

Research on Cost and Benefit in Production Enterprises under the Regulation of Food Quality Safety Market Admittance System

Xiangrong Zhang

Shenzhen Graduate School, Harbin Institute of Technology

Approval and review center, Market Supervision Administration of Shenzhen Municipality

Guangdong 518055, China

E-mail: zhangxiangrong5@163.com

Received: December 27, 2010

Accepted: February 28, 2011

doi:10.5539/mas.v5n2p103

Abstract

Frequent occurrence of various food safety incidences raised questions among all circles about the validity of food quality safety market admittance system. Therefore, exploring the validity of the system and finding out the mentality of its scientific development is a problem to solve. From the perspective of cost and benefit in food production enterprises, a questionnaire survey was administrated in certain city and statistical analysis was applied to results in the article. The authors summarized the characteristics, effects and problems in the implementation of the system and put forward corresponding countermeasures and suggestions on the basis.

Keywords: Food quality safety market admittance system, Food production enterprises, Cost-benefit

1. Introduction

Food quality safety market admittance system (QS admittance system) is an important administrative license system that the General Administration of Quality Supervision, Inspection and Quarantine implements in order to improve the level of food safety, which means a supervision system that only producers who the conditions stipulated are permitted to produce and operate foods, including food production license system, food compulsory inspection system and food market admittance system. Since the system was implemented in 2002, it has played an important role in the aspects including regulating food market order, guaranteeing food safety and ensuring customers' health and safety, but various food safety incidences still happen frequently. Therefore, exploring the effects and validity of the implementation of the system and finding out the mentality of its scientific development is a problem to solve.

From the perspective of public management, after the implementation of food quality safety market admittance system, the benefit main body involved by the system—government, enterprises and customers will play games. In the mode of market economy, the equilibrium of the game should be that the system not only realizes the public safety of food, but under its regulation enterprises can obtain sustainable development capacity. Therefore, the research carried out a questionnaire survey from the perspective of cost-benefit of market admittance in food production enterprises so as to understand the impetus and difficulty of the implement of the system in enterprises and provide evidences for its optimization.

The research was conducted based on full sample questionnaire survey through telephone, fax and detention questionnaire survey in 447 food production enterprises which had obtained food production permit over one year in certain city, and 188 effective samples were collected. Among food enterprises staff surveyed, legal representative accounted for 15.79%, unit responsible persons accounted for 11.84%, quality responsible persons accounted for 44.74% and other staff accounted for 27.63%; Among corporate economy surveyed, state-owned assets accounted for 6.82%, private assets (including individuals) accounted for 29.55%, collective assets accounted for 2.27%, assets which belong to limited liability company accounted for 38.64%, assets which belong to stock limited company accounted for 2.27%, enterprises funded by Hong Kong, Macao and Taiwan accounted for 1.14%, enterprises funded by Hong Kong, Macao and Taiwan respectively accounted for 11.36%, enterprises invested by foreigners wholly, or jointly with China, or foreigners accounted for 2.27% respectively. Data collection process is in charge of special program group, by means of interviewer management, program training, supervision, ensuring scientific and liable data source.

2. Cost-benefit survey in food production enterprises under admittance system

2.1 The impact on corporate cost

In the aspect whether there is impact on cost, in the survey, 71.59 percent of enterprises thought carrying out market admittance system has impact on corporate cost, and only 28.41 percent of enterprises thought it had no impact on cost. 95.45 percent of enterprises thought carrying out market admittance system led to the increase of cost and 4.55 percent of enterprises thought it cannot. 'Management needs cost', while the system is carried out, it increases the cost in most enterprises indeed.

