

A Case Study on Chinese Consumers' Willingness to Pay for Geographical Indication Products

Wentao Dong

China Agricultural University, Beijing 100083, China

ABSTRACT. *This research is to investigate factors which may influence Chinese consumers' willingness to pay for the four kinds of Chinese Geographical Indication products (vegetable& fruit, wine, Chinese herbal medicine and tea). And at the same time estimate the Chinese consumers' average willingness to pay for the Geographical Indication products. The result shows that Chinese consumers' understanding of geographical indications products is still in primary stage. The analysis also indicates that knowledge of GI will have a significant positive impact on willingness to pay for all kinds Geographical Indication products. While the impact of consumer personal characteristics on willingness to pay depends on the type of Geographical Indication products..*

KEYWORDS: *Chinsumer; Chinese consumer; Geographical indication products; positive effect*

1. Introduction

China has vast agricultural land distributed in mountains, plains and plateaus at different latitudes. In this case, the same agricultural products from different origins may have different features. Therefore, one of the uses of Chinese geographical indications(GI) is to help consumers understand the origin of certain products with local characteristics.

According to the survey on the Chinese National Protected Geographical Indication products conducted by the China Geographical Indications Research Group, fruit products certified by the geographical indication account for 38.35% of total Geographic Indication products, vegetables and fungi products certified by geographical indications accounted for 15.13%, wine products account for 6.5% and Chinese herbal medicine accounts for 5.5%. By 2018, the data showed that 2359 products had been certified by National Geographic Indicators in China, with an increase of 412% in 10 years. The scenario shows that geographical indications have been paid more and more attention by Chinese producers and consumers. During the past few years, more and more Chinese consumers begin to notice the geographical indication products. thus, the Chinese geographical indication products began to

have brand effect in the market like some trademarks and labels. Scholars also have redirected their focus on geographical indications in China. However, these researches conducted by domestic scholars mainly are in the field of economics. For example, Chen Fajie et al. (2017) studied the development countermeasures of Geographic Indication Products under the background of Chinese supply-side reform from the perspective of supply-side reform. In 2019, Li Nana used the logistic regression model to analyze the economic benefits from Shanxi's Geographic Indication Agricultural Products. Few scholars start from the perspective of business management and customer behavior. Based on the theory of customer perceived value and researches on the characteristics of agricultural products, Zhang Guozheng et al. found that the five components of customer perceived value: functional value, economic value, safety value, environmental friendliness value and emotional value all have an impact on consumer behavior. For those researches from the perspective of consumer purchasing behavior, for example Zhang Qian et al. (2015) found that consumers' geographically certified agricultural products purchasing intention determined by their trustiness for the indication, and consumers' trust in the government's agricultural sector also affected consumers' purchasing behavior. Some scholars have made empirical analysis on Aksu apple and other agricultural products. Chen Yulan et al. (2011) analyzed the purchasing behavior for Aksu apple, finding that the demographic differences such as gender, age, educational level and income level will significantly affect the consumers' purchasing behavior towards indication products. Zhang Guozheng et al. (2017) studied the consumers' purchasing intention for Anhua black tea. The results show that Chinese consumers generally have lower understanding of geographical indications agricultural products, and even many consumers have not heard of local geographical indication products. The research also found that consumers' understanding of geographical indications products and their uses for the Anhua tea significantly affects consumers' consuming intention.

It can be seen that previous studies on the consumption of geographical indication products mainly focused on specific products such as fruits and tea, while other types of products were less involved. Little attention has been paid to the differences in consumers' willingness to pay for different kinds of products certified by geographical indications, and few has studied the reasons for these differences. Therefore, the purpose of this paper is to fill the research gap by investigating consumers' willingness to pay for various types of geographical indications products. And provide more suggestions for the development of geographical indications in China from the perspective of consumer behavior.

2. Contingent valuation Method

Contingent valuation is a valuation method which ask correspondents to value a certain change of given goods in a hypothetical case, then gets consumer preference data for the further studies. (Govindasamy, 1999) Geographical indication products' characteristics are dependent on the natural and cultural conditions of their origins. That is to say, compared with ordinary commodities, products certified by

geographical indications have been given new characters. Therefore, consumers' willingness to pay (WTP) for this change can be investigated through contingent valuation method.

3. Data and analysis

The surveys were carried out in Beijing, Sichuan, Guangxi, Guangdong, Ningxia, Shandong and other provinces, covering almost all provinces in China. A total of 320 questionnaires were collected, including 315 valid questionnaires.

