PERCEPTION AND CUSTOMERS' WILLINGNESS TO PAY PREMIUM FOR ORGANIC FOOD IN HANOI, VIETNAM

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Abstract. Consuming organic food is becoming increasingly popular in the world and in Vietnam. This article aims to provide further insight into consumer behaviors by dividing Vietnamese people into market segments based on their attitudes and premium payments for organic products. Using a theory-based approach to social practice combined with a questionnaire, we analyze in detail of the practice of community willingness to pay more for organic food in Hanoi city. A total of 520 local consumers participated in the field study. The study uses Cronbach's Alpha test, Exploratory Factor Analysis and multiple regressions for estimation. Results show that on the importance scale, the following five factors influence consumers' willingness to pay premium for organic products including consumer attitudes, health concerns, environmental concerns, product quality, and personal impacted information. The findings also indicate a significant association between social characteristics and premium payments. From that, the article offers some important suggestions to promote consumption and trade of organic food in Vietnam.

Keywords: *organic products, customer behaviors, green consumption, premium payment, Cronbach's Alpha analysis, exploratory factor analysis, Hanoi, Vietnam*

Introduction

Currently, organic food (OF) is increasingly widely used around the world, including both developed and developing countries (Ergönül, 2013; Chaudhuri, 2014; Kumar et al., 2015). OFs are food items that are grown and cultivated without the use of any synthetic chemicals, toxic pesticides, petroleum-based fertilizers or genetically modified organisms. Both farming and animal husbandry can be done organically (Ogbeide, 2015; Varshneya and Lam, 2017; Pandit, 2021).

The key factor driving the expansion of the global OF and beverage market is the faster consumer adoption of healthy natural foods and beverages (Hughner et al., 2007; Holden et al., 2017). Consumer awareness about the health and benefits of OF products has stimulated market growth for OF consumption (Punyatoya, 2014; Persaud and Schillo, 2017; Tang and Lam, 2017). To meet growing consumer demand, various manufacturers are creating labeled OF and beverages, such as juices with natural and organic fruit ingredients. Furthermore, with the growing number of chronic diseases such as heart problems, cancer, diabetes and the increase in healthcare costs, consumers are increasingly focusing on their diet. This is one of the main reasons driving the OF market (Moser, 2015; Ogbeide, 2015; Nguyen et al., 2017).

Around the world, OF is becoming a successful business trend when people want to change their lifestyle and pay more attention to their health through safe food consumption (Muralidharan and Xue, 2016; Laroche et al., 2021). According to Food

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and Agriculture Organization (FAO) (2022), the global OF market reached nearly 300 billion USD by 2022 and is growing at a rate of 16.5% over the past decade. In the period 2005 - 2030, the market size is expected to reach 500 - 1000 billion USD (Xuan, 2021). Notably, the North American and European markets account for most of the sales, with 90% market share. However, the highest growth rate is typical in other regions, especially Asia. The organic product market is becoming important in countries such as China, Korea, India, and Thailand. As of 2020, the world has more than 74.9 million ha of organic agricultural land. The region with the largest organic land area is Oceania (35.9 million ha - nearly half of the world's organic agricultural land area) and followed by Europe (17.1 million ha). Latin America has (9.9 million ha), followed by Asia (6.1 million ha), North America (3.7 million ha) and Africa (2.1 million ha) (Thanh, 2021; Xuan, 2021).

In Vietnam, the food industry is currently facing major challenges as consumers demand higher quality food while companies focus on increasing profits, which can lead to conflicting benefits (Le and Nguyen, 2019; Xuan, 2021). Food security is an important socio-political issue of the country. Inappropriate use of chemicals in agriculture has increased alarmingly over the past decade. According to a report by the Ministry of Health (MOH) (2022), there were 54 food poisoning cases nationwide, 1,359 people were poisoned, of which 18 died (MOH, 2022).

Vietnamese people today are often concerned about food safety, especially agricultural chemical residues (Le and Truong, 2019). The need for clean and safe food has never been more important to people in the country than it is today. Vietnam's food industry has thus developed rapidly and is receiving strong attention and support from governments at all levels and is positively received by consumers (Le and Nguyen, 2019; Thanh, 2021). However, clean, safe food is generally more expensive and takes more effort than usual, and the selling price is also higher. This is considered the biggest obstacle in recreating current domestic food production and consumption models.

This study aims to assess whether consumers are willingness to pay (WTP) additional premium for OF and analyze the factors affecting their premium WTP. The location of research is Hanoi city – the capital and one of the two biggest cities in Vietnam. The study contributes to the growing literature on OF consumption behavior, providing a case study of OF in a rapidly growing economic transition country. The research also contributes practical value to help health experts and businesses predict consumers' intention to buy OF. This can help businesses optimize their marketing and marketing strategies. promote products to increase consumers' understanding and positive attitudes towards organic products in Hanoi in particular and Vietnam in general.

