

Analysis of Main Influencing Factors of Market Share of Organic Agricultural Products

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Abstract: In recent years, with the rapid social and economic development, improvement of living standards, the living demands on quality of life of consumers are increasing. Also, consumers pay more attention on food safety with the growing food safety issues. Organic concept is gradually accepted by people, and the organic agricultural products and organic agricultural are also recognized which brings the constant growth of demands of organic products. The current study aimed at the factors which affected consumption of organic agricultural products, based on the previous related studies, and focused on organic fruits and vegetables consumption. The consumers in Beijing and Tianjin are subjects of the study. Two-factor theory of Del Hawkins is used, the consuming behaviors of this region are investigated, and the factors which dominate organic fruits and vegetables consumption of consumers are analyzed. SPSS Statistics v23 is utilized in the study, and the methods of analysis include descriptive statistical analysis, factor analysis and Logistic regression analysis. The study found that in many factors which affects consumers, from the viewpoint of consumers and the knowledge of organic fruits and vegetables are most influential on consumption; the second one is personal and family factors of consumers, and among these factors, income level is most representative; price, purchase ways, purchase status and purchase purpose are not significant related on consuming behaviors. Thus, in the expansion of organic fruits and vegetables as representative of the market share of organic agricultural products, it is necessary to do more delicate promotions, increase consumers' purchase ability, expand sales channels and market segments, and enhance monitoring of organic agricultural products market. This article gives you important guidelines for the preparation of a research paper for publication in Research Publish Journals. Basic information regarding Paper Margin, Font Face, Font Size, Table, Graphs, Figure etc. are described in this Template. The abstract is between 150 to 250 words and cannot have references in it. Abstract gives the idea of research process, and its significance in brief. This document gives you layout for preparation of Manuscript (inclusive of this abstract) and can be used as template.

Keywords: organic fruits and vegetables, consumers, consuming behaviour.

1. RESEARCH BACKGROUND

With the income growth and improving material living conditions, people's understanding of life gradually change from the basic meals to eat better and start to pay attention to food hygiene and safety, health and nutrition. Organic foods are hence getting popular. Besides, food safety problems happen frequently, consumers have to pay attention to food safety and their own health. Compared to traditional foods, organic foods are getting more and more popular in domestic cities. According to the statistics of World Federation of Organic Sports, the global sales of organic food was up to 63 billion US dollars in 2012, organic food production acreage of 30.4 million hectares, and still maintained a growth rate of 20% each year. China is the world's third largest organic food producer after Australia and Argentina, with a total area of 2.3 million hectares.(World Federation of Organic Sports Websites , 2016), But the domestic consumption is relatively small, mainly in Beijing, Shanghai, Guangzhou and other first-tier cities, the domestic market share is lower.(Chen Xinjian, 2012)

Therefore, it is necessary to study and analyze the factors that influence Chinese consumers to buy organic food.

2. LITERATURE REVIEW

Domestic researches are plenty on the overall development of organic agriculture more. He Kuan(2004) studied the market potential of organic agricultural products and indicated that large-scale leading enterprises can promote the development of organic agriculture; The organic agricultural products market in China supply and demand were studied and expounded, and there is a prediction of a large market potential on organic agricultural products. (Fan Wubo et al,2009); Pu Shizhen et al(2010) mentioned that due to the increased attention to food safety, nutrition and health concept of consumption has been deeply rooted, and the development of organic agriculture has become the world's agricultural development trends; there are also many researches on consumption of organic agricultural products. Ye Yan(2007) studied organic tea and common tea and concluded that consumers' attention to food safety is generally high, but the basic concepts of organic agricultural products are not fully enough; Wang Xiaet al(2009) investigated market situation on organic agricultural products and the knowledge of organic agricultural products of consumers by questionnaire. The results showed purchasing ability is still insufficient and attention on organic agricultural products is not high; Yin Shijiu(2013) studied from purchase experience and purchase intensity trying to find which factors affect organic agricultural products consumption.