3.1 Descriptive analysis

3.1.1 Knowledge of GI products

knowledge of GI products	
degree	percentage (%)
1(nothing at all)	13.33
2	33.02
3	25.08
4	18.1
5(quite a lot)	10.48
total	100

As is shown in the table above, only 28.58% of the respondents knew or knew geographic indication products well, and 46.35% of the respondents said they did not know or did not know geographic indication products at all. Compared with the survey conducted by Shang et al. in 2013, the proportion of people who don't know anything has dropped from 20% to 13.33%, indicating that Chinese consumers' knowledge of geographic indicators is gradually increasing. However, the result also shows that Chinese consumers' understanding of geographic indication products is still at a relatively low level.

3.1.2 Uses for Geographical Indication products

Uses for Geographical Indication products		
Uses	Number	Percentage(%)
as gifts	176	55.87
self-use	56	17.78
procurement	83	26.35
total	315	100

As is shown in the table above, 55.87% of customers buy geographical indication products for gifts use. Only 17.78% of consumers buy geographical indication products for their own use. This can reflect the consumption habits of Chinese consumers in buying geographical indication products. According to Zhang Guozhen et al.'s research (2012), when customers were asked the uses for Anhua Black tea, most of them said that they buy the tea for self and family use. As the result shown on the table above, however, when the consumers are asked their uses

for all kinds of geographical indication products rather than just a certain item like Anhua black tea, their purchasing purposes changed. More consumers choose to buy geographical indication products for gift giving, while fewer people use geographical indication products themselves.

3.1.3 Average willingness to pay for four kinds of GI products

Willingness to pay for different kinds of GI products			
Products	WTP	Average WTP (%)	Percentage(%)
Vegetable and fruit	below 20%	33.318	11.11
	20%-30%		26.03
	30%-40%		37.46
	40%-50%		19.37
	above 50%		6.03
Chinese herbal medicine	below 20%	33.286	9.84
	20%-30%		25.4
	30%-40%		41.9
	40%-50%		17.78
	above 50%		5.08
wine	below 20%	33.316	11.75
	20%-30%		25.08
	30%-40%		40
	40%-50%		14.6
	above 50%		8.57
tea	below 20%	33.603	10.16
	20%-30%		23.81
	30%-40%		41.9
	40%-50%		18.1
	above 50%		6.03

According to the table above, consumers' willingness to pay for the four products ranges from 33% to 34%. Specifically, the average willingness to pay for tea is 33.603%, which is the highest among the four products, while the average willingness to pay for traditional Chinese medicines is the lowest, which is 33.286%.

3.2 Regression analysis

Based on the literature review mentioned in the introduction part, the following variables are defined.

Type	Variables	Indicator
Dependent variable	WTP	Respondents' willingness to pay for Geographical Indication products Below 20% =1, 20%-30%=2, 30%-40%=3, 40%-50%=4, above 50%=5
Independent variables	Knowledge	Knowledge of the Geographical Indication products
	Uses	Uses for Geographical Indication products As gifts=1, self-use=2, procurement=3
	Gender	The gender of respondents Male=1, female=2
	Age	The age of respondents
	Income	Monthly disposable income of respondents
	Education	Respondents' education level

The regression model is:

$$WTP=c+b_1 \text{ knowledge} +b_2 \text{ uses} +b_3 \text{ gender} +b_4 \text{ age} + b_5 \text{income} + b_6 \text{ education}$$

This paper applied the model by SPSS to the analysis of the consumers' Willingness to pay for four different kinds of Geographical Indication products. The multi-collinearity test shows that the VIF values in the model for the four kinds of products are all less than 5, which means that there is no collinearity problem; and the D-W values are about 2, which shows that the model does not have autocorrelation scenarios. The model can be used in this research.

3.2.1 WTP for GI vegetables and fruits

dependent variable:WTP for vegetable and fruit							
	Unstandardized coefficients		Standardized coefficients	t	p	VIF	F
	B	Std.error	Beta				
constant	0.686	0.275	-	2.497	0.013*	-	45.759(0.000**)
knowledge of GI	0.565	0.04	0.639	14.309	0.000**	1.163	
uses	-0.035	0.051	-0.028	-0.681	0.496	1.017	
gender	-0.012	0.09	-0.005	-0.13	0.897	1.018	
Age:	0.057	0.035	0.069	1.638	0.102	1.021	
income	0.142	0.068	0.094	2.093	0.037*	1.169	
education	0.038	0.039	0.041	0.981	0.327	1.027	
R ²:0.471 Adjusted R ²: 0.461							
D-W :2.128							
* p<0.05 ** p<0.01							

As is shown on the above analysis, the regression coefficient of 'knowledge of GI' is 0.565 ($t = 14.309$, $P = 0.000 < 0.01$), which means that knowledge of GI has a significant positive impact on willingness to pay for Geographical Indication vegetable and fruit.