Methodology and data

Organic food and premium for consumption

FAO (2022) defined that OF is food and beverages produced by methods that comply with organic farming standards. Standards vary around the world, but the characteristics of organic farming are resource circulation, promoting ecological balance and preserving biodiversity. Organizations that regulate organic products may limit the use of certain pesticides and fertilizers in the farming methods used to produce those products. OF are typically not processed with irradiation, industrial solvents or synthetic food additives. In the 21st century, the European Union, United States, Canada, Mexico,

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Japan, and many other countries require producers to obtain special certification to market their food as organic. Although the produce of a kitchen garden may indeed be organic, the sale of foods labeled organic is regulated by government food safety agencies, such as European Commission (EC). From an environmental perspective, overfertilization, overproduction, and pesticide use in conventional farming can negatively affect ecosystems, soil health, biodiversity, groundwater and drinking water supplies. These environmental and health problems are intended to be minimized or avoided in organic farming (Kumar and Ghodeswar, 2015).

As to FAO (2022), basic organic food standards include:

- The water source used in farming must be clean and unpolluted
- Organic production areas must be well isolated from pollution sources
- Animal manure taken from outside the farm must be heated before being used in organic farming.
- Do not use bags and containers of substances banned in organic farming to transport and store organic products.
- Burning tree branches and straw is prohibited, except for traditional shifting cultivation methods.
- Prohibit the use of all input materials containing GMOs.

In the literature, paying a premium for products that outperform conventional products is an increasingly dominant research area in consumer behavior (Persaud and Schillo, 2017; Le and Nguyen, 2019; Pandit, 2021). Premium payments are amounts or percentages of the regular price for products with extra features (Tang and Lam, 2017; Xuan, 2021). To better understand the relationship of extra WTP, the theory of intentional action (TRA) and the theory of planned behavior (TPB) are important. These theories posit that an individual's behavior is determined by the intention to perform that behavior, which is a function of the person's attitude toward that behavior (Ajzen and Fishbein, 1980; Ajzen, 1991). Chan's (2001) results essentially support TRA and TPB and confirm that the relationship between green purchase attitude and actual green product purchase is moderated by consumers' green purchase intention. Kim and Choi (2005) observed that positive attitudes lead to stronger OF purchase intentions. Punyatoya (2014) found that young consumers' OF product purchase intention is predicted by their environmental attitudes, beliefs, and awareness. These researchers' observations suggest that the above factors may significantly contribute to their willingness to purchase OF products even at higher prices.

Hypothesis development

After reviewing the literature, we propose a research model of factors affecting premium payment for OF of consumers in Hanoi city. Specifically, there are 7 factors: health concerns, consumers' attitudes, and perceived risk to the product, product quality, trust, environmental concerns and impact by personal information.

Consumer attitudes (CA): Ajzen's (1991) Theory of Planned Behavior model suggests that attitude is one of the factors that influence behavior. According to Mahapatra (2013) there is a positive relationship between consumer attitudes and premium payments for organic and OF products. This relationship represents the tendency to act positively or negatively toward certain objects and situations that an

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individual encounters (Lin and Chang, 2012; Moser, 2015). It should be noted that attitude is different from intention and behavior. While intention is an indication of an individual's readiness to perform a particular action, behavior is the actual translation of an individual's intention into his actions or practices (Ajzen, 1991).

H1: Consumer attitudes positively and significantly influence premium WTP for OF.

Health concern (HC): showing the consumer's concern for health when purchasing a product. As people's living standards are increasingly high, health is always a factor of concern when making food choices. Therefore, it is an essential variable in explaining healthy food choice behavior. The feeling of health protection causes consumers to demand higher prices (Laroche et al., 2021; Duc and Do, 2017; Pandit, 2021).

H2: Health concerns have a significant and positive impact on OF's WTP level.

Perceived product risk (PR): expressing consumers' feelings about possible consequences when using food. To ensure health safety, consumers tend to eliminate potential risks when using food, especially when they have to pay more to buy products with high quality and beneficial properties. for health (Kim and Choi, 2005; Ergönül, 2013). OF is produced according to strict quality standards, ensuring food safety and hygiene. Therefore, the "perceived risk" variable is expected to explain the behavior of consumers who pay a premium to OF to minimize the risks that can occur when consuming conventionally produced foods (e.g. chemical residues, pharmaceuticals, pesticides, bacterial contamination, etc.) (Le and Nguyen, 2019).

H3: Perceived product risk significantly and positively influences premium WTP for OF.

Trust (TR): showing consumers' trust in OF products. In reality, consumers do not have the opportunity to inspect the entire production process to determine which products are of good quality, unless they rely on food safety certification issued by administrative agencies (Le and Nguyen, 2019). Without trust in product labeling, things will be no different for OF products and conventionally produced foods. The trust variable is expected to be correlated with consumers' willingness to pay more money (Baretls and Hoogendam, 2011).

H4: Trust has a significant and positive impact on OF's WTP premium.

Product Quality (PQ): representing how consumers evaluate the overall quality or optimality of a product compared to other options. Consumers will have to pay higher prices if the product has more amenities and quality than usual. This variable is expected to positively influence consumers' willingness to pay more (Kirman, 2016; Laroche et al., 2021).

H5: Product quality has a significant and positive impact on OF's WTP.

Environmental concern (EC): demonstrating consumer concern for environmental protection when purchasing food. When producing OF, it is necessary to ensure that material and technical conditions meet environmental and production process criteria. Consumers who care about the environment will tend to buy environmentally friendly products to protect the living environment (Kirmani, and Khan, 2016; Kumar et al., 2017; Le and Truong, 2019).

H6: Environmental concern significantly and positively affects WTP premium for OF.

