it is a healthy high-grade edible oil promoted by FAO [1]. Camellia oil cultivation has the advantage of not occupying cultivated land, so developing camellia oil industry has become an important deployment of edible oil safety strategy [2]. With the growth of oil planting area slowing down and shrinking, more and more countries have increased their dependence on the world edible oil market, and many countries' dependence on

foreign countries is as high as 60%. Faced with a large population and a small cultivated land area per capita in some countries, the grain and oil provided by the traditional grain industry cannot meet the market demand of the country well. With the adjustment of agricultural structure and the acceleration of urbanization, various factors that perplex the grain and oil security still exist [3]. After several years' development, camellia oil has been known by more and more people, but compared with the camellia oil industry, which is developing faster and faster, we are still faced with a relatively cold camellia oil market. On the one hand, the sustainable development of camellia oil industry depends on increasing productivity, expanding production scale and improving production efficiency to increase supply. On the other hand, it is necessary to increase the market demand and increase the market share of camellia oil [4]. However, with the expansion of Camellia oleifera planting area, the continuous improvement and promotion of Camellia oleifera oil production technology have led to the continuous increase of output and market supply. At the same time, people's lack of knowledge of Camellia oleifera and Camellia oleifera oil will lead to insufficient demand in Camellia oleifera oil market, which may lead to the situation of oversupply, which will eventually lead to waste of resources and damage to the interests of Camellia oleifera oil operators, and then make the industry gradually decline [5]. Therefore, it is urgent to promote and expand the market of edible oil. Based on the logistics model, this paper builds a research model of influencing factors of consumption purchase intention, analyzes the coastal areas of camellia oil, and makes an empirical analysis and research on differences of purchasing intention and influencing factors of different consumers.

Based on the logistics model, this paper studies the influencing factors of consumption and purchase intention in the coastal areas of camellia oil. The innovations of this paper are as follows:

(1) Innovation of research perspective. From the current research of scholars, the research on the development of camellia oil industry is mostly conducted from the perspective of producers. The innovation of this paper is from the perspective of consumers, through the investigation and analysis of consumers' willingness to buy camellia oil.

(2) Taking the theory of planned behavior as the theoretical analysis basis, this paper puts forward research hypotheses for the model and then empirically tests the hypotheses based on the actual survey data by using the structural equation model, which further expands the application field of the theory of planned behavior and makes up for the theoretical gap in the study of consumers' willingness to buy camellia oil.

(3) This paper introduces the thinking framework of logistic model into the field of camellia oil, focuses on exploring and analyzing the influencing factors of consumers' purchase intention in coastal areas, establishes logistic model regression to analyze the main factors affecting consumers' purchase of camellia oil, and puts forward countermeasures and suggestions to promote camellia oil consumption through the research conclusions.

2. Related Work

Camellia oil is a kind of woody edible oil plant planted only in China. It has a long history of cultivation and utilization in China, which has lasted for more than 2300 years. It mainly grows in the hilly areas of southern China. In China, it is mainly planted in some coastal cities: Fujian, Guangdong, Guangxi, etc. [6]. Some Chinese scholars have studied the consumption of camellia oil in the market as follows: Ahmed et al. have concluded that camellia oil is well used in the fields of edible industry, medicine, pharmacy, chemical industry, cosmetics, and so on [7]. The tea industry has a long industrial chain. From planting to processing and sales, tea has high economic value. It can be used not only in the deep processing and production of Camellia oleifera, skin care products, and nutrition and healthcare products, but also in the production of feed, fertilizer, cleaning products, and refined tea saponins, which are processed by the remaining materials. By analyzing that Camellia oleifera can be planted and harvested for many years, and that Camellia oleifera production can produce a variety of economic and ecological benefits, Zhong and Lou pointed out that Camellia oleifera oil has broad market potential. Due to the lack of consumer awareness, the current market demand is insufficient, which needs further publicity and promotion by government and enterprises [8]. Zhu et al. analyzed the growth characteristics, suitable planting areas, and other natural characteristics of Camellia oleifera, and put forward the important role of Camellia oleifera cultivation technology and science and technology promotion. In the 1960s, consumer behavior research began to become a new research field [9]. Among them, the research on the theoretical basis of consumer behavior mainly has the following views: the rational behavior theory proposed by Han et al. can widely and effectively predict the consumer psychology and behavior of consumers. According to TRA theory, consumers can rationally find a way to maximize their own utility to guide their consumption behavior. In a narrow sense, consumer behavior refers to all kinds of behaviors that people perform when consumers obtain the goods they need, such as comparison, selection, purchase, and use [10]. Zhou et al. believe that consumer behavior is the decision-making process when consumers choose and finally buy their favorite products, and point out that consumer behavior is the physical and mental activities of purchasing and consuming products [11]. Xiang et al. emphasized that different health conditions of individual consumers will have a certain impact on their acquisition of consumption information. It is believed that purchase intention is related to behavior habits, which is an indicator to measure whether consumers will have further consumption behavior, and can be used to

predict consumers' consumption behavior [12]. Zhou et al. pointed out that consumer behavior is related to the concept of consumption lifestyle. He pointed out that there is a significant internal correlation between demographic and psychological statistical characteristics and consumption behavior. The research shows that the relationship between demographic characteristics, such as gender, age, and education level, and consumption behavior is complex, and whether there is a significant impact between them and consumption behavior is still uncertain [13]. Chun et al. believe that more efficient and accurate prediction should be based on purchase intention, and point out that when consumers have high uncertainty about products and many input factors, it is difficult to make rational decisions, and they often reduce uncertainty by establishing relationships [14]. With the rapid development of database technology and information technology, enterprise managers can use information technology to better understand consumer behavior.

