

Research on Factors Influencing the Willingness of Enterprises in Greater Bay Area to Participate in Food Safety Certification

Jun Liu

Fuzhou University of International Studies and Trade, Fuzhou Fujian, 350000, China

Abstract: Based on the discussion and analysis of experts in relevant fields, this study hypothesizes the factors that affect the willingness of enterprises in the Greater Bay Area to participate in food safety certification. From government support and regulation, consumer cognition, management of food hygiene certification of cognition, the same industry of food hygiene management level and perceived organizational support the five dimensions above, set up the five dimensions affect the enterprise of food security authentication of the will of structural equation model, and through the SPSS16.0 software, AMOS17.0 software and principal component analysis and structural equation model to empirical research methods of questionnaire survey data. First using the principal component analysis (PCA) to large bay area businesses involved in food safety certification will influence factors of multiple indicators for dimension reduction, refined out of the bay area businesses involved in food safety certification will influence factors of main component, using the structural equation model to the big bay enterprise participation willingness empirically the factors which influence food safety certification. The results show that government support and supervision have a significant positive impact on the willingness of food safety certification. Managers' cognition degree of food hygiene certification has significant positive influence on enterprises' willingness of food safety certification. The level of food hygiene management in the same industry has a significant positive impact on the willingness of food safety certification. The sense of organization support has a significant positive influence on the willingness of food safety certification. The influence of consumers' cognition degree on enterprises' willingness of food safety certification is not significant.

Keywords: Enterprises in the Greater Bay Area; Willingness of Food Hygiene Certification; Influencing Factors; Principal Component Analysis; Structural Equation Model.

1. Introduction

With the continuous development of society, people's income and basic living standards have also been greatly improved, and the price of food has gradually risen to the height of food safety and food hygiene. However, food safety problems still occur frequently, the most serious is the melamine incident that shocked the country a few years ago. So, the problem of food safety needs to be solved urgently. Food safety certification is a very important measure to ensure food safety, and it has a significant promoting effect on the promotion of corporate visibility and influence. In 2018, the results of the selection of China's top ten food safety cities show that Hong Kong first, Macao second, Jiamusi third, followed by Yichang, Heilongjiang General Bureau of Land Reclamation, Dalian, Lanzhou, Tangshan, Xuchang and Baoji, the cities in the Greater Bay Area ranked first and second respectively, and the cities in the Greater Bay Area have done quite well in ensuring food safety. The introduction of the Guangdong-Macao Framework Agreement on Food Safety Exchange and Cooperation plays a crucial role in tracing the origin of food safety in Greater Bay Area enterprises and in food safety supervision in Greater Bay Area. The support of Greater Bay Area enterprises in food safety certification plays a decisive role in ensuring food safety in the Greater Bay Area, so the willingness of Greater Bay Area enterprises to participate in food safety certification is extremely important. Therefore, this paper empirically analyzes the factors affecting the willingness of 500 food enterprises in the Greater Bay Area to participate in food safety certification by

using the method of structural equation model, and calculates the most critical factors affecting the willingness to participate in food safety certification. On this basis, countermeasures are proposed to improve the willingness of enterprises to participate in food safety certification. This has a strong practical significance for the improvement of food safety in the Greater Bay Area and even the perfection of the nationwide food safety certification system.

2. Theoretical Analyses of Factors Influencing the Participation Intention of Enterprises in Food Safety Certification in The Greater Bay Area

2.1. Influence Mechanism of Government Support and Supervision on Food Safety Certification Intention

The support and supervision of the local government of a region for food safety certification has an important role in promoting the food safety certification of enterprises in the region, because it can supervise the food safety quality of enterprises, find out the food safety problems to be solved, and eliminate the adverse consequences caused by some serious food safety incidents. It has a very important role in promoting the reputation of the enterprise, the further development of the future and the improvement of international influence. Therefore, the following hypothesis can be drawn:

H1: Government support and supervision have a significant positive impact on enterprises' food safety certification intentions

2.2. Influence Mechanism of Consumer Cognition Degree on Food Safety Certification Intention

The consumer is the last contact with the food group, but also the most closely related to the food group, therefore, the role of food safety is crucial to the consumer. If consumers pay special attention to food safety, then they will choose those who have a special food safety certification of the enterprise produced food, then if some enterprises do not carry out food safety certification, their food will not be effective sales, which is very bad for the long-term development of enterprises. Therefore, if the enterprise wants long-term healthy development, it needs to go to a special agency for food safety certification, which will be of great help to the long-term performance of the enterprise. Therefore, the following assumptions can be made:

H2: The degree of consumer cognition has a significant positive impact on the intention of food safety certification of enterprises

2.3. Mechanism of the Influence of Managers' Cognition of Food Hygiene Certification on Their Intention to Obtain Food Safety Certification

Business managers are the most direct participants and performers of food safety certification, because regardless of the previous government support or consumer awareness of the importance of food safety, if business managers do not realize this point, it is all in vain, because without their implementation, all cannot be achieved. Only when enterprise managers are really aware of the importance of food safety to the future of the whole enterprise, will they be willing to go to specialized agencies for food safety certification to maintain their good reputation and long-term performance in the future. Therefore, the following assumptions can be made:

H3: Managers' awareness of food hygiene certification has a significant positive impact on enterprises' food safety certification intentions

2.4. Influence Mechanism of Food Safety Management Level in The Same Industry on Food Safety Certification Intention

Any enterprise will be in the same industry competitors, if a competitor in the same industry for food safety certification, won the trust of consumers, won a good reputation in the industry, then their business performance will be rapidly improved, and the future development prospects are also very considerable. As a competitor in the same industry, in the face of competitors in the food safety certification to achieve such success will certainly be tempted, certainly will not be indifferent, they will also think of going to a special agency for food safety certification, to ensure the competitiveness of their food in the market, to win the favor and trust of consumers, this has a significant role in promoting and promoting the further sustainable development of Jinkang. Therefore, the following assumptions can be made:

H4: The level of food hygiene management in the same industry has a significant positive impact on the intention of food safety certification of enterprises

2.5. Mechanism of Influence of Perceived Organizational Support on Food Safety Certification Intention

The management of food safety in enterprises is not limited to the food safety cognition of the managers of the enterprises themselves, the food safety cognition of consumers, the food safety management level of the same industry, the government's support and supervision of food safety, but also has a greater connection with the support of other external organizations. If other organizations publicize and guide the food safety certification of enterprises in different ways, it will be very beneficial to the shaping of positive image of enterprises. For example, some media and news organizations are the best organizations to publicize the food safety certification of enterprises. They make use of their wide audience to publicize the food safety certification of these enterprises in a very short time. It can get the response of many audience groups, and the influence and scope are relatively large, which has a significant promoting effect on the shaping of positive word-of-mouth of enterprises. Therefore, the stronger the support from external organizations, the stronger the willingness of companies to conduct food safety certification. Therefore, the following assumptions can be made:

H5: The sense of organizational support has a significant positive impact on the intention of food safety certification