Organic agricultural products development in other countries is faster in China, and organic agricultural products of the relevant researches are more systematic and abundant. Ekelund(1998) indicated that organic agricultural product have its own unique properties, and most consumers are interested at organic agricultural products and are willing to purchase; Grankvist et al(2001) found that most consumers have positive attitude toward organic food; Magnusson et al(2003) said that family structure and health and environmental factors play great impact on choosing organic agricultural products; Birgit Roitner-Schobesberger (2008) indicated that the Thai people began to consume organic agricultural products in order to make their children grow up healthier. Most consumers are with higher education and higher income levels; Samantha Smith et al(2010) analyzed that price, awareness, health, environmental awareness, family structure and other factors have an impact on consumption, more concerns on health and environmental protection, and the increase of the purchase willingness; Katrin Zander et al(2012) showed that the ethical attributes in some European countries have a significant impact on the purchase of organic agricultural products.

Seven theoretical frameworks, such as the Del Hawkins model, the Roger Blackwell model and the Frank Kardes model, are proposed to support the analysis and study of the factors influencing consumer behavior. Del Hawkins theoretical model emphasizes that consumers behavior is a decision-making process in a certain situation, mainly by external factors and internal factors.

3. RESEARCH HYPOTHESIS

Del Hawkin's two-factor framework decomposes the factors that affect consumption behavior. The factors that affect consumption of organic fruits and vegetables are divided into several parts: personal and family factor, knowledge of organic fruits and vegetables, price factor, purchase way factor, purchase status and purchase purpose.

1. Personal and family factor include gender, age, family structure, families over the age of 60 or under 12, cultural level and monthly income level;
2. Knowledge of organic fruits and vegetables includes organic fruits and vegetables are safer, taste better, more delicious, nutrition, healthy, brands/origins and increasing brands;
3. Price factors include the price difference of organic and general fruits and vegetables and consider the price of organic fruits and vegetables is higher;
4. Purchase ways include which purchase way is popular and if the chosen purchase way is more convenient?
5. Purchase status includes direct purchase, promotion purchase and ads/promotion influences;
6. Purchase purpose defines the living status of organic fruits and vegetables of consumers.

In this study, these factors will be analyzed and main factors will be carefully confirmed.

Selected variables and study expectations are listed as follows:

VARIABLE SELECTION AND RESEARCH EXPECTATIONS	
Variables	Research Expectations
1. Personal and family factors	
Gender	positive
Age	negative
Family structure	negative
Families over the age of 60 or under 12	positive
Cultural level	positive
Monthly income level	positive
2. Knowledge of organic fruits and vegetables	
Organic fruits and vegetables are safer	positive
Organic fruits and vegetables taste better	positive
Organic fruits and vegetables are nutritious	positive
Organic fruits and vegetables are healthy	positive
Brands/ origins	positive
Increasing brands of organic fruits and vegetables	positive
3. Price	
The price difference of organic and general fruits and vegetables	negative
Consider the price of organic fruits and vegetables is higher	negative
4. Purchase ways	
Which purchase way is popular	positive
If the chosen purchase way is more convenient?	positive
5. Purchase status	
Direct purchase, not influenced by promotion	positive
Purchase under promotion	positive
Influenced by ads/promotion	positive
6. Purpose of purchase	
Purpose of purchase	positive

4. RESEARCH HYPOTHESIS

4.1 Model Selection:

Logistic regression model is utilized in the study.

Logistic regression model is a probabilistic nonlinear regression model and a multivariate relation analysis method. It is to explain the classification results and the relationship between multiple influencing factors, that is, the dependent variable p and the relationship between multiple independent variables x . Logistic regression model can effectively limit the range of the dependent variable between $[0,1]$, especially for the dependent variable as a binary variable. The dependent variables of consumer purchase in current study are 'yes' or 'no', which are represented by '0' or '1'. Thus the Logistic regression model is used. The empirical model of consuming behaviors of organic fruits and vegetables is as follows:

$$P = \frac{ef(x)}{1 + ef(x)}$$

1. P is dependent variable, the probability of consuming behavior on organic fruits and vegetables;
2. X is the result which influences the consuming behavior of organic fruits and vegetables.