In the research process, the related theoretical research results of camellia oil were comprehensively reviewed and sorted, and the main points were comprehensively sorted out and summarized. Among them, the collection of literature mainly includes a review of the camellia oleifera industry, the background of the camellia oleifera industry based on the large grain and oil safety strategy, and the research status of the camellia oleifera industry. From the perspective of research content, the existing research literature still stays at the qualitative description of the development significance and problems of the Camellia oleifera industry, lacking the support of sufficient survey data and the overall clear description of the current situation of industrial development. The development of Camellia oleifera industry is mainly carried out from the perspective of producers, and there is less research from the perspective of consumers. Therefore, the article starts from the consumption of camellia oil, introduces the thinking framework of the logistic model in the field of camellia oil, focuses on the exploration and analysis of the influencing factors of consumers' purchase intention in coastal areas, establishes the logistic model regression for empirical analysis, and finally proposes the promotion of countermeasures and suggestions for the consumption of camellia oil.

3. Methodology

3.1. Concept and Theoretical Basis of Camellia Oil Consumption and Purchase Intention. Camellia oleifera is a unique woody edible vegetable oil tree species in China. It has a long history of more than 2,300 years of cultivation and utilization in the country. The hilly areas of southern China are the main planting areas. The planting provinces are Hunan, Jiangxi, Fujian, Guangdong, Guangxi, etc. [15]. Camellia seeds can be processed into edible oil. Camellia oil is bright in color, fragrant in taste, and rich in nutrition. It is a high-quality edible oil in China. Camellia oil can also be referred to as camellia oil. The whole body of camellia oil is a treasure. It can be used as lubricating oil and anti-rust oil. At the same time, tea cakes can be used for daily necessities such as washing and cleaning. The peel can be used to extract tannin extract. It is suitable for planting in warm and humid climates, 16–18 degrees Celsius, and the average annual temperature, and the average temperature during the flowering period is 12-13 degrees Celsius. The annual precipitation should be more than 1000 mm, and it is advisable to plant in the deep acidic soil. Camellia oil, commonly known as camellia oil, is a pure natural high edible vegetable oil made from camellia seeds, with bright color, high fragrance, and high nutritional value [16]. More than 90% of the world's camellia oil products come from China. According to historical records, as early as the first 100 years of the Han Dynasty, China began to plant tea. At present, the area of camellia planting in the country is about 45 million mu, with an annual output of about 1 million tons of camellia seeds and an annual output of over 270,000 camellia oil [17]. The camellia oil industry refers to the concentrated and contiguous planting of camellia oleifera, the comprehensive utilization of camellia oleifera oil, and nutritional healthcare products, skin care products, and other products through intensive and deep processing, forming an industrial chain based on camellia oleifera. Its structure is shown in Figure 1.

General academic understanding: the meaning of consumer behavior is the meaning of consumer purchase, the decision-making process of using consumer goods or receiving services before taking various actions, and determining these actions [18]. From the definition, it can be seen that consumer behavior includes not only all kinds of actions taken to buy, use consumer goods, or receive services, but also the decision-making process before actions. The decision-making process of consumers' final consumption behavior needs to go through a series of comprehensive psychological and thinking activities, which are influenced by advertising, culture, folklore, economy, personal cognition, and other aspects [19].

The planning behavior theory can be traced back to 1963. American scholar Fish Bein. M put forward the multi-attribute attitude theory and analyzed the relationship between attitude and behavior. With the rapid development of the theory of planned behavior, it has been successfully and widely used in many fields of behavior research. According to the planning theory, behavioral intention is the direct factor that determines behavior, while behavioral intention is influenced by three variables: behavioral attitude, subjective norms, and perceived behavioral control. The relationship among these factors is shown in Figure 2.

The theory of consumer purchasing behavior is a theory mainly used in the study of factors affecting consumer cognition and purchase intention. Consumer buying behavior refers to the process activities in which people seek, select, purchase, use, and dispose of products and services to meet their needs and desires, including the subjective psychological activities of consumers and the objective material camellia oil activities. The purchase behavior of consumers is regarded as a decision-making process. Part of this decision-making process can be observed, such as the statistical characteristics of consumers, the behavior of consumers to buy or not to buy, and the specific products

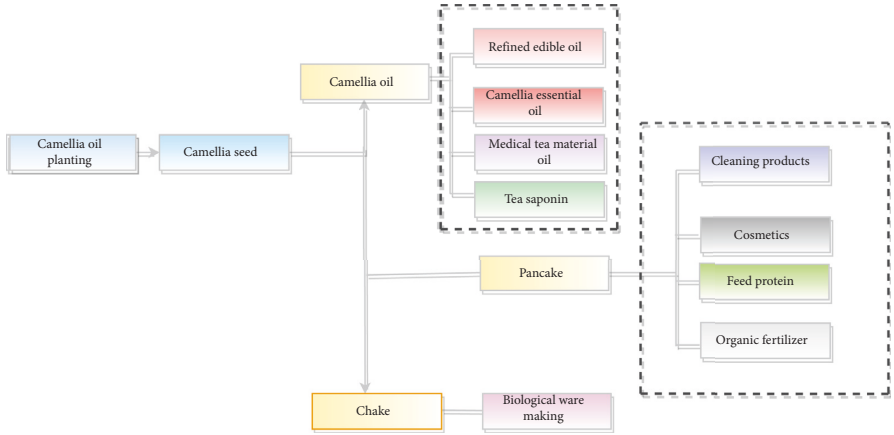

Figure 1: Structure of the camellia oil industry chain.