The regression coefficient of income is 0.142 ($t = 2.093$, $P = 0.037 < 0.05$), which means that income has a significant positive effect on willingness to pay for Geographical Indication vegetable and fruit.

3.2.2 WTP for GI wine

dependent variable: wine							
	Unstandardized coefficients		Standardized coefficients	t	p	VIF	F
	B	Std.error	Beta				
constant	0.528	0.276	-	1.913	0.057	-	51.141 (0.000**)
knowledge of GI	0.501	0.04	0.549	12.632	0.000**	1.163	
uses	-0.053	0.052	-0.042	-1.034	0.302	1.017	
gender	0.105	0.09	0.048	1.172	0.242	1.018	
age	-0.024	0.035	-0.029	-0.702	0.483	1.021	
income	0.437	0.068	0.279	6.407	0.000**	1.169	
education	-0.023	0.039	-0.024	-0.581	0.562	1.027	
R ² :0.499 Adjusted R ² :0.489							
D-W :2.065							
* p<0.05 ** p<0.01							

The regression coefficient of knowledge of GI is 0.501 ($t = 12.632$, $P = 0.000 < 0.01$), which means that knowledge of GI has a significant positive effect on willingness to pay for Geographical Indication Wine. That is, the higher the degree of understanding, the higher the WTP. The regression coefficient of income is 0.437 ($t = 6.407$, $P = 0.000 < 0.01$), which means that income has a significant positive effect on willingness to pay for Geographical Indication Wine. That is, the higher the income, the higher the WTP.

3.2.3 WTP for GI tea

dependent variable: tea							
	Unstandardized coefficients		Standardized coefficients	t	p	VIF	F
	B	Std.error	Beta				
constant	1.409	0.281	-	5.008	0.000**	-	35.927 (0.000**)
knowledge of GI	0.538	0.04	0.627	13.297	0.000**	1.163	
experience	0.038	0.053	0.032	0.727	0.468	1.017	
gender	-0.23	0.092	0.111	-2.51	0.013*	1.018	
age	-0.008	0.036	-0.01	-0.226	0.822	1.021	
income	-0.015	0.07	0.01	-0.214	0.831	1.169	
education	0.075	0.04	-0.083	1.873	0.062	1.027	
R ² :0.412 Adjusted R ² :0.4							
D-W :1.958							
* p<0.05 ** p<0.01							

The regression coefficient of knowledge of GI is 0.538 ($t = 13.297$, $P = 0.000 < 0.01$), which means that knowledge of GI has a significant positive effect on willingness to pay for Geographical Indication Tea. Gender's regression coefficient is -0.230 ($t = -2.510$, $P = 0.013 < 0.05$), which means that gender will have a significant negative impact on willingness to pay for Geographical Indication Tea, that is, men's willingness to pay for Geographical Indication Tea is higher than women.

3.2.4 WTP for GI Chinese herbal medicine

dependent variable: Chineseherbal medicine							
	Unstandardized coefficients		Standardized coefficients	t	p	VIF	F
	B	Std.error	Beta				
constant	1.08	0.259	-	4.17	0.000**	-	46.936(0.000**)
knowledge of GI	0.532	0.037	0.634	14.276	0.000**	1.163	
experience	0.018	0.048	0.015	0.367	0.714	1.017	
gender	0.147	0.084	0.072	1.736	0.083	1.018	
age	-0.087	0.033	-0.111	-2.656	0.008**	1.021	
income	0.143	0.064	0.099	2.227	0.027*	1.169	
education	-0.008	0.037	-0.009	-0.226	0.821	1.027	
R ² :0.478 Adjusted R ² :0.467							
D-W :2.129							
* p<0.05 ** p<0.01							

The regression coefficient of knowledge of GI is 0.532 ($t = 14.276$, $P = 0.000 < 0.01$), which means that knowledge of GI will have a significant positive effect on willingness to pay for Geographical Indication Chinese herbal medicine. The regression coefficient of age is -0.087 ($t = 2.656$, $P = 0.008 < 0.01$), which means that age will have a significant negative effect on willingness to pay for Geographical Indication Chinese herbal medicine. That is, the elder the consumers, the lower the willingness to pay for Geographical Indication Chinese herbal medicine.

4. Conclusion and discussion

According to this study, we can draw conclusions in the descriptive statistics section: 1. At present, Chinese consumers are less aware of GI products. 2. The use of GI products by Chinese consumers is mostly used for gift giving. 3. Chinese consumers' willingness to pay for GI products is about 33%. Consumers will have some differences in their willingness to pay for different kinds of GI products. Among them, consumers have the highest willingness to pay for GI tea, and the least willingness to pay for GI Chinese herbal medicine.