Personal impacted information (PII) referring to the influence of relevant others such as friends, family members, teachers, opinion leaders, etc. to an individual's behavior (Lin and Chang, 2012; Moser, 2015). According to Laroche et al. (2021) PII involves modeling, instruction, and social persuasion to communicate product information and

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elicit emotional responses. In this context, Mahapatra (2013) indicate that consumers rely on recommendations and word of mouth when purchasing products. For this reason, previous researchers have extensively studied PII in the context of consumer purchases, especially in the context of green products (Griskevicious et al., 2010; Persaud and Schillo, 2017; Le and Nguyen, 2019).

H7: Personal impacted information significantly and positively affects WTP premium for OF.

The research model is shown in *Figure 1*.

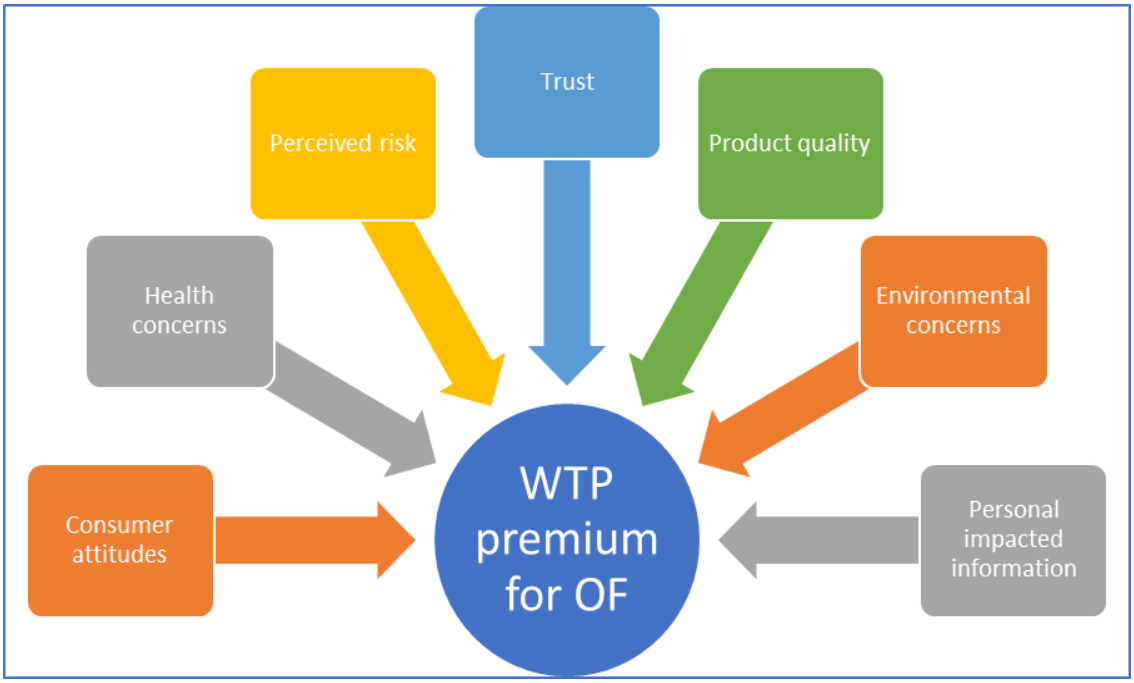

Figure 1. *Research model of factors affecting WTP premium. Source: Analytical model (2023)*

The main analysis methods used in this study include descriptive statistics, checking the reliability of the scale through Cronbach's alpha analysis (CBA), exploratory factor analysis (EFA) and regression. multiple. The conceptual scale of the research model is based on theoretical foundations and is derived from previous empirical studies by Khare (2014) and Joshi and Rahman (2017). The study used a structured, closed-ended questionnaire to collect data. The items in the questionnaire were based on a Likert scale. To check the wording of the questions and understandability as well as to remove other inconsistencies in the pilot document, this document was distributed to subject experts from MARD. Based on their feedback, certain items were revised to better suit the Vietnamese context. To refine the scale and determine the size of each structure, a pilot survey was conducted with 30 students studying at Vietnam National Economics University. Exploratory factor analysis (EFA) method was applied to the pilot data. The high KMO value and significant value of Bartlett's sphericity test indicate that this sample is suitable for applying EFA (Hair et al., 2010) (*Fig. 2*).

The developed model includes 32 measurement variables (*Table 1*). Variables in are measured using a 5-point Likert scale with 1 = Totally disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Totally agree. Then, SPSS 22.0 software assists in data analysis.