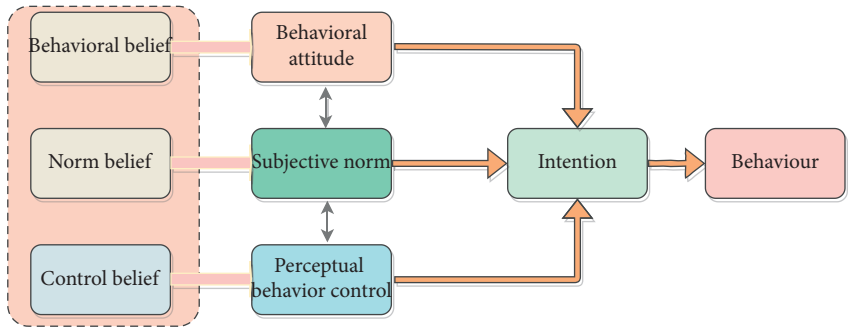

Figure 2: The theoretical structure model diagram of planned behavior.

bought by camellia oil. The premise for tea oil consumers to buy tea oil is to have sufficient understanding of tea oil and generate purchase intention. The factors that affect the impact of camellia oil on consumers' purchase of tea oil include the price of tea oil, the degree of understanding of tea oil products, the atmosphere in which consumers use camellia oil, etc. Consumers' understanding of tea oil and their willingness and behavior to buy tea oil involve two aspects: information asymmetry and transaction cost.

In order to confirm the reliability and effectiveness of the questionnaire, this paper uses internal to measure the reliability of the questionnaire and uses SPSS16.0 to analyze the reliability of the observed variables of four potential variables: behavior attitude, subjective norms, perceived behavior control, and purchase intention. It can be seen that Cronbach's value is between 0.656 and 0.837, and the overall Cronbach's value of the questionnaire is 0.801. The questionnaire has good internal consistency. The reliability, validity, and exploratory factors are shown in Table 1.

When analyzing the convergent validity and discriminant validity of the observed variables under the common factor, the factor weighted value in confirmatory factor analysis, also called factor loading, has different criteria for judging factor loading. Some experts suggest that the standardization factor loading should be above 0.3. Some experts suggest that it should be above 0.4, but it is usually less than 1. The article draws on the standard of 0.3 to 1.0; the standard factor loading coefficient of the variable "I buy" is 0.076, the standard factor loading coefficient of the variable "opinions of relatives and friends will affect my purchase" is 0.269, and the criterion "low income level limits my purchases" has a loading factor of 0.295 in the perceived behavior control variable.

This article is mainly based on the theory of consumer behavior, combined with the existing scholars' research on cognitive influencing factors. The selected variables are consumers' personal characteristics, including gender, age, education, personal income, and marital status. The variables of consumer family characteristics are mainly the number of family members, the regional characteristics, that is, whether they come from the main camellia producing areas in the coastal areas, and the level of health care. The variable names, values, meanings, and symbols are shown in Table 2.

This paper expects that among these eight variables, the level of health concern, the characteristics of the place of origin, and the personal monthly income will show a strong correlation with cognition, and they are all positively correlated. One of the major features of camellia oil is that it has high nutritional value and health benefits. Therefore, the more concerned people are about their own health, the more likely they are to be interested in camellia oil, and the more likely they are to know about camellia oil. It is also a very reasonable explanation that consumers in the region have greater exposure to camellia oil than consumers in nonmain producing areas; since the current market price of camellia

Table 1: Reliability, validity, and exploratory factor analysis.

Potential variable	Potential variable	Standard load	Cronbach's alpha
Behavioral attitude (AB)	Camellia oil has high nutritional and healthcare value (X_1)	0.577	0.656
	Camellia oil tastes good (X_2)	0.378	
	Camellia oil is clean and sanitary (X_3)	0.468	
	Camellia oil has high cost performance (X_4)	0.635	
	Camellia oil has high quality and relatively reasonable price (X_5)	0.543	
Subjective norm (SN)	National authority certification will affect my purchase (X_6)	0.685	0.658
	Experts' opinions will influence my purchase (X_7)	0.785	
	The information spread by the media will affect my purchase (X_8)	0.541	
	My family's opinions will influence my purchase (X_9)	0.076	
	My friends' opinions will influence my purchase (X_{10})	0.258	
Perceptual behavior control (PBC)	Income level restricts my purchase (X_{11})	0.269	0.578
	Have purchasing autonomy (X_{12})	0.295	
	Can identify the quality of camellia oil (X_{13})	0.502	
	Convenient to buy camellia oil (X_{14})	0.438	
	The certification mark cannot be recognized (X_{15})	0.513	
Buying inclination (BI)	Willing to buy camellia oil (X_{16})	0.815	0.837
	Meet my needs (X_{17})	0.875	
	When purchasing edible oil, camellia oil will be selected (X_{18})	0.422	

Table 2: Variable names, values, meanings, and symbols.

