

## Research Article

### Analysis on the Influence of Food Safety Information on Consumers' Behavior and Its Factors

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**Abstract:** Food safety information is a complex system engineering involving many departments, levels and links. At present, the main impacts for China's food safety information on consumers' behavior are the cultivation, production, processing, storage, transportation, sales and other aspects. From a policy point of view, there is a problem that consumers know less about the food safety information that the government regulates. The effect of food safety information on consumers' behavior is analyzed in the study according to food safety information in order to arouse attention of the whole society to the food safety and food regulatory.

**Keywords:** Consumer, food safety information, government regulators, social trust level

#### INTRODUCTION

Since 2008, severe food safety accidents such as “Sanlu Milk Powder”, “clenbuterol”, “gutter oil” and “crash chicken” have frequently happened. The attention of the domestic mass to the food safety risks reaches the unprecedented extent (Lu and Junxia, 2015). “2011-2012 China Drinking Safety Report” points out that 80.4% of respondents are lack of the safety sense for the current food safety conditions and most respondents think that the current food safety conditions are worse than it in the past (Redmond and Griffith, 2005). Now food safety risk gradually becomes one of the most severe social risks in China and asymmetric consumer's food safety information is the root reason for leading to food safety risk. Although the governments and enterprises assume the social responsibility to actively publish food safety information, consumers play important roles in solution of foods safety risks caused by asymmetric information (Shalaby, 1996). The consumers should search, analyze and use food safety information in order to make an accurate decision on the inherent quality and value level of foods, so improving consumer's capability of searching and using food safety information is one effective means to improve risk identification and prevention level.

Nowadays, more and more people would like to eat out, so the catering industry is booming, while the problems of food safety and health followed by are gradually increasing (Viallette *et al.*, 2005). The regulatory model which focuses on the workplace layout, sanitation facilities, tableware disinfection and health of employees has been unable to ensure the food

safety and health. If the food is not processed properly, or any health management mistakes happen, it will cause food safety risks and does harm to the consumer's health. Food safety has been an important social problem both at home and abroad. Over the past few years, a series of incidents on food safety occurred in China, including food poisoning (Lobb *et al.*, 2007), food pollution, illegal use of prohibited ingredients, food additives, fake and shoddy products and sales of expired food, food safety issues become the focus of the whole society. Especially in 2008, the melamine incident has a great influence, the increase number of food safety incidents has greatly shaken the consumers' confidence in food safety and thus the choices of healthy food have been hindered. Trust is a kind of psychological state, people have a positive expectation to other people's intentions and behaviors and they are willing to accept the vulnerability (Wilcock *et al.*, 2004). Trust plays an important role in risk management. Therefore, in order to restore consumers' confidence in food consumption, policy makers and food marketers need to build consumers' trusts in food safety. To understand the influence factors of consumers' trust in food safety is very important for designing public policy and food industry strategy and building consumer trust.

However, what factors determine the consumer's trust in food safety? Two different theoretical perspectives give some insights. One method is based on the consumer's cognition, which focuses on the study of individual risk perception (Kennedy *et al.*, 2008). This method considers that the individual characteristics determine their cognition and trust in food safety. The other method is the institutional method, which

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considers that trust is embedded in the relationship of the system and the consumer's trust in food safety is affected by the evaluation of the performance of the system. The study of the food trust mainly depends on the cognitive perspective or the institutional perspective. Surprisingly, there are few researches on the issue of trust in food safety that is from a more holistic perspective. The studies made by De Jonge and her colleagues deserve attention, they treat consumers' trust in food chain, the memory of food safety incidents (Wang *et al.*, 2008), personal characteristics and social demographic characteristics as a comprehensive consideration of the impact of consumer trust in food safety (Hegarty *et al.*, 2001). However, the framework of this research is based on the previous empirical research and it doesn't refer to the relevant trust theory. Moreover, previous empirical studies are from the United States, Europe and Australia, the results of these studies are applicable to these countries, whether these results can be extended to other countries is still suspected.