P is affected by the factor X , the formula is as follows:

$$P = \frac{ef(x)}{1 + ef(x)}$$

$$\ln \frac{P}{1-P} = f(x) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_K X_K$$

4.2 Variable Settings:

Consuming behaviors of consumers on organic fruits and vegetables are influenced by many factors. 20 concrete variables, such as consumers’ personal and family factors, the knowledge of organic fruits and vegetables, the price of organic fruits and vegetables, purchase ways and purchase purposes, are divided in detailed. They are listed as follows:

Empirical Model Variables Definition Of Purchase Behaviors Of Consumers On Organic Fruits And Vegetables			
Codes	Names	Definition	Remarks
	Independent variables		
X1	Gender	male=1, female=0	
X2	Age	20-29=1, 30-39=2, 40-49=3, 50-59=4, over 60=5	
X3	Family structure	Living alone=1, Couples=2, family of 3=3 Living with parents=4	
X4	Families over the age of 60 or under 12	yes=1, no=0	
X5	cultural level	Under senior high=1, senior high or college=2, university and above=3	
X6	monthly income level	Under 2000=0,2000-4000=1, 4000-6000=2, 6000-8000=3, 8000-10000=4,over 10000=5	
X7	Organic fruits and vegetables are safer	Strongly agree=1, Agree=2, Fair =3, Not very agree=4, Strongly disagree=5	
X8	Organic fruits and vegetables taste better	Strongly agree=1, Agree=2, Fair =3, Not very agree=4, Strongly disagree=5	
X9	Organic fruits and vegetables are nutritious	Strongly agree=1, Agree=2, Fair =3, Not very agree=4, Strongly disagree=5	
X10	Organic fruits and vegetables are healthy	Strongly agree=1, Agree=2, Fair =3, Not very agree=4, Strongly disagree=5	
X11	Brands/ origins	Strongly agree=1, Agree=2, Fair =3, Not very agree=4, Strongly disagree=5	
X12	Increasing brands of organic fruits and vegetables	Strongly agree=1, Agree=2, Fair =3, Not very agree=4, Strongly disagree=5	
X13	The price difference of organic and general fruits and vegetables	Strongly agree=1, Agree=2, Fair =3, Not very agree=4, Strongly disagree=5	
X14	Consider the price of organic fruits and vegetables is higher	Yes=1, No=0	
X15	Purchase ways	Traditional market=1 , Supermarket=2 , Internet=3	
X16	If the chosen purchase way is more convenient?	Convenient=1, More convenient=2, Fair=3, not so convenient=4, Not convenient at all=5	
X17	Direct purchase, not influenced by promotion	Strongly agree=1, Agree=2, Fair=3, Not very agree=4, Strongly disagree=5	
X18	Purchase under promotion	Strongly agree=1, Agree=2, Fair =3, Not very agree=4, Strongly disagree=5	
X19	Influenced by ads/promotion	Strongly influenced=1, influenced=2, Fair=3, not influenced=4, not influenced at all=5	
X20	Purpose of purchase	For oneself=1, for family=2, for gift=3	
	Dependent variables		
Y	Purchased before	Yes=1, No=0	

4.3 Data Sources:

The study bases on the related literature and practical consumption of organic agricultural products, conducts the real organic fruits and vegetables consumption situation in Beijing and Tianjin, constructs purchasing decision-making

process model, and lists the relationship between personal factor, knowledge , quality, eternal element and supply of organic products. The structural equation model was used to analyze the factors influencing consumers' purchase of organic products.

According to Tanaka (1987), the number of samples is based on a measurement variable of at least five times the principle. A total of 280 questionnaires were sent out and 243 questionnaires were collected. There were 80 questionnaires that did not purchase organic agricultural products, and 163 questionnaires were purchased. The recovery was 86.79%, and therefore the recommended value for the number of samples was met.

5. EMPIRICAL RESULTS AND DISCUSSIONS

5.1 Empirical Results:

In this study, 243 sample data were analyzed by binary logistic regression using IBM SPSS Statistics 23 software, the Enter method (Forced entry method) was used, the results of factor analysis are introduced into the regression model, and a variety of tests, factor analysis results are as follows:

Predictors		Dependent variables=consuming behavior(1=yes, 0=no)										
		M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11
Fact or 1	X7organic fruits and vegetables	0.365					0.596	0.301	0.353			0.555
	X8 organic fruits and vegetables	0.239					0.151	0.223	0.23			0.109
	X9 organic fruits and vegetables	0.828					0.722	0.879	0.835			0.765
	X10 organic fruits and vegetables are healthy	0.322					0.261	0.508	0.38			0.494
Fact or 2	X5cultural level		0.475				0.352			0.175	0.441	0.134
	X6income level		0.024				0.041			0.067	0.016	0.012
Fact or 3	X2age			0.049		0.054		0.077		0.041		
Fact or 4	X13the difference between organic and ordinary fruits and vegetables				0.325	0.37			0.487		0.157	0.321
Cox & Snell R2		0.055	0.031	0.017	0.004	0.02	0.083	0.068	0.057	0.049	0.039	0.101
Nagelkerke R2		0.077	0.043	0.023	0.006	0.028	0.115	0.095	0.08	0.068	0.054	0.141
2 Log likelihood		294.113	300.307	303.834	305.97	303.037	286.909	290.811	293.663	295.813	298.316	281.948
Chi-square		13.828	7.634	1.936	5.702	9.946	21.032	17.13	14.308	12.128	9.625	25.993
p-value		0.008	0.022	0.043	0.325	0.086	0.002	0.004	0.014	0.007	0.022	0.010