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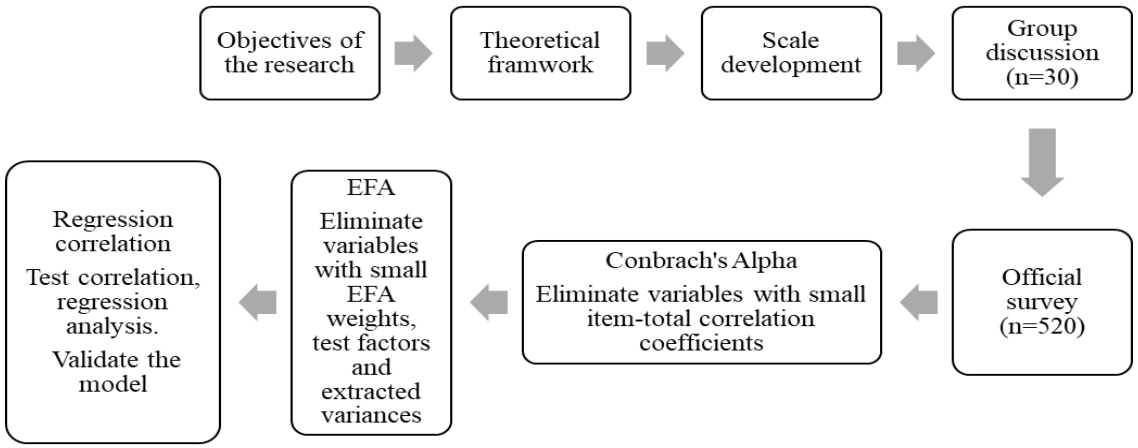

Figure 2. *Data collection process. Source: Research design (2023)*

Table 1. *The scale of variables in research model*

Variables	Symbols	Description
Consumers' attitudes	CA1	OF makes me satisfied with the meal
	CA2	OF is tastier than typically traditional food
	CA3	OF makes the meal more enjoyable
	CA4	OF brings many very positive benefits
Health concerns	HC1	Health is vital to my family and me
	HC2	I always consider health issues when buying OF
	HC3	I am very interested in the health effects of OF
	HC4	I check the product's certification when buying to protect the health
Perceived risk	PR1	I am concerned about the quality of food generally I am concerned OF produced today
	PR2	are not as nutritious as expected
	PR3	I am concerned about wasting money by buying unsafe food
	PR4	I am very worried about my family's health in case of purchasing unsafe food
Trust	TR1	I trust OF scientists
	TR2	I trust farmers and producers to produce OF
	TR3	I trust the distributors to provide OF
	TR4	I trust the government and authorities to ensure OF
Environmental concerns	EC1	I think OF consumption will contribute to sustainably environmental protection
	EC2	Chemicals, pesticides in food production, harm the environment
	EC3	Consumption of OF contributes to preventing environmental degradation
	EC4	I believe that OF must be produced in environmentally friend conditions
Product quality	PQ1	OF product quality is very reliable
	PQ2	OF meets the published quality standards
	PQ3	OF product quality brings safety when using
	PQ4	OF products look very eye-catching compared to normal-produced food
Personal impacted information	PII1	I take information of OF from social network (Facebook, YouTube)
	PII2	I take information of OF from my friends, colleagues and relatives
	PII3	I take information of OF from internet
	PII4	I take information of OF from formal media
Premium willingness to pay	PWTP1	I will pay extra of 10% for OF
	PWTP2	I am WTP a premium of 25% OF
	PWTP3	I accept to pay higher price of 50% for certified OF
	PWTP4	I am WTP extra of 75% for OF

Source: Survey questionnaire (2023)

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The study used the following formula to estimate the sample size (Hair et al., 2010):

$$n = Z^2 \times \frac{p \times (1-p)}{e^2}$$

n: sample size; *Z:* distribution table Z with confidence 95%; *p:* percentage of successful n sample size estimation; *e:* error

The sample size based on the above formula to ensure reliability is 505. In fact, 520 respondents were surveyed in Hanoi from May to July, 2023. This study used a convenience sampling method to meet the respondents and face-to-face interviews with structured questionnaires. Locations of interviews include OF shops, supermarkets, traditional markets, and consumers' homes.

Results

Table 2 provides an overview of the main socioeconomic characteristics of the sample. The survey found that 380 women and 140 men participated in the survey. There were fewer male participants (26.92% male and 73.083% female). Although there are gender differences, this result is acceptable because women tend to buy more.

Table 2. *Statistics of the study sample*

	Frequency	**Percentage**
Gender		
• Female	380	73.08%
• Male	140	26.92%
Age		
• 18-25 years old	68	13.08%
• 26-35 years old	98	18.85%
• 36-45 years old	263	50.58%
• > 46 years old	91	17.50%
Income		
• < 10 million VND/month	82	15.77%
• 10-20 million VND/month	180	34.62%
• > 20 million VND/month	258	49.62%
Education		
• Schools	185	35.58%
• Colleges	162	31.15%
• Graduates	73	14.04%

Source: Research results (2023)

The study focused on surveying the urban population, so the majority was between the ages of 36 and 45. 263 people aged 36 to 45 years old account for 50.58% of the sample. 68 people between 26 and 35 years old account for 13.08% of the sample.

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Most respondents have an income of over 10 million VND/month. Up to 49.62% of respondents have an income of over 20 million VND/month. This number is fairly similar with the monthly average income of 1 typical person in Hanoi.

As many as 162 respondents had undergraduate degrees (31.15% of the total) and 73 had postgraduate degrees (14.04%). In terms of occupation, 50.35% of respondents are housewives, 24.21% are office workers and civil servants, 23.6% are freelancers and the rest are other professionals (1.84%) (*Table 2*).