Variable classification	Variable name	Value and meaning	Representative symbol
Personal characteristic	Gender	1 = male; 0 = female	$N1$
	Age	Numerical variable	$N2$
	Marital status	1 = yes; 0 = no	$N3$
	Academic degree	1 = primary school and below; 2 = junior high school; 3 = high school	$N4$
	Personal monthly income	3 = (2000, 3000); 4 = (3000, 4000); 5 = 5000 yuan and above	$N5$
Family characteristics	Number of households	Numerical variable	$N6$
Regionalism	Are they from coastal areas?	1 = yes; 0 = no	$N7$
Attention level to health	Degree of concern	1 = no attention; 2 = occasional attention; 3 = more attention; 4 = very concerned	$N8$

oil is still relatively high, and it is positioned as a high-end edible oil, the lower the income level, the less likely people will buy high-end edible oil, the less chance they will know about camellia oil.

At present, the coverage of camellia oil in the market is relatively low, and many consumers are unaware of camellia oil, let alone have an understanding of camellia oil. According to the survey, the existing edible oil testing equipment and technology are still unable to monitor the quality and authenticity of camellia oil. If the water content is less than 10%, it is basically difficult to detect. Mixing other oils into camellia oil for profiteering, in a better case, is to use soybean oil, etc., and even worse is to use gutter oil mixed with camellia oil, which will not only disturb the order of the edible oil market, but more importantly, it will threaten the food safety and health of consumers. The efficacy of camellia oil is shown in Figure 3.

At present, many related studies have confirmed that camellia oil has high nutritional and healthcare value. Unsaturated fatty acids are essential fatty acids for human body, which can regulate blood lipids, clear thrombi, enhance immunity, maintain retina, nourish brain, improve arthritis symptoms, and relieve pain. According to research, it is known that olive oil contains 75%–90% unsaturated fatty acids, while camellia oil contains 85%–97% unsaturated fatty acids, which is even higher than olive oil. In addition, camellia oil also contains linoleic acid, linolenic acid, squalene, tea polyphenols, camellia saponin, camellia saponin E, and other substances, which are of great help to people's health. However, many consumers do not know it. Even if they do, because the specific embodiment of the nutritional value of camellia oil needs a long-term continuous process, it is difficult for consumers who have not eaten camellia oil for a long time to confirm these values. On the one hand, information asymmetry is also one of the obstacles to the development of camellia oil market.

3.2. Relevant Theorems about the Logistics Model. In the conventional regression model, the dependent variable is an interval (quantitative) variable, and theoretically it is required to obey the assumption of normal distribution line

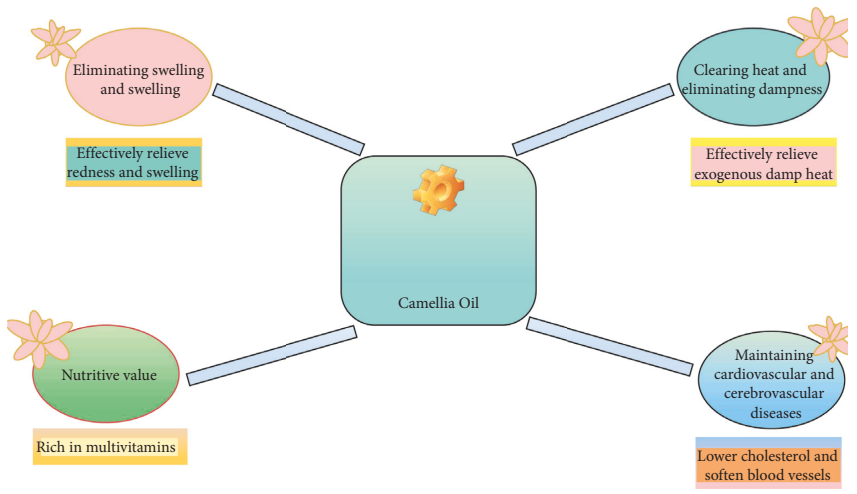

Figure 3: Effect map of camellia oil.

(linear, independent, normal, equal variance). However, the main difference between logistic regression model and conventional regression model lies in the different types of dependent variables. Logistic regression model can be used to predict the probability of each classification of a categorical variable. The dependent variable is categorical variable, and the independent variable can be interval variable, categorical variable, or the mixture of interval and categorical variables. According to the different categories of dependent variables, it can be divided into binary logistic regression analysis and multivariate logistic regression analysis. In multivariate logistic regression model, dependent variables can take multiple values, and in binary logistic regression model, dependent variables are binary values.

Let P represent the probability of an event occurring, then its value is $[0, 1]$, and $1 - p$ represents the probability that the event does not occur. Usually the ratio of the probability of a certain result to the probability of not appearing is called the ratio, and some are also translated as the advantage, the ratio, that is, odds $= P/(1 - p)$, whichever is the logarithm $In(\text{odds}) = InP/(1 - p)$. This process is logit transformation, denoted as $\text{logit}(P)$, then the value range of $\text{logit}(P)$ is $(-\infty, +\infty)$. Taking $\text{logit}(P)$ as the dependent variable, a logistic regression model containing m independent variables is established as follows:

$$\text{logit}(P) = \alpha + \beta_1 x_1 + \cdots \beta_m x_m. \tag{1}$$

Specifically, the logit model uses the cumulative distribution function of a standardized distribution, or C.D.F. for short, to transform values so that the index is between 0 and 1. Its form is

$$P_i = F(y_i) = F(\beta X_i + \alpha) = \frac{1}{1 + e^{-y_1}} + \frac{1}{1 + e^{-(\alpha+\beta X_1)}}. \tag{2}$$