1. Factor 1 contains X7-organic fruits and vegetables is safer, X8-organic fruits and vegetables taste better, X9-organic fruits and vegetables are nutritious, X10-organic fruits and vegetables are healthy. They are from the consuming behavior intention of independent variables, and the chi-squared value of the whole model was 13.828, while the P-value was 0.008 (P value <sig = 0.05, which could be used if required). This means in the Logistic regression model, the predictive variable has a significant effect on the consumption behavior. Also the behavior of the distribution of the way is to affect the intention. The P value of X8-organic fruits and vegetables taste better, X10-organic fruits and vegetables are healthy is significant, this means the variable is effective in predict consuming behavior intention.

2. Factor 1 contains X5-the culture level, X6-the income level is independent variable to affect consuming behavior intention. The chi-squared value of the whole model was 7.634, while the P-value was 0.022 (P value <sig = 0.05, which could be used if required). In the Logistic regression model, the predictive variable has a significant effect on the consumption behavior, and the index is used to influence the behavioral intention. The P value of X6-income level is significant, which means the variable is more effective in predicting consuming behavior intention.

Therefore, we extracted two factors which were significantly higher and two single factors from the table above: X8-organic fruits and vegetables taste better, X10-organic fruits and vegetables is healthy, X6-monthly income level, X2-age, X-13-the price difference of organic and general fruits and vegetables. Five factors were analyzed by Logistic regression analysis and the results are explained below:

	B	Std. D	Wald	df	Sig.	Exp(B)
Step1 ^a X8-organic fruits and vegetables taste better	-.467	.150	9.631	1	.002	.627
X6-income level	.305	.113	7.357	1	.007	1.357
X-13-the difference between organic and ordinary fruits and vegetables	-.168	.129	1.696	1	.193	.845
constant	1.313	.506	6.728	1	.009	3.719

a. variables in step 1: x8-organic fruits and vegetables taste better, x6-income level, x-13-the difference between organic and ordinary fruits and vegetables

The "Variables in Equation" table is the values of the independent parameter estimates and the significance test results in the regression equation: X6-monthly income level and X8-organic fruits and vegetables taste better on consuming behavior is the most significant. X13-the price difference of organic and general fruits and vegetables are not significant. They have very little effect on the model, and these factors are eliminated when the equation is finally established. Thus we build the relationship of y and x:

$$f(x)=\beta_0+\beta_1X_1+\beta_2X_2+\dots+\beta_KX_K$$

$$=1.313+0.305X_6 \text{ (monthly income level)} -0.467X_8 \text{ (organic fruits and vegetables taste better)}$$

The probability of consumption behaviors behavior is as follows:

$$P=ef(x)/(1+ ef(x))$$

$$= e^{1.313+0.305X_6 \text{ (monthly income level)} -0.467X_8 \text{ (organic fruits and vegetables good taste)}} / (1+ e^{1.313+0.305X_6 \text{ (monthly income level)} -0.467X_8 \text{ (organic fruits and vegetables taste better)}})$$

When the P value of ≥ 0.5 , meant consumption, P value of less than 0.5, meantno consumption.

6. CONCLUSIONS AND SUGGESTIONS

6.1 Conclusions:

After empirical analysis of the factors that affect consumption, consumption in all the factors affecting the consumer come to the following conclusions, from strong to weak.

6.1.1 The knowledge of organic fruits and vegetables:

Among the variables of the knowledge of organic fruits and vegetables, organic fruits and vegetables is safer, organic fruits and vegetables taste better, organic fruits and vegetables are nutritious, and organic fruits and vegetables is healthy are main concerns of consumers. From the regression analysis: in knowledge of organic fruits and vegetables, the most persuasive factor is organic fruits and vegetables taste better. In the results of questionnaire, consumers have 50% recognition on organic fruits and vegetables taste better, nutritious, healthy, brands/origins and increase of brands. This shows consumers' knowledge of organic fruits and vegetables is not sufficient.