2.2 The structure of cost invested while applying for certificate

In the aspect of cost structure in enterprises while applying for market admittance, the results of survey showed that the proportion of purchase equipment accounted for 32.49% to the maximum, secondly human capital accounted for 23.63%, factory transformation accounted for 21.52%, external consultation accounted for 13.08%; management reform accounted for 8.02%, the others accounted for 1.27%. When China implemented food quality safety market admittance system, there were many compulsive provisions about hardware and sanitation conditions. The above-mentioned showed a lot of enterprises have not reached the requirements in the conditions of equipments and locations, and needs large transformation so as to achieve the conditions of admittance.

2.3 The structure of cost after obtaining certificate

After obtaining certificate, the survey of cost showed that detection cost accounted for 30.96%, establishment system accounted for 16.32%, equipment maintenance accounted for 17.15%, staff training accounted for 12.97%, and system management accounted for 22.59%; the data related to cost showed detection cost was the largest part for food enterprises to sustain quality management system.

2.4 The benefit after obtaining certificate

In the aspect of benefit influence, 71.91% of enterprises thought it can influence benefit, and 28.09% of enterprises thought it cannot influence benefit; 84.85% of enterprises thought it can increase benefit, 15.15% of enterprises thought it reduce benefit, showing that most of enterprises thought market admittance had positive meaning to push forward products quality and corporate benefit. It's clear that corporate cost increased, but corporate general benefit is improved, whose reason may be: 1) the management level of admitted enterprises is improved; 2) because of admittance, part of lagged enterprises are eliminated actually, objectively expanding the market of admitted enterprises; 3) after admittance, the existence space of products without certificate reduces so that it provide market share for other enterprises.

2.5 The situations of obtaining certificate in the same industry

In the survey that whether the same industry had certificate in the enterprises that carried out market admittance, the authors found that 47.13% of enterprises didn't have certificate, only 52.87% of enterprises had certificate, and the proportion was equivalent basically. It can clearly be seen that the phenomenon that enterprises without certificate produced contrary to provisions is not ignored.

2.6 The sales channel of products without certificate

In the survey of sales channel of products without certificate, restaurants accounted for 33.32%, part of supermarkets accounted for 13.13%, farmer's markets accounted for 23.23%, rural markets accounted for 22.22%, the others accounted for 9.09%. The results of survey showed that restaurants and farmer's markets accounted for main proportion, showing that the products without certificate were sold to the field of food and beverage service, rural and farmer's markets. Because the fields above still have not been in the management scope of quality technology supervision, to communicate and combine with other departments to strengthen the supervision on the products without certificate still needs to be enhanced.

2.7 The change after obtaining certificate

After obtaining certificate, the changes data in enterprises showed that the proportion of enterprises that chose 'improve safety consciousness', 'improve products quality', and 'improve customer confidence' reached 31.10%, 24.02% and 20.08% respectively; the proportions that chose 'improve market occupancy', 'improve management level' and 'improve customers satisfaction' were 7.09%, 8.27% and 5.91% respectively; the proportions of 'improve work efficiency' and 'increase sales' were 1.57%, the proportion of 'reduce customers complaint' was 0.39%, which can be seen that the main changes of implementing the system embodied as follows: improve the safety consciousness, improve food quality and enhance customers confidence.

2.8 Whether good quality and price are realized

In the enterprises surveyed, 65.22% of them reached good quality and price, but the other 34.78% of enterprises has not realized good quality. It can be seen that after implementing the system, the price of products in most of enterprises can be promoted to some degree.

2.9 The reasons that has not realized good quality and price

In the reasons that has not realized good quality and price, the reason that the enterprises without certificate has not existed accounted for 20.75%, the reason that consumer didn't understand accounted for 17.92%, the reason that support willing wasn't strong accounted for 24.53%, the reason that the similar enterprises obtained certificate accounted for 22.64%, the reason that sales channel was not smooth accounted for 5.66%, the reason that propaganda was insufficient accounted for 0.94%, the reason that traditional channel was not conductive accounted for 4.72%, the others accounted for 2.83%. It can be seen that because the admittance system is a compulsive threshold, it's easy for their products to become the same quality products but cannot realize good quality and price. In addition, the existence of enterprises without certificate is still the important reason for preventing the products with certificate from realizing good quality and price.