For a given X_i, P_i represents the probability of a certain choice made by the corresponding individual. Continue to make the following transformation to

$$P_i(1 + e^{-y_1}) = 1. \tag{3}$$

Among them, $X_i (i = 1, 2, \ldots, m)$ is the independent variable, and the parameter α in the model is a constant term, which represents the natural logarithm of the ratio (the ratio of the probability of $Y = 1$ to $Y = 0$) when the independent variables are all 0, and the parameter β_i is the regression model of the model. The coefficient represents the change in the natural logarithm value of the odds ratio (OR) caused by an increase in the value of the independent variable by one unit when the values of the other independent variables remain unchanged:

$$e^{-y_i} = \frac{1}{P_i} - 1 = \frac{1 - P_i}{P_i}. \tag{4}$$

Take the reciprocal and then the logarithm to get

$$y_i = \text{In}\left(\frac{1 - P_i}{P_i}\right). \tag{5}$$

So, we have

$$\text{In}\left(\frac{1 - P_i}{P_i}\right) = y_i = \alpha + \beta X_i. \tag{6}$$

In the logistic regression model, the dependent variable is the logarithm of a specific selection probability ratio, and its advantage lies in transforming the problem of predicting probability on the $[0, 1]$ interval into the problem of predicting the selection ratio of an event on the real number axis. In fact, the value of $\text{logit}(P)$ takes 0.5 as a symmetrical point and is distributed in the range of 0 to 1, and the corresponding size of $\text{logit}(P)$ is

$$\begin{aligned} P = 0 \ \text{logit}(P) &= \text{In}\left(\frac{0}{1}\right) = -\infty; \\ P = 0.5 \ \text{logit}(P) &= \text{In}\left(\frac{0.5}{0.5}\right) = 0; \\ P = 1 \ \text{logit}(P) &= \text{In}\left(\frac{1}{0}\right) = +\infty. \end{aligned} \tag{7}$$

This shows that the change of the explanatory variable relative to $P_i = 0.5$ has a greater impact on the change of the probability. On the contrary, the change of the X_i value near 0 and 1 relative to P_i has less effect on the change of the probability.

Since the dependent variable is a binary variable, the error of the logistic model should obey the binomial distribution, not the normal distribution. Therefore, the model is actually no longer suitable for parameter estimation by the least squares method in the previous general linear model, and the maximum likelihood method is currently used for parameter estimation.

First, a random experiment with two parameters (α and β) is analyzed, assuming that the model used for estimation is as follows:

$$P_i = \frac{1}{1 + e^{-(\alpha+\beta X_i)}} = \frac{1}{1 + e^{-y_i}}. \tag{8}$$

In the sample, P_i is unobservable, and compared with the value of X_i, only the information that the value of Y_i is most likely to be 0 or 1 can be obtained. The starting point of maximum likelihood estimation is to find the estimated values of sample observations α and β. From the sample, if the first choice happens n times, the second choice happens N-n times. Then, let the probability of choosing the first option be P_i, and the probability of taking the second option be $(1 - P_i)$. Rearrange the sample data so that the first n observations are the first choice, the last $N - n$ observations are the second choice, and the obtained likelihood function is

$$\begin{aligned} L(\alpha, \beta) &= P(y_1, y_2, \ldots y_N) \\ &= P(y_i)P(y_2)P(y_3)\ldots P(y_N) \\ &= \prod_{i=1}^{n} P_i \prod_{i=n+1}^{N} 1 - P_i. \end{aligned} \tag{9}$$

The maximum likelihood estimators of α and β can be obtained. They are consistent and asymptotically valid, and both are asymptotically normal.

4. Result Analysis and Discussion

In logistic regression analysis, if there is a strong correlation between variables, the regression equation will be taken into account.

Estimation brings difficulties, inaccurate parameters, and unusable models. This study reduces explanatory variables through factor analysis.

At the same time, it will not reduce the information obtained, and eliminate the multicollinearity among variables. Through SPSS statistical software, KMO value and Bartlett sphericity of the items were tested. The results are shown in Figure 4.

The KMO value of this test is 0.720. According to the KMO test standard described by Kaiser, KMO>0.7 is more suitable combined factor analysis. Bartlett's test of sphericity is significant ($P = 0.001$) with an approximate chi-square of 305.691, satisfying conditions for factor analysis. To analyze

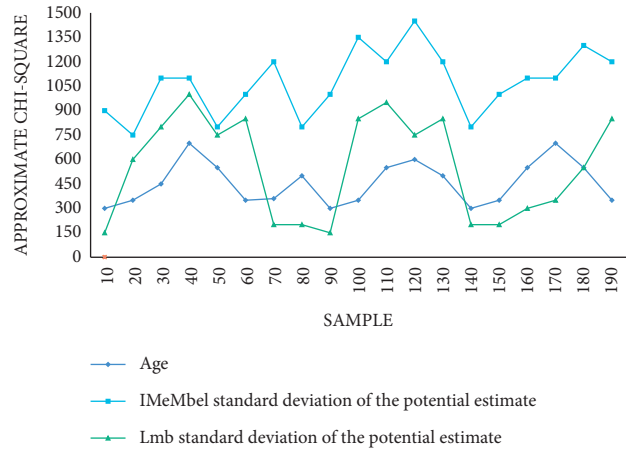

Figure 4: KMO value and Bartlett's sphericity test results.