3. Research Design

3.1. Questionnaire Design and Processing

Based on the classical theory, authoritative literature and the concrete reality of the participation intention of enterprises in food safety certification in the Greater Bay Area, the questionnaire of this study was designed. The research object of this paper is the food enterprises in 11 cities such as Hong Kong, Macao, Guangzhou and Shenzhen in the Greater Bay Area of China. The questionnaire mainly consists of two parts: the first part is the basic information of the enterprise, including the region where the enterprise is located, the establishment time of the enterprise, the educational level of the respondents, the gender of the respondents, the working years of the respondents, the age of the respondents, the annual business income of the enterprise, and the number of employees of the enterprise. The second part is the factors affecting the willingness of enterprises to participate in food safety certification, including government support and supervision, consumer awareness, managers' awareness of health certification, the level of health management in the same industry, the sense of organizational support, and the willingness of enterprises to certify. This study refers to the classical scale of authoritative literature, combined with the research practice of this paper, to determine the questionnaire scale. This questionnaire scale adopts the seven-level Likert scale scoring method, indicating "strongly disagree, somewhat disagree, disagree, ordinary, agree, somewhat agree, strongly agree". Questionnaires in this study were mainly distributed on site. A total of 500 questionnaires were distributed, and 462 questionnaires were recovered. Excluding some questionnaires from enterprises that were unwilling to cooperate, some questionnaires with obvious problems in data filling, some questionnaires that were not completed, and some questionnaires filled in randomly, the final number of valid questionnaires was 435. The effective

rate was as high as 87%, indicating that the questionnaire delivery effect was relatively good.

3.2. Construction of Structural Equation Model

Structural equation models, also known as path analysis or confirmatory factor analysis, generally include measurement models and structural models. The measurement model refers

to the convergent relationship between measurable indicators and unmeasurable variables (latent variables), and the structural model refers to the causal relationship between latent variables. Based on the above theoretical analysis and research hypothesis, the latent variables and observed variables of the influencing factors model of the participation intention of enterprises in food safety certification in the Greater Bay Area are designed.

See table below.

Table 1. Latent variables and observed variables of the model influencing factors of enterprises' participation in food safety certification in the Greater Bay Area

	Latent variables	Observed variables
	Government support and supervision	The local government has sufficient knowledge and experience in food safety supervision(XX1)
		Local governments provide truthful food safety information to the public(XX2)
		The local government ensured food safety(XX3)
	Consumer awareness	Consumers are concerned about food safety(QW1)
		Consumers understand food safety certification(QW2)
		Consumers trust food safety certification(QW3)
		Consumers want food safety certification companies(QW4)
		Consumers tend to buy food from companies with food safety certification(QW5)
		Consumers will recommend food from food safety certification companies to their friends and relatives around them(QW6)
	Managers' awareness of food hygiene certification	Managers attach importance to food safety(ZL1)
		Regulators feel pressure from consumers' demands for food safety(ZL2)
		Managers encourage employees to comply with food safety certification requirements(ZL3)
		Managers train employees on food safety certification(ZL4)
		Managers will honestly provide food safety certification information to the public(ZL5)
		Managers can guarantee the quality of food(ZL6)
		Managers can make food safety certification a top priority for their organizations(ZL7)
		Management can promote food safety certification to the outside world(ZL9)
	Food of the same industry Health management level	Enterprises in the same industry have passed the food safety certification(JZ1)
		The same industry pays attention to food safety(JZ2)
		Enterprises have technical support for food safety certification(JZ3)
	Sense of organizational support	The enterprise has supporting facilities that meet the requirements of food safety certification(MY1)
		The company has trained its employees for food safety certification(MY2)
	Enterprise certification intention	Companies are willing to conduct food safety certification(ZC1)
		Companies have the budget for food safety certification(ZC2)
		The company plans to conduct food safety certification(ZC3)

4. An Empirical Analysis of the Factors Influencing the Participation Intention of Four Bay Area Enterprises in Food Safety Certification

4.1. Reliability Test

SPSS16.0 software was used to test the reliability of the questionnaire. Cronbach's alpha is selected as the reliability

test method. The generally accepted standard is that only when Cronbach's alpha is greater than 0.5 can the reliability test be considered passed. The reliability test results of this paper are shown in the table below.

As can be seen from the above table, Cronbach's α coefficient of each variable is above 0.673. Nunnally & Berstein (1994) points out that Cronbach's α coefficient is greater than 0.7, indicating high data reliability, indicating that the questionnaire data reaches the reliability level.