2.10 The policy expected to be published by government

Enterprises that hoped to increase the examination and review accounted for 36.05%, enterprises that hoped to expand the propaganda accounted for 32.19%, enterprises that hoped to promote mutual recognition accounted for 30.04%, and the others accounted for 1.72%. It can be seen that increasing the examination and review, expanding the propaganda and promoting mutual recognition are the aspects that enterprises expected government to strengthen.

2.11 The changes of satisfaction before and after obtaining certificate

Corporate survey data showed that the satisfaction made changes before and after obtaining certificate accounted for 73.91%, among which changed better accounted for 97.06%, which changed worse accounted for 2.94% and which didn't change accounted for 26.09%. It can be seen that the implementation of the system has remarkable influence on the improvement of customers' satisfaction.

2.12 The changes of products sales before and after obtaining certificate

Corporate survey data showed that 70.45% of enterprises stated their products sales had changed after obtaining certificate, only 29.55% of enterprises stated they didn't change, among whose sales increased accounted for 98.41%, while which reduced accounted for 1.59%. It can be seen that the implementation of the system has remarkable influence on the improvement of products sales.

2.13 Whether market share was satisfied

In the survey whether market share was satisfied, the enterprises that felt satisfied accounted for 30.12%, the enterprises that felt discontented accounted for 69.66%. In the problem that investigated that if government is not compulsive, whether an enterprise continued to keep market admittance certificate, the enterprises that chose to continue to keep accounted for 83.91%, and the other 16.09% of enterprises didn't choose to keep. Generally speaking, enterprises are satisfied for the system. In non-compulsive situations, the system had 83.91% of support.

3. The conclusions of survey

3.1 The situations of the implementation of food quality safety market admittance system were good entirely.

Although corporate cost increased, after the implementation of the system, most of enterprises can obtain the following multivariate benefit: for the staff quality, staff safety consciousness was improved; in the management level, the total quality management level in food enterprises was promoted; in the aspect of the price of products, it can be improved to some degree; in the aspect of market, consumers' recognition on the products with certificate was improved, as well as confidence and satisfaction, while the sales and production channels with certificate became more smooth and the enhancement of products sales was influenced distinctly. Because the total benefit in most of admitted enterprises was improved, currently enterprises are satisfied to the system. They thought in the situations that the system was not compulsive, 83.91% of enterprises still would like to continue to implement the quality system. Therefore, the proposal of the complete set of quality management system in food quality safety market admittance system was not only suitable for food enterprises to improve the need of self-management, but had important role in enhancing corporate self-competitiveness.

3.2 Corporate production behavior conform to Barrett's 80/20 principle basically

Through analysis and processing of the data, the authors found a rule: a lot of situations conform to *Barrett's 80/20 principle* basically. For example, the benefit will increase in 84.85% of enterprises after obtaining certificate, but it will decrease in 15.15% of enterprises. When assuming that the QS mark is changed from compulsive to volunteer, 83.91% of enterprises showed they will sustain, but 16.09% of enterprises showed they cannot keep certificate. Although the data was not equal to 80:20, it agreed with that basically. Consider the limitation of the sample number, the authors should draw a conclusion: *Barrett's 80/20 principle* with universal suitability is also suitable for food production. According to *Barrett's 80/20 principle*, it can be inferred that, in the problem of food safety, the production, sales, consumption links in the main stream (about 80%) are safe, there are still some hidden trouble in the non-main stream (about 20%). The conclusion has some reference for the arrangement of supervision resource in the future.

