

SAFE FOOD BUSINESS AND CONSUMPTION: CASE STUDIES IN TAM KY AND HOI AN CITY, QUANG NAM PROVINCE

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ABSTRACT

The food safety situation in Vietnam, especially in urban areas, is creating a lot of anxiety for the whole society. This paper aims to clarify the current status of safe food business and consumption; and at the same time to identify several factors affecting consumers' intention of safe food purchase in Tam Ky and Hoi An City, Quang Nam Province. Results obtained from structured interviews coupled with field surveys showed that vegetables were the top selling safe food (accounting for 54.4% of the total); the supermarket is the most popular safe food supplier (54.7%); and the number of safe food stores is yet limited (5 in Tam Ky City and 6 in Hoi An City). The statistical analysis results of 5 factor groups showed that the factor "Clearly identified supply sources of the safe food" has the strongest impact on the purchasing intention and selection of supplier. Based on this factor, a number of solutions were proposed to improve customers' decisions on the safe food purchasing and consumption. These results were expected to assist in making informed policy decisions about food safety in the two survey cities.

Key words: Safe food, Tam Ky, Hoi An, affecting factor, purchasing intention.

1. INTRODUCTION

Food is the daily necessity of human beings and the foundation of life. However, the current situation of producing, supplying and consuming unsafe food in Vietnam has been taking place very complicatedly. The food safety has been becoming a big concern and present in most social forums. And the need to get an access to the safe food is extremely urgent and receives much attention from the whole society [1].

In recent years, most of research on the development of the safe food value chain has focused on the application of technical advances in breeding, farming, harvesting and preserving processes for organic food producers. However, the outlet and output of the safe food remains intangible. The safe food's distribution and consumption are currently considered one of the decisive issues to the success of

safe food development in the value chain. This is also the stage revealing many constraints. It is therefore needed to have participation and contribution of managers, scientists, producers, businesses and consumers to deal with such challenges.

Quang Nam Provincial People's Committee has been performing various plans and projects to support the production and development of the safe food in the value chain. By the end of 2017, the province has established 6 safe food supply chains including pork, chicken, eggs, vegetables, shrimp and fish sauce. The Quang Nam also formed a number of safe food consumption patterns, mainly concentrated in the two cities of Tam Ky and Hoi An, and intended to thrive them all over the province in several years to come. However, the research on the safe food purchasing intention has not been done in Quang Nam in order to promote the safe food purchasing and consumption [2].

Given the above noted issues, this paper analyzes and assesses the current safe food business and consumption in Tam Ky and Hoi An City on two main subjects, namely suppliers and consumers; and thereby hopefully contributing to the improvement of the safe food output and consumption, and assisting in successful implementation of the sustainable agricultural development strategy of Quang Nam Province.

2. STUDY METHODS

2.1. Data collection methods

Primary data were collected at household level. A structured interview using standardized questions was used to obtain quantitative data related to the current state of safe food procurement and factors influencing safe food purchasing and consumption intention of 192 households in Tam Ky and Hoi An City. The sample size of 192 was determined using the formula of Cochran (1977) with 10% desired level of precision (e), 50% estimated proportion of an attribute present in the population (q), and 95% confidence level. To ensure the sample size adequacy of 192 households, structured interviews were conducted in 210 families as a precaution against some errors occurred during household interviews.

The household questionnaire included a Likert scale with 5 points corresponding to 5 selected levels. The sampling method is undertaken based on the stratified randomization, i.e. by ward. The number of detailed samples in each ward was distributed on the basis of the corresponding proportion of households (Probability Proportional to Size), and was randomly selected without any repeats to secure the representative nature of the sample.

2.2. Analysis methods

The factors affecting consumers' intention to purchase the safe food are indicated in 05 groups of variables, and presented in details in Table 1 [3].