Results of premium WTP for OF

Figure 3 presents customers' OF purchasing locations in Hanoi. OF stores are the place most chosen by customers (34.62%) because these are places that specialize in selling OF, certified and licensed by market management agencies in Vietnam. Online is also an important OF sales channel when up to 37.5% of customers choose this channel to buy OF for themselves and their families. E-commerce is growing strongly in Vietnam and this is an important sales channel for OF brands, especially with young customers. Supermarkets are also where 23.08% of customers choose to buy OF. Famous supermarket systems in Vietnam such as Vinmart, Kmart or Minimart are also places to distribute some organic food products, and this is an easy channel to reach local consumers, especially in rural areas. apartments, core urban residential areas. Only 1.92% of respondents chose traditional markets as the place to buy OF. Although traditional markets are very popular, the goods are often unlabeled and of unknown origin, so few customers choose them (*Fig. 3*).

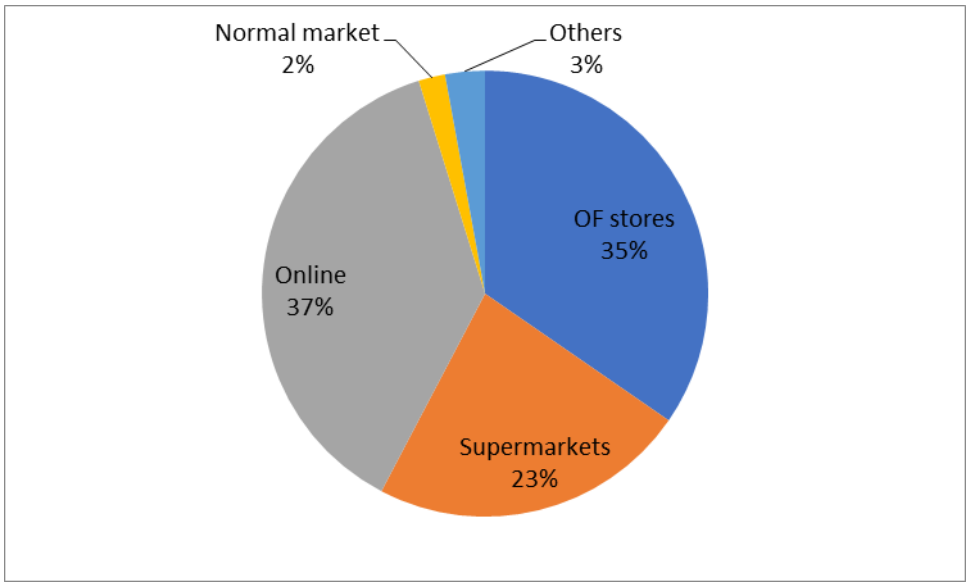

Figure 3. *OF points of sale. Source: Research results (2023)*

The survey results show that 92.31% of consumers place more value on OF, with a high average price of 34.28% compared to regular groceries. Only 7.69% of consumers in the survey do not want to pay extra to buy OF certified safe. The reason is that consumers are still skeptical about the quality because of the lack of information about selling points, the inconvenience of purchasing, and the price is higher than normal food, also due to the limited budget (*Table 3*).

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Table 3. *Consumers' general attitude toward premium payment for OF*

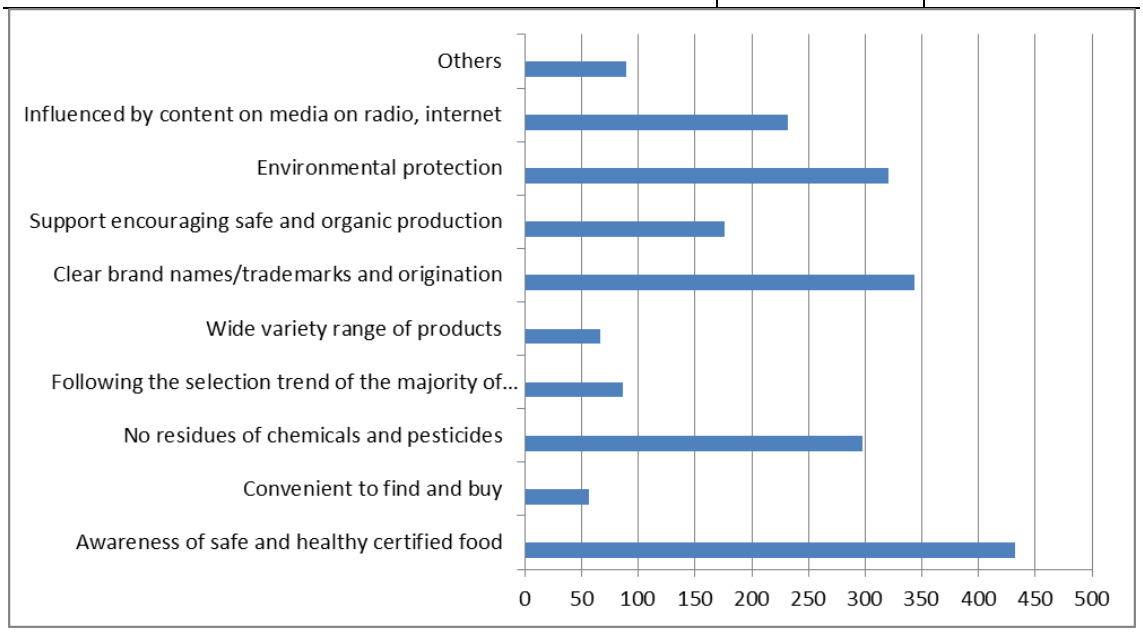
	Frequency	Percentage (%)
Agree to pay premium for OF	480	92.31%
Disagree to pay premium for OF	40	7.69%
Total	**520**	**100%**

Source: Research results (2023

Table 4 shows the main reasons why consumers place higher WTP on OF. Accordingly, 83.08% believe that the reason for the increase in OF prices is due to awareness of safe and healthy food. This shows that consumers always prioritize health when choosing food. Furthermore, 57.31% believe that OF is free of chemicals and residues. In addition, the brand, trademark and origin of OF, awareness of environmental protection and promotion of OF production are also important reasons why consumers pay more for OF (more than 65% of respondents ask for these reasons).