Table 2. Reliability analysis table

Variables	Number of measurement questions	Cronbach's alpha
Government support and supervision	3	0.828
Consumer awareness	6	0.705
Managers' awareness of food safety certification	7	0.724
Food safety management level in the same industry	2	0.673
Sense of organizational support	3	0.751
Enterprise certification intention	3	0.805

4.2. Validity Test

Validity test is an important method to check whether the questionnaire size and research content are compatible. In general, it includes two aspects: content validity and construction validity. Content validity means that the scale can well reflect the core content of the research. Construction validity refers to the ability to explain the degree of concept well. The convergence between the principal components and the specific indicators of the principal components matrix above is good, indicating that

the construction validity of the questionnaire in this study is high. See the principal component analysis matrix in Table 3.

4.3. Full Model Analysis of Structural Equation

AMOS17.0 software was used to conduct an empirical analysis of the influencing factors of Greater Bay Area enterprises' participation in food safety supervision. The results are shown in Table 3 and Table 4.

Table 3. Test of fit degree

CMIN/DF	NFI	IFI	TLI	CFI	RMSEA
2.199	0.904	0.948	0.939	0.942	0.081
1<CMIN/DF<5	>0.9	>0.9	>0.9	>0.9	<0.1
supportive	supportive	supportive	supportive	supportive	supportive

The results in the table above show that the fitting degree indexes fully meet the fitting criteria. The matching degree between the model and the data is high, and the model selection is reasonable.

It can be seen from the above analysis results that the statistical test of each observation index of the measurement model has passed, that is, it has statistical significance at the significance level of 5%, and all the standardized factor load coefficients are above the threshold value of 0.5. The structural model shows that the management level of the same industry has a significant impact on the intention of food safety certification, and the coefficient is positive, and the specific value of the coefficient is 0.302; Government regulatory support has a significant impact on food safety certification intention, and the coefficient is positive, the specific value of the coefficient is 0.268; Organizational support has a significant effect on food safety certification intention, and the coefficient is positive, the specific value of coefficient is 0.458; Consumer cognition had no significant effect on the intention of food safety certification and did not pass the statistical test. The cognitive degree of managers has a significant impact on the intention of food safety certification, and the coefficient is positive, the specific value of the coefficient is 0.144.

5. Conclusion and Suggestions

The principal component analysis method was used to reduce the dimensionality of multiple indicators of influencing factors of Greater Bay Area enterprises' willingness to participate in food safety certification, and the principal components of influencing factors of Bay Area

enterprises' willingness to participate in food safety certification were extracted. Then the structural equation model was used to empirically test the influencing factors of Greater Bay Area enterprises' willingness to participate in food safety certification. The results showed that government support and supervision had a significant positive impact on enterprises' food safety certification intention. Managers' cognition of food hygiene certification has a significant positive impact on enterprises' intention of food safety certification. The level of food hygiene management in the same industry has a significant positive impact on the intention of food safety certification; The sense of organizational support has a significant positive impact on the intention of food safety certification. The influence of consumer cognition on the intention of food safety certification is not significant. Based on this, countermeasures and suggestions are put forward to improve the participation willingness of enterprises in food safety certification in the Greater Bay Area:

Firstly, on the government side. The government should improve the food safety law as soon as possible, build a corporate culture of harmonious and fair competition with the food industry, and increase the amount of capital and technical support for enterprises so that enterprises can participate in food safety certification. According to the survey, some managers of enterprises believe that their food safety certification is strong, but they do not know where to apply for certification. And believe that food safety certification is too difficult, so back. From this point of view, the government should publicize the strength of food safety certification to enterprises. First of all, the government should clearly inform enterprises of the contact information of food

safety certification agencies through announcements, seminars and other forms. Secondly, the government should let enterprises understand the importance and value of food safety certification, and tell enterprises about the requirements of food safety certification and related certification processes, free training for enterprise employees who want to participate in food safety certification, to avoid

enterprises in the certification process to go too much or go wrong. Finally, the government should provide free solutions and solutions for enterprises when they encounter difficulties in certification. Encourage enterprises to boldly try food safety certification, for enterprises to establish confidence in food safety certification.