In the regression analysis we can conclude that: 1. knowledge of GI will have a significant positive impact on willingness to pay for all kinds Geographical Indication products. That is, the higher the consumer's understanding of

Geographical Indication products, the higher their willingness to pay. 2. The willingness to pay for geographical indications of fruit and vegetable products and GI wines also depends on the income of consumers. The higher the income, the higher the willingness to pay. 3. Gender has an impact on the willingness to pay for GI tea. Men are more willing to pay for GI tea than women. 4. Age influences on the willingness to pay for GI Chinese herbal medicine. The older the age, the lower the willingness to pay for Chinese herbal medicine.

Although some scholars have found that demographic characteristics such as education level are important factors influencing the willingness to pay for the GI products. It can be seen in this research that demographic characteristics do not significantly affect the customer's willingness to pay for all four types of GI products. What's more, it can be found that knowledge of GI is a significant reason for willingness to pay for all kinds Geographical Indication products. Based on the above conclusions, it can be predicted that, at present, Chinese consumers are less willing to pay because of their lower awareness of GI products. As the level of awareness raising, increasing consumers will pay more for GI products. Based on the above analysis, recommendations can be made to government certification bodies and manufacturers. That is, the government and enterprises should enhance the visibility and popularity of GI products, so that more and more consumers can have basic knowledge of GI products. It will benefit the development of the GI product industry and provide more revenue for the producers.

Most of the previous study of willingness to pay concluded that women's willingness to pay is higher than that of men. Because women have stronger purchasing power (Gracia et al., 2012). While in this survey on willingness to pay for GI tea, we can find that men are more willing to pay for GI tea than women. In Chinese tea culture, men who drink tea at higher prices tend to have higher social status. Cheap tea is a necessity of male consumers' life, while the expensive tea has become a symbol of male consumers' identity. This may be the potential reason of this result, and the specific reasons can be further studied in the future.

As for fruit, vegetables and wine, they are all necessities of consumers' daily life. According to the research of economics, with the increase of disposable income, people will not necessarily increase the quantity of necessities, but will certainly improve the consumption level of necessities. This is also a reasonable explanation for the conclusion of this survey: income affects consumers' willingness to pay for the necessary's vegetables, fruits and alcoholic drinks, but has no significant impact on the willingness to pay for tea, traditional Chinese medicine and other non-necessities. Therefore, producers of geographical indication vegetable, fruit and wine can consider cooperating with local government with high income levels to sell more products to these regions.

Reference

- [1] Chen Fajie, Wang Zhanjie, Meng Fei (2017). Research on the Development Strategy of Geographical Indicators Products in Xinjiang from the Perspective of Supply-side Reform. *Agricultural Economy*, no.1, pp.130-132.
- [2] Chen Yu-lan, Liu Rui-feng, Chen Tong (2011). An Empirical Analysis of the Impact of Geographical Indicators on the Economic Benefits of Aksu Apple Production: Based on the Micro-survey Data of 220 Farmers in Aksu Area, *Economic Research Guide*, no.29, pp.84-86.
- [3] Gracia A, De Magistris T, Nayga R (2012). Importance of Social Influence in Consumers' Willingness to Pay for Local Food: Are There Gender Differences? *Agribusiness*, vol.28, no.3, pp.361-371.
- [4] Govindasamy R, Italia J (1999). Evaluating consumer knowledge of alternative agricultural commodities: The case of IPM produce. *American Journal of Alternative Agriculture*, vol.14, no.4, pp.180-187.
- [5] Shang Xu-dong, Hao Ya-wei, LI Bing-long (2014). An Analysis on Payment Intention of Consumers to Geographical Indication Agricultural Products—A Case Study of Yanchi Tan-sheep. *Research on Technological Economy and Management*, no.1, pp.123-128.
- [6] Zhang Guozheng, Xu Zengzheng, Tang Wenyuan (2017). Study on the Willingness to Pay for the Premium of Tea Geographical Indications-Take Anhua Black Tea as an Example. *Agricultural Technology Economy*, no.8, pp.110-116.
- [7] Zhang Qian, GuoXiuping, LiuJiajia (2015). Literature Review on the Influencing Factors of Consumer's Intention to Purchase Agricultural Products Based on Geographical Indicators-Literature Review on the Influencing Factors on Purchase Willingness for Agricultural Products with Geographical Indications. *Science and Technology Plaza*, no.6, pp.224-228.