According to the relevant information of food safety, the two theoretical methods to explain the consumer's trust in food safety are integrated in the study and then the relationship between consumers' behavior and food safety information is studied.

## MATERIALS AND METHODS

Through the preliminary research, the benefits and safety of consumers to buy food have been understood, so the questionnaire is designed from three aspects: Food companies, consumers and government departments to analyze relevant options that related to the consumer food safety information. The first part of the questionnaire is the consumers' basic information, the second part is the social trust status of consumer food safety and the last part is the relevant projects of the food production enterprises, government supervision departments (Patil *et al.*, 2005). The questionnaire survey involves in the following areas: Shandong, Hebei, Beijing, Tianjin, Shanghai, Guangzhou Wuhan and other densely populated areas, main research personnel are the undergraduate and graduate students of University of food science and engineering, the questionnaire is sampled at random. 18000 copies were distributed and 15609 valid questionnaires were obtained, the effective rate was 86.7%. On the whole, the proportion of men and women is roughly equal and the age of the researchers is from 18 to 40 years old, mainly in wage-earners. Sample selection is basically consistent with the distribution of demographic variables. We invited 10 food safety management

experts and researchers for consumer's behavior as the expert group from the School of mathematics and statistics Northeast Petroleum University. These experts determined the mutual influence degree of 15 factors based on their experiences and knowledge, so we got 10 expert questionnaires which affect the relation among the factors affecting the consumer's behavior of using food safety information.

## RESULTS AND DISCUSSION

### Consumers' recognition of food safety information and social trust level:

With the frequent occurrence of food safety incidents, the wide spread of network information and the frequent reports on the media, consumers pay more attention to food safety. First of all, the Chinese consumers' attention to food safety issues is investigated in the questionnaire. The results show that: Consumers pay more attention to food safety issues, for food safety related news, the proportion of "regular attention" and "occasional attention" reached 82.9%, although consumers pay more attention to food safety issues, but there are still some cognitive bias. For the questionnaire: Which part does the food safety issues most occur? Many questions can be multi-selected, Table 1 shows: Consumers pay more attention to the production process, but know less about the transportation and distribution; according to the research of main responsible party in the food safety issues and consumers' awareness of food safety documents or signs, consumers think that the enterprises and governments should take responsibility, they do not aware of their role. And Table 2 shows: consumers only know the signs of green food, ISO9001 quality certification system and Qs food quality and safety signs and the proportion is less than 40%. As Table 3 shows: 51.2% consumers only concern about the production date and shelf life of food while buying food, ignoring the price, brand, quality certification and raw materials, additives and other factors. Thus it can be seen: consumers' awareness of quality and safety food is still relatively low, consumers' awareness of food safety is weak, which lead to the occurrence of food safety issues to a certain extent.

Consumers' individual recognition, government management, food safety have a strong impact on social trust of food safety, the majority of consumers have a strong potential demand for food, but this demand has not transformed into the real purchase, consumers are skeptical about the current food safety situation, the overall level of social trust is low. In order to understand the current social trust level of food safety

Table 1: Consumers' recognition of occurrence part and responsibility department about food safety issues

Occurrence part	Planting and feeding	Processing	Storage and transportation	Sales
Frequency	904	3324	630	384
Proportion (%)	17.82	68.7	13.2	8.1
Responsibility department	Government supervision departments	Food planting farmer	Processing enterprises	Consumers
Frequency	3064	1334	3720	554
Proportion (%)	63.4	35.8	77.4	11.7

Table 2: Consumer's understands of food safety information

Sign or documents	Quality Supervision Bureau QS safety signs	Green food logo	ISO9001 quality certification system	HACCP system sign	CAC sign	Totally not understood
Proportion (%)	35.3	34.7	21.1	0.8	0.3	7.8