Table 4. Hypothesis verification results of the model research on influencing factors of enterprise participation in food safety certification in the Greater Bay Area

Path relation			Coefficients	Standard error	T value	P value	Results
Authentication intention	<---	Industry management	.302	.092	3.279	.001	Supportive
Authentication intention	<---	Strength of supervision	.268	.080	3.335	***	Supportive
Authentication intention	<---	Organizational support	.458	.091	5.052	***	Supportive
Authentication intention	<---	Consumer cognition	-.076	.084	-.912	.362	Not supportive
Authentication intention	<---	Manager cognition	.144	.066	2.195	.028	Supportive
XX3	<---	Organizational support	1.000				Supportive
XX2	<---	Organizational support	.940	.039	24.423	***	Supportive
XX1	<---	Organizational support	.947	.042	22.724	***	Supportive
QW6	<---	Consumer cognition	1.000				Supportive
QW5	<---	Consumer cognition	.998	.059	17.055	***	Supportive
QW4	<---	Consumer cognition	1.018	.059	17.298	***	Supportive
QW3	<---	Consumer cognition	1.054	.044	23.842	***	Supportive
QW2	<---	Consumer cognition	.888	.047	18.940	***	Supportive
QW1	<---	Consumer cognition	.864	.049	17.533	***	Supportive
ZL9	<---	Manager cognition	1.000				Supportive
ZL7	<---	Manager cognition	.993	.041	24.104	***	Supportive
ZL6	<---	Manager cognition	.968	.041	23.507	***	Supportive
ZL5	<---	Manager cognition	.904	.039	22.953	***	Supportive
ZL4	<---	Manager cognition	.659	.041	15.957	***	Supportive
ZL3	<---	Manager cognition	.958	.039	24.454	***	Supportive
ZL2	<---	Manager cognition	1.012	.031	33.132	***	Supportive
ZL1	<---	Manager cognition	.881	.042	21.187	***	Supportive
ZC1	<---	Authentication intention	1.000				Supportive
ZC2	<---	Authentication intention	1.013	.025	40.274	***	Supportive
ZC3	<---	Authentication intention	.959	.033	29.377	***	Supportive
JZ3	<---	Strength of supervision	1.000				Supportive
JZ2	<---	Strength of supervision	1.060	.033	31.968	***	Supportive
JZ1	<---	Strength of supervision	1.035	.036	28.460	***	Supportive
MY2	<---	Industry management	1.000				Supportive
MY1	<---	Industry management	1.083	.202	5.366	***	Supportive

Note: The significance level was 0.05.

Secondly, on the corporate side. Enterprises in the Greater Bay Area should conduct food safety and personal hygiene training for their employees after entry into the workplace, and conduct a biological, physical and chemical analysis of each process. Establish a food safety team within the enterprise, make accurate and responsive emergency

incidents, establish hazard analysis and key control restrictions, work site planning and layout, personnel and equipment management and physical operation procedures, establish employee health management personnel, identify and establish non-compliance measures, establish supervision and measurement control measures, Establish a verification

system to define the purpose, methods and responsibilities of verification activities. Prepare to participate in food safety certification. Strengthen food traceability and improve the transparency of food information.

Table 5. Summary of hypothetical results

ID	Contents	Results
H1	Government support and supervision have a significant positive impact on enterprises' food safety certification intentions	Supportive
H2	The degree of consumer cognition has a significant positive impact on the enterprise's food safety certification intention	Not supportive
H3	Managers' awareness of food hygiene certification has a significant positive impact on enterprises' food safety certification intentions	Supportive
H4	The level of food hygiene management in the same industry has a significant positive impact on the intention of food safety certification	Supportive
H5	The sense of organizational support has a significant positive impact on the intention of food safety certification	Supportive

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