3.3 There are still a lot of difficulties in the implementation of food quality safety market admittance system in enterprises

1) When enterprises get permit of production, there is great investment in hardware equipment purchase and place transformation. It's difficult for the admittance requirements including corporate location, purchase quality control and process quality control. 2) 69.88% of enterprises with certificate are not satisfied to current market share, accounting for most of surveyed enterprises. The data showed that there were parts of enterprises with low competition in the enterprises with certificate. Because they have low brand credit and management level, they cannot realize good quality and price, and it's difficult to expand the market shares and increase the benefit, they were unsatisfied to current situations. Meanwhile, they saw because of low investment, cost and price, the enterprises without certificate can meet parts of people's needs with low salary and occupy parts of sales markets. It's inevitable for some of them to take the risk for interests. They either produced and checked not according to

the requirements after obtaining certificate, for example, dismissed inspectors, or purchased raw complement materials in order to save cost, or use additives illegally, forming great hidden trouble.

3.4 Food without certificate has formed a complete industry chain from production, sales to consumption, but relative coordination mechanism supervision departments still need to be perfect.

According to the survey of enterprises with certificate, we knew that 47.13% of enterprises thought there were production situations without certificate, and sales channels included restaurants(33.%), farmer's markets (23.23%), rural area(22.22%). Because they have no way to compete with large supermarket, they have to attract parts of customers with low price, and the places become main sales locations of food without certificate. This forms a complete industry chain of food without certificate which is produced by enterprises without certificate, taken restaurants, farmer's markets and rural area as main sale locations and purchased by parts of customers. The industry chain is characteristic by low quality and price, stepping over production chain, circulation chain and repast chain.

On the other hand, because government adopts the mode of subsection supervision to food safety, and such departments as quality technology supervision, industry and commerce and sanitation department supervises food production, circulation and consumption chain respectively, they have not formed normal coordination cooperation mechanism.

3.5 It's still not enough for the supervision of food production enterprises after obtaining certificate.

In the survey of enterprises, 36.05% of enterprises hoped the government increased examination and check. Further survey found that 47.13% of enterprises thought there were situations of production without certificate; in the enterprises that had not realized good quality and price, 20.75% of enterprises thought the main reason was the enterprises without certificate didn't withdraw. In addition, in the survey of enterprises, 32.19% of enterprises hoped the government increased propagation and improved the familiarity and understanding of the system in the society.

4. Policy and suggestions

Based on the conclusion above and combined with the situations of survey, the authors put forward policy and suggestions as follows:

4.1 Continue to persist and perfect food safety market admittance system

Food safety market admittance system carried by government is the necessary measures in order to overcome market failure at the stage. Through practice over years, a complete good set of deed has been formed and it's recognized by enterprises and social circles. But with the deep implementation of the system, some new situations and problems appears. On the one hand, after the publication of new "food safety act", social appeal for food safety is higher and higher and some original behavior has not adopted to the requirements of new laws and situations; On the other hand, with continuous development of new food processing technology and new resources, the social division of labor is increasingly elaborate, new food state and process methods appears continuously, which need us to track and study, and perfect the system ceaselessly.

4.2 Establish coordinate cooperation mechanism between different departments in government, jointly combat illegal production and operation

Currently production and sales without certificate in the market is still very rampant in some regions. Not only there are serious hidden food safety problems, but they also bring shocks to legal operation in enterprises which obtain certificate, leading to unfair competition. The results of survey above have shown that the products without certificate have formed a complete industrial chain from production, sales to consumption. The enterprises which obtain certificate have strong response to that and they hope the government gives severe attacks. Each administrative department has a set of their own rules and working procedures, and they have their own advantages, for example, quality technology supervision department has its own inspection institute and relatively complete rules and standards; industrial and commercial administrative department has strong law-enforcing team and team. There are administrative offices in cities, districts and streets, which has tough enforcement method such as it may revoke the business license of enterprises; the Health Department and food and drug department has more professional staff and technology, as well as rich experience of engaging food management over years, especially they have a complete set of technology and handle method in response to adverse effects such as food poisoning. However, each department has their own advantages, but horizontally, the union and communication between different departments are very little. Confronted with the operation of illegal food from production, sales to consumption, it's difficult obviously to obtain good effect because of the situations that enforcing departments go it alone. Therefore, under leader of food safety committee, each department should strengthen communication, do information sharing and complementary advantages well, establish a normal horizontal cooperation mechanism and form a complete set of systems including information transferring, source tracking and united enforcing, so as to trace back to the other chains promptly when finding a problem in this chain. There are both division of labor and close collaboration, forming joint enforcement truly, combating illegal production and operation and maintaining fair competition environment jointly.