Table 3: Consumers' notice during buying food according to the food safety information

Notice	Price	Brand	Production date and shelf life	Raw materials and additives	Is there a certificate of conformity	Others
Proportion (%)	15.4	19.5	51.2	6.5	5.7	1.7

Table 4: Consumers' satisfaction of food safety status

Satisfaction	Very satisfied	Comparatively satisfied	General satisfied	Not very satisfied	Very dissatisfied
Number	1541	1785	5990	4102	2291
Proportion (%)	9.77	11.21	38.37	26.18	14.48

in China, the satisfaction of food safety status is investigated in the questionnaire, the results show that (Table 4): Among 15609 consumers, 21% consumers hold a positive attitude, 40.7% hold a negative attitude and 38.37% hold a neutral attitude. Thus: most consumers have a negative attitude to the current food safety situation, which related to the lack of food enterprises improvement, incomplete government supervision system and frequent food safety incidents.

**Consumers' satisfaction of government regulators:**

The study shows that the government is the main force to deal with the food safety incidents. There are a lot of food safety supervision departments in China, but how is the work of food safety management, the satisfaction survey on food safety management work is investigated in the questionnaire, the results show that about half of consumers are general satisfied with the government management work of food safety, only 20% of consumers are satisfied; in which, consumers have the highest degree of satisfaction with the media work, the lowest degree of satisfaction with the quality inspection, health, industry and commerce, food and drug regulatory authorities, besides, only 26.3% of consumers will choose to complain when they faced food safety issues, about 35.7% of consumers think the complaint is useless, 17% of consumers think that it wastes time. Thus: consumers don't have enough confidence in government regulators to effectively solve the problem of food safety and the consumer's social trust in food safety is reduced to a certain extent.

**CONCLUSION**

The importance of establishing consumers' confidence in food safety is obvious. The results of this study provide a direct practical suggestion for the policy making. The consumer's trust in food safety can be established and maintained by following methods: Firstly, the effective communication with consumers should be established, especially those who do not believe in food safety (including consumers who do not know food safety well, low income consumers and old consumers), a good consumer trust should be established and maintained. Secondly, policy makers should take effective measures to reduce the occurrence

of food safety incidents, in order to enhance the consumers' confidence in the government. Moreover, strengthening the punishment to those who break the food safety rules will increase consumers' food trust. The results also show that the trust in the food supplier is important to enhance consumer's trust in food. Therefore, all personnel of the food supply chain have an impact on consumers trust in food and they should find effective ways to win back to consumers' trust. For example, food suppliers should comply with international and domestic food safety regulations in order to ensure that all food sold in the distribution channels can be eat safely. Once the food scandal broke out, food suppliers should inform consumers of the truth and not wait for the exposure of news media. In addition, through the progress of influencing and improving consumers' trust in government, food suppliers can also gain potential benefits, for example, food suppliers can support the establishment of professional associations of food industry standards, or they can report food suppliers that threat to consumers' food safety.

**Policy recommendations:** Most consumers have higher risk perception for current food safety, so the government should strengthen food safety supervision, construct the food quality safety guarantee system completely, strictly punish and govern the illegal behavior in food production, improve overall level of food quality safety and reduce the consumers' risk perception to food quality safety. For the food producers, the product brand has important influence on the consumer's behavior of using food safety information, so it is necessary to further strengthen the product quality safety management and brand construction and promote product quality safety certification, which can effectively reduce food safety risk perception of consumers and erect better quality safety image in the consumer's heart. The government and enterprises should strengthen those information which has higher awareness by the consumer such as guarantee period, quarantine mark, food safety standards. The government should pay more attention to the channels such as internet, television and newspapers and magazines when information is

released. These three channels can enhance the transmission efficiency of information. Food enterprises also can actively use package mark, which can be the important safety information transmission way and the powerful marketing tools. Food enterprises should strengthen the responsibility of food quality safety and create good reputation.

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