Table 1. Explanation of the factors affecting the safe food purchasing intention

No	Variables	Signs	Explanation of variables
1.	Economic factors (EF)	EF1	Willingness to purchase the safe food at a higher price
		EF2	Increased purchasing and consumption of the safe food as family's income is improved
		EF3	Continued purchasing and consumption of the safe food even if family's income is reduced
2.	Benefit factors (BF)	BF1	Safe food purchasing and consumption for the sake of family health protection
		BF2	Time saving for handling and storing the safe food
		BF3	Easy access to the safe food in the city
3.	Attitude factors (AF)	AF1	Safe food purchasing and consumption for the sake of social responsibility
		AF2	Willingness to introduce friends and relatives to safe food suppliers
		AF3	Safe food purchasing decisions affected by advices from relatives and friends.
4.	Product factors (PF)	PF1	Certified safe food producers
		PF2	Diverse safe food in variety
		PF3	Guaranteed quality of the safe food
5.	Knowledge factors (KF)	KF1	Obviously known benefits of the safe food
		KF2	Intention of safe food purchasing and consumption affected by food safety warnings
		KF3	Increased safe food purchasing and consumption once clearly knowing certified suppliers

Data collected for the above mentioned variables are initially coded and imported in MS. Excel to create background data. They were then transferred to statistical software of SPSS 20.0 to analyze through 04 following steps [3, 4]:

- Step 1: Using Cronbach's Alpha reliability coefficient to test the reliability of the Likert scale (the degree of rigor and the correlation between observed variables); thereby eliminating unsuitable variables in the study.

- Step 2: Conducting an exploratory factor analysis (EFA) to identify the factors that are considered appropriate, to reduce them into groups of affecting factors, and to determine factors having the most impact on the intention to purchase and consume the safe food.

- Step 3: Using multivariate linear regression model with 95% confidence level to clarify the impact weight of 5 groups of factors on household's decisions on the safe food purchasing and consumption, which include EF, PF, BF, KF and AF (Table 1). The dependent variable F (PCI: Purchasing and Consumption Intention) is the behavior of consumers in the two cities to purchase and consume the safe food. Multivariate linear regression models are shown in the formula (1).

$$F (PCI) = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + e_i \quad (1)$$

Where: β_0 is the intercept; β_1 , β_2 , β_3 , and β_4 are partial regression coefficients

corresponding to independent variables; and e_i is the residual of the model.

- Step 4: Using descriptive statistical analysis to assess the intention of safe food purchasing and consumption with average of factors and 5 point Likert scale as shown below:

- Value of scale distance = (Maximum - Minimum) / n = (5 - 1) / 5 = 0.8
- Scale values: 1.00 - 1.80: Not important; 1.81 - 2.60: Slightly important; 2.61 - 3.40: Neutral; 3.41 - 4.20: Important; and 4.21 - 5.00: Very important.

3. RESULTS AND DISCUSSION

3.1. Current safe food business in Tam Ky and Hoi An City

At present, Tam Ky City has 01 supermarket (Co.opmart Tam Ky), 04 safe food stores and a number of online business establishments. Co.opmart Tam Ky has the most diversified safe food products with the highest sales amount, catering for not only Tam Ky consumers but also neighboring districts. In addition to serving directly onsite, Co.opmart also provides the safe food for collective kitchens at schools, factories, etc. in the city. Vegetables are the most purchased safe food in this supermarket. On average, more than 670 kg of fruits, and 500 kg of leafy vegetables and tubers are sold per day.

Having just come into operation over the past 5 years, the activities of 4 safe food stores in Tam Ky are considered mainly in their infancy of both doing business and exploring the market. The survey results show that the top-selling safe food of these stores are leafy and fruit vegetables such as lettuce, spinach, green beans, cauliflower, etc.

Safe food business forms through social networks (i.e. facebook) emerged a few years ago with a relatively limited number (just only 10 online business pages). Their major business approach is to set up facebook pages, gather orders, then distribute the safe food, based on orders, to consumers once per week (for meat) to 2-3 times per week (for vegetables).

The major supply sources of the safe food in Tam Ky are diverse, including organic vegetable production areas in Tam Ky City and Thang Binh district (Quang Nam Province); organic livestock establishments such as Muoi Tin (Tam Ky City), Van Hoc (Phu Ninh district), etc.; fishing and trading establishments in Ky Ha port (Nui Thanh district); Anh Dao Integrated Agriculture Service Cooperative in Da Lat City (supplying organic vegetables); Truong Thanh Safe Vegetable Cooperative and Xu Tien Organic Vegetable in Phu Tho Province; and so forth.