6.1.2 Consumers' personal and family:

Gender, age, family structure, cultural level and monthly income level are positively significant in regression analysis; 76.69% of the consumers are families with elderly men and children. This indicates personal and family factor has positive effect on organic fruits and vegetables, which promote the consumption of organic fruits and vegetables.

6.1.3 Price:

Price factor is not significant in regression analysis. The study shows 69% of consumers care the price difference between organic and general fruits and vegetables. 91% of the consumers consider the price of organic fruits and vegetables is higher. The price factor is negatively related to the consumption.

6.1.4 Purchase ways:

68% chose convenient and more convenient, 23% chose fair; the consumption locations are in supermarket, traditional market and internet. Therefore if the purchase ways are more convenient, the consumption of organic fruits and vegetables are positive affected.

6.1.5 Purchase status:

In the study, 60% of consumers are willing to consume actively. 30% chose fair. 41% of consumers are willing and very willing to consume in promotion. 37% chose fair. 39% are affected by ads/promotion, 38% chose fair. From the collected data, consumers' active consumption is stronger, which has positive affection on consumption under ads and promotion.

6.1.6 Purchase purpose:

Organic foods for oneself and for family are 49% and 46%. This indicates great concerns on food safety of consumers. Organic fruits and vegetables are highly concerned and the consumption of organic fruits and vegetables is growing positively.

6.2 Suggestions:

6.2.1 Enhance the knowledge of organic fruits and vegetables of consumers:

The study found that the knowledge of organic fruits and vegetables of consumers are still not sufficient. Their recognition is mainly organic products are safe and nutritious. More nutritious nature and advantages could be introduced to consumers.

6.2.2 Reduce the cost of production to improve the purchasing power of consumers:

From the study we learned that the price of organic fruits and vegetables is high which 90% of consumers with purchase experience. This is the main reason of its low consumption. In addition to improve the purchase power, ignore the market norms, set the same price as ordinary fruits and vegetables and have the same conditions such as sales, transportation and warehousing conditions. To reduce manufacturing cost is the main condition to increase sales

6.2.3 Expansion of sales channels and market segmentation:

There are a lot of sales, including supermarkets, traditional markets, specialty stores and online sales, are now playing a significant role in promoting. Whereas, the current study suggests several worthy developing ways: E-commerce, direct marketing and different consumer segments of the market segment.

6.2.4 The standardization of the market:

Although the rise of the network has brought convenience to consumers and manufacturers, it also brought both harms.

Consumers receive fake goods and manufacturers were under fraudulent use of products, leading to the reduction of consumers. This requires attention of product quality assurance and product self-protection. Three aspects are concerned: Brand management, orderly market price mechanism, and the construction of corporate social responsibility.

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REFERENCES

- [1] World Federation of organic sports website, web site: [index.php http://www.organic-world.net](http://index.php/www.organic-world.net)
- [2] Xinjian Chen, Tao,Dong. Study on premium of organic food, consumer awareness and willingness to pay (J). Price theory and practice, 2012 (11): 84-85.
- [3] Magist. Graciaa. The decision to buy organic food products in Southern Italy [J] .British Food Journal, 2008, 110 (9), 929-947.
- [4] Lian gang Zhang. Data analysis -J from the eastern, central and western regions of the influencing factors of the green purchase behavior of multi group structural equation model based on the perspective of the rural economy. Chinese, 2010 (2): 44-54.
- [5] Hui Xin. How to eat it safe? 360 kinds of food safety knowledge. Beijing: China University of Political Science and Law press, 2012
- [6] Organic farm management system 2016.4
- [7] Swiss Institute of organic agriculture (FiBL), IFOAM international organic union (International IFOAM-Organics). 2016
- [8] China industrial information network. Web site: <http://www.chyxx.com>.2015
- [9] How. Modeling and optimization of some problems in organic food production [D]. Southeast University, 2004
- [10] Ekelund L, Jordan J L. Vegetable consumption and consumer attitudes towards organically grown vegetables - the case of Sweden.[C]. Workshop on Measuring Consumer Perception of Internal Product Quality. 1990.
- [11] Maslow's Hierarchy of Needs 1943.