4.3 Make full use of 80/20 principle, allocate resources properly, in order to maximize the effects of food safety

Now that the conclusions of the survey told us Barrett's 80/20 principle also applied to the field of food production, we can infer that in the industry of food, 80% of risk concentrates on 20% of regions, periods of time and variety. Considering that food safety should strive to ensure that there's no accidents completely, we should allocate resources reversely, which means to supervise 20% of regions, periods of time and variety where accidents happen easiest with 80% of resources, in order to come to optimal effects with least investment.

Here we combine current methods such as food safety forewarn system and risk classification management to analyze and confirm the 20% of places with largest risk, and control the risk by classification surveillance, so as to avoid large accidents. We suggest the following aspects of supervision and inspection work should be done well: 1) implement quantize and classification surveillance in food production enterprises, establish and perfect the archives of food production enterprises, urge food production enterprises to practice systems including the accounts registration, raw materials inspection incoming and outgoing factory. Strengthen supervision and examination of food production and operation units, punish food producers and operators according to law who arbitrarily change operation facilities and don't have adaptive operation environment and conditions to the food operated. 2) Attach more to spot check daily consumed main food such as dairy products, meat products, tea, beverage, grain and oil, pay more attention to spot-checking enterprises and individual workshops where food production are intensive, stress on checkout of food sanitation indexes such as microorganisms, additives and heavy metals, and emphasize on tracking and checking small unstable enterprises. 3) strengthen supervision and inspection of the situations of the usage of raw materials, new resources and food additives in food production enterprises. Check whether they ask qualification certificate for suppliers or self-checking when purchasing food raw materials, new resources and food additives. Raw materials production and processing food which are overdue, out of work, go bad, unclean or non-edible should be not used.

4.4 Explore the effectiveness of improving system operation by economic measures

That government strengthens supervision is the external reason for improving food safety level, but the internal reason is that can make enterprises that observe law and disciplines, and produce safe quality products obtain real benefits. Currently an important factor of hindering the effective implementation of the system is: part of enterprises obtaining certificate don't realize good quality and price, cost is more than benefit; while the benefit of enterprises without certificate is more than risk. The authors may explore some new measures, especially economic and marketization methods: 1) increase the propaganda of market admittance system and urge more customers to purchase products with certificate; 2) trial implementation of quality trusting system in enterprises obtaining certificate, publish regularly to society and urge enterprises to improve ceaselessly products credibility; 3) increase the punishment of illegal enterprises and the risk cost in illegal enterprises and individual risk cost; 4) reasonable use of financial allowances, for example, give certain allowance to part of enterprises at the prior stage of being admitted, appropriately reduce authentication fees and detection fees, carry out all kinds of training regularly in order to help enterprises improve awareness.

References

- Gouming. (2000). Fasten the construction of perfect food quality safety market admittance system—an interview with Ji Zhengkun, who is the director of products quality supervisory department of General Administration of Quality Supervision. *China quality supervision*. 2000, (02), 6-7.
- Xi, Xingjun. (2004). Problems and Suggestions on China Food Safety Certification System. *WORLD STANDARDIZATION & QUALITY MANAGEMENT*. 2004, (09). 32-34.
- Wang, Zhigang. (2007). *HACCP Economics: Empirical study based on food processing enterprises and customers*. Beijing: China agricultural science and technology press. 2007, 89-112.
- Zhang, Ligu. (2006). Research on the development of the industry of safety certification food. Beijing: China agriculture press. 2006, 69-82.