Hoi An City has 6 safe food stores; among which, Hoi An organic vegetable store, supplies about 80% of vegetables for the city. In addition to direct sales, this store has also established, maintained and developed a supply system by phone, email and home delivery with a total number of regular customers of 120 (in 2019). The supply sources for safe food businesses include organic vegetable gardens in

Hoi An; My Hung Agricultural Cooperative in Thang Binh district; Pig ECO Company in Que Son District (Quang Nam Province); Dalat G.A.P and ECO Farm in Lam Dong Province; Vietnam C.P. Livestock Joint Stock Company; Da Nang Metro, etc.

Unlike Tam Ky, most of the safe food websites in Hoi An City are linked to safe food stores which make use of the internet to promote new safe food products every day and take orders from customers. This small-scale marketing approach has proved to be effective and cost-saving. The survey in Hoi An didn't find out any independent online businesses like in Tam Ky.

3.2. Current safe food purchase and consumption in Tam Ky and Hoi An City

3.2.1. Consumer awareness of the safe food

Interview results of 210 households about the identification of the safe food reveal that more than 50% of them didn't understand the safe food precisely; and 1% didn't know even its basic concept (see Table 2 for further details). Thus, it can be said that people in Tam Ky and Hoi An cities are still confused about the safe food perception.

Table 2. Consumers' understanding about the safe food

No.	Description	Tam Ky City		Hoi An City		Average
		No. of household	Rate (%)	No. of household	Rate (%)	Rate (%)
1	Food looks fresh with beautiful colors and without pests.	10	6.0	14	8.0	6.6
2	Food is rich in nutrients and good for health.	16	9.0	24	13.0	10.9
3	Food is assessed as safe for health by a safe food business	18	10.0	16	9.0	9.3
4	Food is environmentally-friendly	16	9.0	28	15.0	12.0
5	Food is free of pesticide, stimulants, preservatives and pathogens, and legally certified	94	52.0	88	47.0	49.7
6	Food has no pesticide residues, preservatives and pathogens.	24	13.0	16	9.0	10.9
7	No idea	2	1.0	0	0.0	0.5
8	Other ideas	0	0.0	0	0.0	0.0

3.2.2. Stores and varieties of the safe food

Whether the quality of safe food is secured or not depends on various factors which include the safe food supplier. The supermarket is the top choice of consumers, accounting for 54.7% of the total (Figure 1); followed by safe food stores (18.6%). Only 9.3% of consumers purchased the safe food at the market. The purchasing rate of the commonly used safe foods such as vegetables, seafoods, and meats and eggs are presented in Table 3.

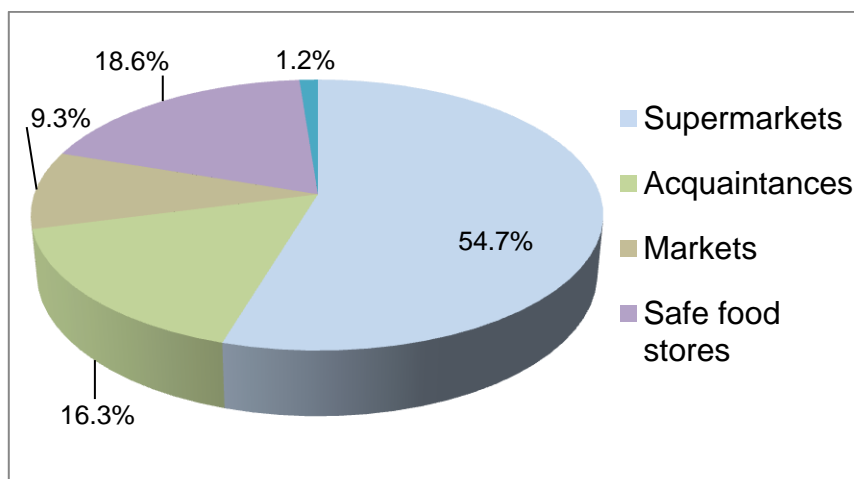


Figure 1. Safe food suppliers

Table 3. Consumption rate of safe foods by consumers

No.	Safe food products	No. of household	Rate (%)
1	Vegetables	162	54.4
2	Meats and eggs	76	25.5
3	Seafoods	60	20.1
4	Others	0	0.0
5	TOTAL	298	100

3.2.3. Factors affecting the safe food purchasing intention

The results of EFA using SPSS 20.0 software are shown below:

- In the product factor group, the variable SP2 (Diverse variety of safe foods) has the highest load factor (0.850), so it has the greatest impact on the product factor group.