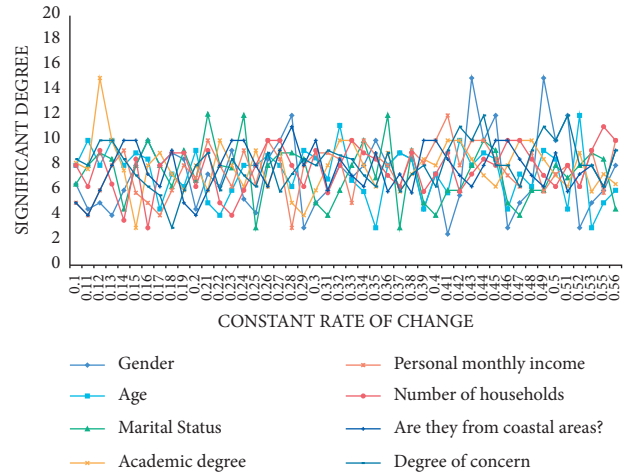

Figure 5: Comparison of significance levels with changes in understanding.

the sample data of the coastal area survey, the consumer's understanding of Camellia oleifera is used as the dependent variable, the entry method is used in the data processing process, the variables defined in Table 2 are used as the independent variables, the logistic model regression is used for analysis, and the test results are shown in Figure 5.

The observation shows that only gender, age, educational background, personal income, whether the number of family members comes from coastal areas, and consumers' attention to their own health are significant, among which 10% of them show positive correlation, with a coefficient of 0.202. It shows that the more concerned consumers are about their health, the more likely they are to know about tea oil. This result is because tea oil is not only a high-grade edible oil, but also a good nutritional health product. With the improvement of life quality, consumers' health is getting more and more attention. Consumers are no longer troubled by food and clothing, but more about their own health problems. On the one hand, it is related to the law of life, and on the other hand, it is closely related to our usual diet. In the model, the gender variable is significant at 5%, with a coefficient of

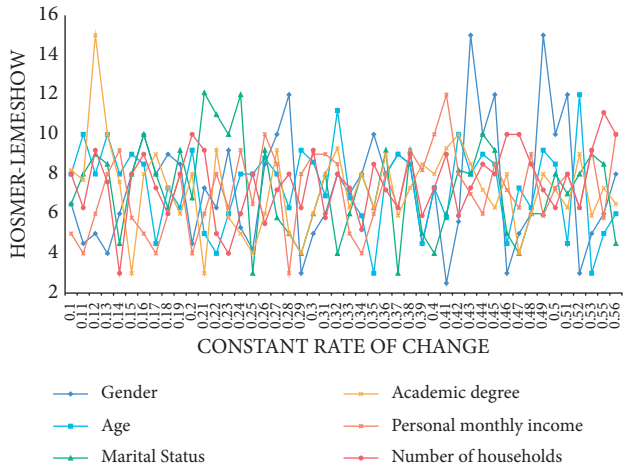

Figure 6: Comparison of significance levels after pruning variables.

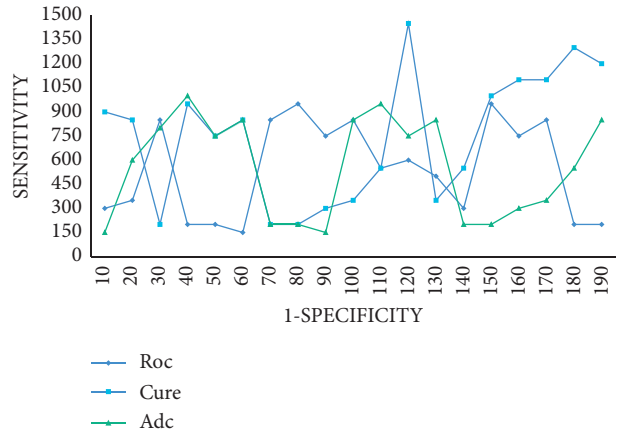

Figure 7: Logistic regression prediction model ROC curve.

0.625, which means that male consumers have a higher chance to know about tea oil than female consumers when other variables are constant, which is an unexpected result of the author. In the model, the variable of whether it comes from coastal areas is significant at 2%, with a coefficient of 1.112, which indicates that consumers from main producing areas have a lower chance to know about tea oil than consumers from nonmain producing areas when other variables are constant. This result is contrary to common sense. Generally speaking, consumers from the main camellia oil-producing areas in coastal areas have a greater chance to contact camellia oil, and there should be more camellia oil products around them, so there should be more opportunities to learn about camellia oil. Cronbach's alpha value is 0.544. Compared with Cronbach's alpha value of a certain item deleted in Table 2, it is found that Cronbach's alpha value can reach 0.612 after removing N7 and N8, which makes the designed scale have a better reliability structure. Therefore, before the model analysis, N7 and N8 are eliminated and the remaining six explanatory variables are selected to analyze the influencing factors of consumers' purchase intention of tea oil, as shown in Figure 6.

After excluding the variables, the coefficient only reflects the direction of change in the regression, so we can study the positive and negative effects of changes in independent variables on consumer behavior. From the perspective of consumers, although most household daily affairs are women, the decision-makers of daily necessity purchase are still men. There are still differences in shopping concepts between men and women. Men are more likely to be curious about and try new things. Therefore, male consumers of tea oil, a relatively new edible oil, have more opportunities to contact. From the perspective of consumer psychology, women are more willing to buy products that are generally familiar and have relatively stable psychological products with low prices and good taste. The results show that there is not much difference. It shows that with the progress and development of society, women's status in the family has been paid more and more attention and improved. Access to information and understanding of facts is no longer always later than men, as in the past. At the same time, they also have their own thinking, opinions, and decision-making power. The AUC of the prediction model probability is 0.913. According to the ROC curve, the critical value of P is 0.15, which is ideal. Its willingness to buy and attention are 84.44% and 75.6%, respectively.