Table 4. *The consumers' reasons for willingness to pay premium*

The consumers' reasons for premium payment	Observations	Percentage (%)
Awareness of safe and healthy food	432	83.08%
Convenient to buy	56	10.77%
No residues of chemicals	298	57.31%
Following the selection trend of consumers	86	16.54%
Wide range of products	66	12.69%
Clear brand names, trademarks and origination	343	65.96%
Encouraging safe production	176	33.85%
Environmental protection	321	61.73%
Influenced by media on radio, internet	232	44.62%
Others	89	17.12%



Source: Research results (2023)

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Evaluate the scale's reliability by Cronbach's Alpha coefficient

The research factors in the model structure are created from 4 independent observed variables for each corresponding factor. To evaluate the reliability of the scales measuring these factors, we use the Alpha index in Cronbach analysis.

The factors are assessed for scale reliability through the use of Cronbach's Alpha coefficient and total variable correlation coefficient. Observed variables that do not ensure reliability will be removed from the scale and will not appear in the factor analysis. In this survey, the minimum threshold for Cronbach's Alpha coefficient is 0.6. Variables with total variable correlation coefficients less than 0.3 will be considered unreliable and will be removed from the scale.

The results of testing the scale's reliability using Cronbach's Alpha coefficient in *Table 5*. The research results show that the Cronbach's Alpha coefficient value is 0.807, exceeding the minimum threshold of 0.6. All total variable correlation coefficients exceed the allowable limit of 0.3 and the Cronbach's Alpha coefficient if the variable is excluded from 0.765 to 0.820. Thus, through Cronbach's Alpha test, the model keeps 32 observed variables as shown from the beginning (*Table 5*).

Table 5. *The results of testing the reliability of the scale*

No	Symbols	Correlation coefficient of variables – sum	Cronbach's Alpha if the variable is excluded
1	CA1	0.572	0.807
2	CA2	0.686	0.773
3	CA3	0.642	0.787
4	CA4	0.610	0.796
5	HC1	0.608	0.797
6	HC2	0.619	0.765
7	HC3	0.608	0.767
8	HC4	0.581	0.775
9	TR1	0.578	0.776
10	TR2	0.590	0.772
11	TR3	0.575	0.720
12	TR4	0.491	0.750
13	PR1	0.582	0.717
14	PR2	0.553	0.728
15	PR3	0.530	0.736
16	PR4	0.615	0.803
17	EC1	0.583	0.810
18	EC2	0.618	0.803
19	EC3	0.593	0.808
20	EC4	0.601	0.806
21	PQ1	0.621	0.803
22	PQ2	0.560	0.747
23	PQ3	0.622	0.724
24	PQ4	0.524	0.756
25	PII1	0.518	0.758
26	PII2	0.594	0.733
27	PII3	0.596	0.810
28	PII4	0.604	0.808
29	PWTP1	0.547	0.820
30	PWTP2	0.642	0.800
31	PWTP3	0.617	0.805
32	PWTP4	0.645	0.800

Source: Research results (2023)

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Exploratory factor analysis (EFA)

EFA was used to shrink and summarize the data. There are 28 observed variables belonging to 7 groups of factors (independent variables) and four observed variables of the premium WTP. The results of EFA exploratory factor analysis, KMO (Kaiser-Meyer-Olkin) test and Bartlett's test for independent variables show that the KMO coefficient reaches 0.777, exceeding the minimum threshold of 0.5 and smaller than the limit. At the same time, the statistical significance level (Sig.) is 0.00, smaller than the threshold of 0.05. All these indicators show that exploratory factor analysis is appropriate and appropriate to perform.

In addition, Initial Eigenvalues has a value of 2.283, exceeding the minimum threshold of 1. At the same time, the total variance extracted (Variance Extracted) is 56.38%, exceeding the minimum threshold of 50%, which means that this model explains 56.38% of data variation. Thus, the explanation of influencing factors is quite good. The factor loading coefficient of each variable is greater than 0.5; At each variable, the difference between the largest factor loading coefficient and any factor loading coefficient is greater than 0.3. The factor analysis results show that 7 factors representing the research concepts have high reliability and internal consistency, so they are suitable for the next regression analysis (*Table 6*).

Regression analysis on factor affecting premium payment for OF

Multiple regression analysis models were used to estimate the factors influencing SF premium payments. In this model, the dependent variable is the consumer's "WTP a premium" for OF. Independent variables based on EFA results include consumer attitudes, health concerns, trust, perceived risk, environmental concerns, product quality, and personal information impact.