- For the benefit group, the highest load factor (0.663) belongs to the variable BF1 (Safe food purchasing and consumption for family health protection). This variable accordingly affects most the benefit group.

- In regard to the group of economic factors, the variable EF2 (Increased purchasing and consumption of the safe food in case of improved income) has the highest load factor coefficient (0.698). Thus, the EF2 has the most influence on this group.

- With respect to the attitude group, the highest load factor (0.881) falls on the variable AF1 (Safe food purchasing and consumption for the sake of social responsibility) has. Therefore, this variable AF1 poses biggest impacts on the group.

- Among knowledge factors, the variable KF2 (Intention of safe food purchasing and consumption affected by food safety warnings) has the highest load factor (0.569), which has the strongest impact on the group of knowledge factors.

The results of multivariate linear regression analysis in Table 4 show that the correction coefficient in this model is 0.979; i.e. the independent variable included in regression analysis affects 97.9% of the change of dependent variables. The remaining 2.1% results from out-of-model variables and random errors.

Table 4. Results of multivariate linear regression analysis

Variables	Coefficient beta	Sig.	VIF Coefficient
Constant		0,420	
PF	0.540	0,000	1,125
BF	0.168	0,000	1,352
EF	0.096	0,000	1,138
AF	0.250	0,000	1,011
KF	0.257	0,000	1,237
Sig.F	0.000		
Corrective coefficient (R²)	0.979		
Durbin-Watson coefficient	1.834		

Given the results in Table 4, the standardized regression equation for factor groups affecting consumers' intention to purchase and consume the safe food is formulated as follows:

$$PCI = 0.540 \times PF + 0.257 \times KF + 0.250 \times AF + 0.168 \times BF + 0.096 \times EF$$

Based on the magnitude of the standardized beta coefficient, the impact order of independent variables to the dependent variable PCI is: PF (0.540) > KF (0.257) > AF (0.250) > BF (0.168) > EF (0.096). Hence, the variable PF has the most significant impact on consumers' intention to purchase and consume the safe food.

3.2.4. Factors affecting customers' decision to choose safe food suppliers

The detailed information on factors affecting consumers' decision to choose safe food suppliers is presented in Table 5. The calculation results show that all survey factors regarding consumers' decisions on choosing safe food suppliers range from "important" to "very important". In which, 02 factors "Certified producers of the safe food" and "Guaranteed quality of the safe food" are rated the highest with an average of 4.44 and 4.27, respectively.

Table 5. Factors affecting customers' decisions on choosing safe food suppliers

No	Factors	Mean score	Ranking
1.	Reasonable price	3.88	Important
2.	Certified safe food producers	4.44	Very important
3.	Safe food from reputable brands	4.14	Important
4.	Reliable safe food store	4.20	Important
5.	Certified food safety by relevant authority	4.27	Very important
6.	Safe food store is diverse in safe food variety	3.71	Important
7.	Home delivery of safe food	3.36	Important
8.	Convenient location of safe food stores	3.57	Important
9.	Secured quality services of safe food stores	3.92	Important

In fact, people's quality of life has been increasingly improved year by year, so their health importance is always on top priority. Consumers usually choose the safe food with certified producers and certified food safety suppliers. These survey results are definitely consistent with the current situation of safe food purchasing and trading in the two cities.

4. CONCLUSION AND RECOMMENDATIONS

The safe food business in Tam Ky and Hoi An City is still in its infancy with a constrained number of safe food suppliers. Survey results shows that vegetables were the safe food product consumed most by residents (54.4%); supermarket is the most popular supplier (54.7%); and consumer's awareness of the safe food is still poor. The statistical analysis results show that both purchasing intention and decision to choose safe food suppliers are substantially influenced by certified safe food stores and producers. Therefore, Tam Ky and Hoi An City should, in order to promote the purchasing and consuming intention as well as attract consumers to safe food suppliers, take into account some solutions as follows:

- To develop communication plans for raising awareness and confidence about the safe food, and to support safe food producers to introduce their food safety certificates. Both cities need to periodically publicize in the media a list of certified safe food producers and suppliers.

- To strengthen and execute the control of safe food producers and suppliers while strictly handle establishments that violate food safety regulations.

- To make public on the mass media the inspection results of safe food producers and suppliers, which helps consumers more easily identify the certified supply sources.

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