The ROC curve of the prediction probability p of the logistic regression prediction model is shown in Figure 7.

With the increase of academic qualifications and higher education level, consumers' cognition of life is different. The higher the education level, the more concerned you may be about your own health and the more eager you are to improve your quality of life. Tea is a fast-moving consumer product. When consumers consider whether to buy it or not, it is based on their consumption preferences. Consumers with high academic qualifications are more inclined to buy goods with high nutritional value and good quality. In addition, consumers with a high degree of education, on the other hand, should get a better job treatment, and generally, their income level is relatively higher, so their willingness to pay and purchasing power are also relatively higher, so price is not their primary consideration.

The experimental results of this chapter show that the research model of influencing factors of purchasing intention based on logistic algorithm is used to analyze the coastal areas of Chashan oil, and it is found that the factors influencing consumers' purchasing intention are positively related to education and personal monthly income, and negatively related to gender, among which the variable "education" is significant above 1%, with a positive correlation coefficient of 0.864, and personal income is significant above 5%, with a coefficient of 0.762. There is a negative correlation between sex, with a coefficient of −0.259, which indicates that education can promote consumers' willingness to buy tea oil with other variables unchanged, and the higher the education, the more likely consumers are to buy tea oil. In addition, in the same regression prediction model, the regression prediction efficiency of this model is better. Generally speaking, this model has certain superior performance.

According to the results of the above analysis, this paper puts forward some effective suggestions to promote the

market demand of camellia oil. First, we can increase publicity and raise public awareness. Compared with olive oil with the same positioning, the market share of tea oil is low, and the market awareness is low. Awareness is the premise of purchasing tea oil. Only by improving consumers' awareness of tea oil can the market demand of tea oil be increased and consumers' purchase of tea oil be promoted. In order to improve consumers' demand for tea oil, the government and enterprises should fully cooperate, make use of various media, popular science bases, and other forms, vigorously publicize the excellent characteristics and unique effects of tea oil in various public places as much as possible, guide scientific and healthy eating habits and rational consumption, and create favorable market conditions for the development of Camellia oleifera industry. It is necessary to actively support the development of leading enterprises in various places, continuously improve the ability of product research and development and scientific and technological innovation, vigorously develop functional tea oil products that meet the needs of domestic and foreign markets, and make tea oil rank among the international high-grade oils from regional small-variety edible oils, so as to enhance its popularity and market share, and make tea oil everywhere in the edible oil market. Second, at the same time, when promoting tea oil, there should be focused publicity. At present, tea oil publicity focuses on "health." Some publicity has the effect of beautifying, some publicity has the effect of preventing "three highs," some publicity focuses on regulating immunity, etc., which makes the publicity confusing. Consumers' recognition of tea oil is not high, and their memory is not deep. However, there are many edible oils, including olive oil, on the market that focus on health. Focus on the healthcare value of tea oil, and publicize that it can prevent "three highs," promote lactation and growth, and prevent atherosclerosis. Third, financial and technical support should be increased, and an effective cooperation mechanism can be formed between enterprises. For example, some enterprises have advantages in the cultivation and planting of camellia oleifera, some enterprises have done a good job in pressing camellia oleifera seeds to make primary tea oil, and some tea oils have done a good job in leaching and deodorizing tea oil. Then, these enterprises can get together, and each enterprise can work together with different divisions of labor, from one link to another. In this way, it can not only avoid the small development of the enterprise itself, but also each can spend more energy in each link to make it more refined and better, and the finished tea oil produced by the company will be better and more labor-saving than that produced by itself from beginning to end.

5. Conclusions

Under the background that the state and the government vigorously promote the development of Camellia oleifera industry, in order to continuously expand the market demand on the premise of ensuring the steady progress of the Camellia oleifera market, it is necessary to form a relative balance between the supply and demand of Camellia oleifera. Due to the good planting and processing of Camellia oleifera, the development momentum is sufficient, and the supply capacity of Camellia oleifera is good, but the market demand capacity does not form an effective balance with it, Under such circumstances, if the tea oil supply continues to increase but the tea oil market demand cannot be improved, the healthy development of the tea oil industry will be affected. Through logistic regression model, this paper finds that the factors that affect consumers' understanding of tea oil include gender and age. The positive correlation is gender and health concern, and the negative correlation is age. Based on the research model of influencing factors of purchase intention established by logistic algorithm, this paper analyzes the coastal areas of Chashan oil. It is found that the factors that affect consumers' purchase intention are positively related to education and personal monthly income, and negatively related to gender. For the variable "academic history," it is significant at 1% and positively related, with a coefficient of 0.864. For personal income, it is significant at 5%, with a coefficient of 0.762, and negatively related to gender. The coefficient is −0.259, indicating that education can promote consumers' willingness to buy tea oil when other variables remain unchanged. Consumers with higher education are more likely to buy tea oil. In addition, in the same regression prediction model, the regression prediction efficiency of this model is better. In general, this shows that this model has certain superior performance.

Data Availability

The data used to support the findings of this study are available from the author upon request.

Conflicts of Interest

The author declares no conflicts of interest.