The results of the regression analysis presented in *Table 7* show that the adjusted R^2 is 0.646. This means that 64.6% of the variation in consumers' willingness to pay for OF products is explained by the 7 factors included in the model. The remaining factors are other factors that have not been studied. The sig. of F test is very small (<0.00) showing that the regression model is appropriate. The VIF coefficients of the independent variables of the model are all less than 2, so the multicollinearity phenomenon is insignificant and does not distort the model results.

Table 7 shows that, except for the variables "Trust" and "Perceived Risk" which are not statistically significant, the remaining variables all have standardized beta coefficients from 0.132 to 0.338 with a significance level of less than 0. 05. Thus, it can be affirmed that the following factors: consumer attitudes, health concerns, environmental concerns, product quality and personal impact information have a positive impact significant effect on consumer WTP with 95% certainty. Multiple regression analysis models have been used for estimation of factor affecting premium payment for OF. In this model, dependent variable is "premium willingness to pay" of consumers for OF. The independent variables, based on the results of EFA, include Consumer Attitude, Health Concerns, Trust, Perceived Risk, Environmental Concerns, Product Quality and Personal Impacted Information. The degree of influence of these 5 factors on premium WTP, in importance order, are consumers attitude ($\beta = 0.338$), health concerns ($\beta = 0.209$) environmental concerns ($\beta = 0.205$), product quality ($\beta = 0.161$) and impact personal information ($\beta = 0.132$), respectively.

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Table 6. *Factor rotation matrix*

No	Symbol	Factor groups					
		1	**2**	**3**	**4**	**5**	**6**
1	CA1	0.771					
2	CA2	0.767					
3	CA3	0.742					
4	CA4	0.733					
5	HC1	0.732					
6	HC2	0.684					
7	HC3		0.756				
8	HC4		0.742				
9	TR1		0.742				
10	TR2		0.727				
11	TR3		0.716				
12	TR4		0.716				
13	PR1			0.811			
14	PR2			0.782			
15	PR3			0.761			
16	PR4			0.751			
17	EC1			0.720			
18	EC2				0.780		
19	EC3				0.752		
20	EC4				0.750		
21	PQ1				0.739		
22	PQ2				0.726		
23	PQ3					0.768	
24	PQ4					0.761	
25	PII1					0.730	
26	PII2					0.707	
27	PII3					0.680	
28	PII4						0.749
29	PWTP1						0.739
30	PWTP2						0.730
31	PWTP3						0.706
32	PWTP4						0.676
KMO		0.777					
Sig.		0.000					
Eigenvalues		2.283					
Total variance extracted (Cumulative %)		56.388					

Source: Research results (2023)

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Table 7. *The results of the factor affecting premium payment*

Model		Unstandardized regression coefficients		Standardized Beta	T - value	Sig.	VIF
		Coefficient (B)	Estimated standard error	Beta			
1	Const	-2.167	0.283		-4.738		
	CA	0.415	0.031	0.338	7.184	0.000***	1.018
	HC	0.236	0.018	0.209	5.728	0.021**	1.027
	TR	0.176	0.023	0.123	3.966	0.132	1.023
	PR	0.136	0.029	0.116	5.752	0.089	1.022
	EC	0.224	0.040	0.205	5.785	0.011**	1.050
	PQ	0.173	0.023	0.161	1.859	0.000***	1.012
	PII	0.146	0.025	0.132	3.457	0.018**	

Dependent variable: Premium WTP for OF
Adjusted R^2 = 0.646; Sig. F coefficient = 0.000
Source: Research results (2023)

Figure 4 shows that the points in the distribution of the residuals cluster together into a diagonal line. This shows that the assumption of normal distribution of residuals is not violated. At the same time, the standardized residuals are distributed concentrated around the 0-intercept line. Therefore, the linearity assumption is not violated.

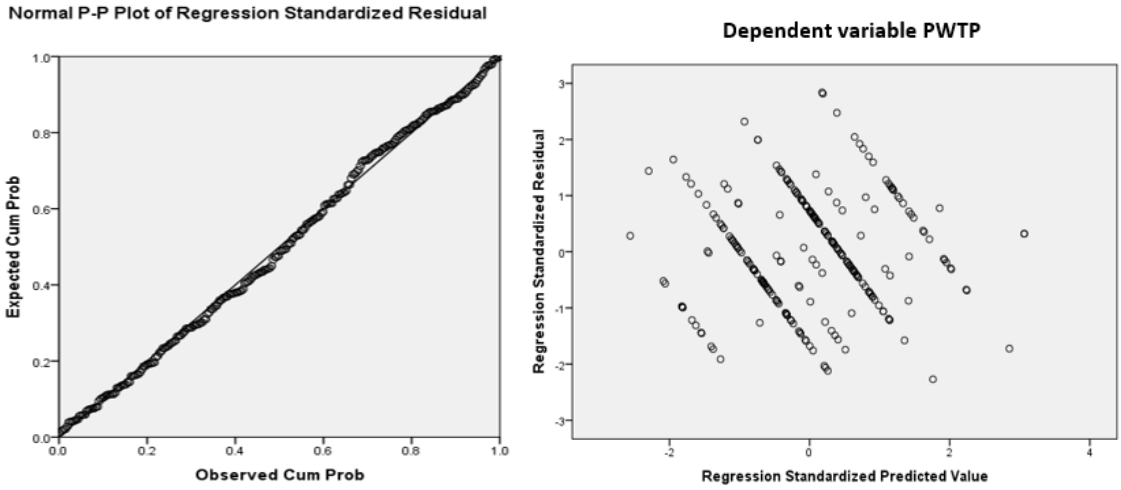

Figure 4. *Checking the normality of the residuals in the regression model. Source: Research results (2023)*