Acknowledgments

This work was supported by 2020 Carey College "Outstanding School-Running Characteristics" Special Project (Engineering and Practical Project): Research on Value Cognition and Purchase Behavior of Camellia Oil in Southeast Guizhou—Based on Consumer Survey (Project No.: 2020gkzs02); 2020 Carey College Special Project "Response, Governance and Impact of New Coronary Pneumonia Epidemic and Other Public Health Events": Empirical Investigation and Research on the Impact of New Coronary Pneumonia on Key Industries in Guizhou (Project No.: YQZX201902); and 2019 Special Project of "Doctoral Professor Service Group" of Carey College: Investigation and Research on Camellia Oil Industry in Qiandongnan Prefecture (Project No.: BJFWT201902).

References

[1] M. Wu, M. Du, H. Wen, W. Q. Wang, J. Tang, and L. R. Rhen, "Effects of n-6-enriched soybean oil, enriched olive oil and camellia oil on body weight and cardiometabolism in Chinese

women: a 3-month double-blind randomized control Feeding Test," *Food and Function*, vol. 2022, no. 6, pp. 98–105, 2022.

[2] Li Deng, F. Que, H. Wei, G. Xu, X. Dong, and H. Zhang, "Solubilization of tea seed oil in a food-grade water-dilutable microemulsion," *Plos One*, vol. 10, no. 5, Article ID e0127291, 2015.

[3] M. Nakpathom, B. Somboon, N. Narumol, and R. Mongkholrattanasit, "Fruit shells of Camellia oleifera Abel as natural colourants for pigment printing of cotton fabric," *Pigment & Resin Technology*, vol. 46, no. 1, pp. 56–63, 2017.

[4] L. Zhou, X. Wang, and L. Wang, "Genetic diversity of Camellia oleifera germplasm resources revealed by analysis," *International Journal of Biomathematics*, vol. 8, no. 5, Article ID 150426190942008, 2015.

[5] S. Jiang and L. Hong, "The first report of anthracnose in Camellia oleifera," *Plant Diseases*, vol. 12, no. 2, 2017.

[6] L. Deng, Z. Deng, and N. Jiang, "Analysis of physicochemical properties and nutritional components of Camellia oleifera seed oil at different refining stages," *Food Science*, vol. 2015, no. 6, pp. 69–85, 2015.

[7] H. O. Ahmed, C. M. Wang, A. A. Mariod, and T. A. Hammoda, "Camellia oil saponins: solid phase extraction and its effect on mice blood and organs," *Grasas Y Aceites*, vol. 71, no. 2, p. 357, 2020.

[8] S. Zhong and Luo, "Preparation of tea polyphenol palmitate-stabilized camellia oil-based W/O emulsion: construction of camellia oil as a potential solid fat substitute," *Food Chemistry*, vol. 2019, no. 3, pp. 68–90, 2019.

[9] G. Zhu, H. Liu, and W. Li, "Research on storage quality and storage conditions optimization of Camellia oleifera seeds," *Chinese Journal of Agricultural Engineering/Journal of Chinese Agricultural Engineering Society*, vol. 36, no. 2, pp. 301–311, 2020.

[10] J. Han, R. Sun, X. Zeng et al., "Rapid classification and quantification of camellia (camellia oleifera abel.) oil blended with rapeseed oil using FTIR-ATR spectroscopy," *Molecules*, vol. 25, no. 9, p. 2036, 2020.

[11] T. Zhou, Y. Lu, and Inbalajie, "Enhancement of antioxidant activity and cardiovascular protection of hamsters by camellia oil and soybean-camellia mixed oil," *Nutrition*, vol. 2018, no. 3, pp. 65–78, 2018.

[12] Y. Xiang, J. Lu, F. Li et al., "[Bactericidal effect of ozonated camellia oil on *Staphylococcus aureus* in vitro]," *Journal of Central South University (Medical Edition)*, vol. 43, no. 2, pp. 139–142, 2018.

[13] X. Zhou, S. Jiang, D. Zhao et al., "Changes in physicochemical properties and protein structure of surimi fortified with camellia oil," *LWT - Food Science and Technology*, vol. 84, Article ID S0023643817301718, 2017.

[14] L. Chun, C. Lin, W. Tao et al., "Potential distribution prediction and evaluation of suitable soil conditions for Camellia oleifera in China," *Forest*, vol. 9, no. 8, p. 487, 2018.

[15] D. Singhal, S. K. Jena, and S. Tripathy, "Factors influencing consumers' willingness to purchase remanufactured products: a systematic review and meta-analysis," *International Journal of Production Research*, vol. 57, pp. 1–11, 2019.

[16] Q. He, Y. Duan, R. Wang, and Z. Fu, "Factors affecting consumers' purchase intention of eco-friendly food in China: the evidence from respondents in Beijing," *International Journal of Consumer Studies*, vol. 43, no. 5, pp. 457–470, 2019.

[17] X. Wang, F. Pacho, J. Liu, and R. Kajungiro, "Factors influencing organic food purchase intention in developing countries and the moderating role of knowledge," *Sustainability*, vol. 11, no. 1, p. 209, 2019.

[18] P. Duarte and S. Silva, "The role of consumer reason identification and attitude in reason-related product intentions," *International Marketing Review*, vol. 6, 2018.

[19] K. Zhu, "The mediating effect of attitude on internal and external factors affecting Chinese consumers' intention to buy organic food," *Sustainability*, vol. 10, 2018.