The standardized regression equation is as follows:

$$PWTP = 0.338 \times CA + 0.209 \times HC + 0.205 \times EC + 0.1618 \times PQ + 0.1832 \times PII + e$$

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Discussion

This study represents an innovative synthesis that can help academic researchers and marketing practitioners decipher the factors that influence WTP premiums when purchasing OFs in Hanoi, Vietnam. The study is groundbreaking in that the WTP structure for OF has been studied relatively little in the Vietnamese context. In this context, this study makes an important contribution to understanding the complex relationships between research variables, such as health concerns, attitudes and environmental interests. Another important contribution of the study is the completion of scales to more effectively measure OF cognitive and attitudinal constructs in the Vietnamese context.

Research results show that consumer attitudes are the most important predictor of PWTP, which is consistent with the observations of previous studies (Ajzen, 1991; Lin and Chang, 2012; Mahapatra, 2013; Moser, 2015). Researchers have shown that Vietnamese society is still characterized by emotions and consumers are more familiar with love values to achieve their goals. Advertising messages should emphasize that OF helps improve attitudes and therefore benefits society. This will help marketers promote OF products effectively, especially in the early stages of product launch.

Regarding the association between health concerns and WTP, the scale provides useful insights. For example, items such as "Health is vital to my family and me" and "I always consider health issues when buying OF" shows that consumers with positive HC are willing to put in more effort to buy OF. The research results also empirically confirm the relationship between consumer HC and WTP. This is consistent with the study of Laroche et al. (2021) and Duc, Do (2017) and Pandit (2021). Therefore, it can be argued that HC needs to be adequately considered by integrating marketing strategies in the OF context in Vietnam.

Furthermore, the study's observation that increased environmental awareness among consumers is associated with positive attitudes supports the idea that increased environmental awareness among consumers is related to positive attitudes. to the desire to live green (Lin and Chang, 2012; Moser, 2015; Le and Nguyen, 2019). This means that more concern for the environment will make consumers more aware of environmental issues and make them want to undertake green initiatives. This has important implications for marketers because they can use environmental emotions to exploit the positive association between EC and WTP.

Based on the research results, two additional variables can be proposed for OF marketing in Vietnam. The first variable is product quality, which essentially targets consumers who currently have a positive attitude toward OF. Since this research has found that consumers with positive PQ are willing to pay more for OF, marketers need to emphasize their quality standards through branding or certification. They can do this by promoting their services and educating their target audience about the OF features of their solution. As part of this strategy, marketers can use environmentally friendly packaging and labels to highlight quality (Kirman, 2016; Laroche et al., 2021).

The second variable, which can be called "Impacted by Personal Information," stems from the study's finding that it is a positive predictor of PWTP. The importance of PII in OF marketing is also supported by Mahapatra (2013), Kumar and Ghodeswar (2015), Persaud and Schillo (2017) who argue that emotional needs can influence the purchasing decisions of Vietnamese consumers.

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Conclusions

In Vietnam, during the OF production process, conditions and standards are complied with regulations on production management and OF certification of the Ministry of Agriculture and Rural Development of Vietnam. Production requires more investment, costs and effort, so the selling price is often higher than that of conventional food. According to the results, 92.31% of consumers in the sample are willing to buy OF at an average price 34.15% higher than conventional food of the same type. Attitudinal factors, health concerns, product quality, environmental concerns and PII are found to have a positive influence on consumers' willingness to pay premium for OF. Among them, the attitude factor has the greatest influence. Based on the results achieved, the article makes some recommendations to contribute to the development of OF production and consumption as follows:

Developing OF stores for consumer convenience is necessary. Online and supermarket systems need to diversify products and choose reputable suppliers to ensure product quality. Producers and farmers must comply with OF production and certification regulations. In addition, technological advances in production must be deployed synchronously to reduce costs, increase productivity, and improve product quality to increase competitiveness and improve affordability for consumers.

Communication measures must focus on the issues of chemical residues, pesticides, clear origins, unsafe products and improving product quality. In addition, consumers need to know that using OF contributes to protecting the environment. In addition, promotional efforts must highlight the superior benefits of SF compared to conventional foods, and identify and distinguish outstanding individuals and companies in the production and distribution of SF.

Management agencies need to take measures to support, promote and develop the production and consumption of OF. Governments at all levels need to strengthen propaganda and raise people's awareness of the benefits of OF. Organize regular training to improve OF production capacity for producers. In addition, there should be measures to support and promote the linkage between SF production and consumption and promote trade of OF products.

Although the study achieved specific results, there are still some limitations. The present study is based on the premise that spending more money to buy environmentally friendly products is an important decision for Vietnamese consumers. Therefore, to promote eco-friendly products, marketers need to be aware of the intricacies involved in the green decision-making process of Indian consumers. In this regard, information from educated and environmentally conscious students can help marketers in the early stages of product launch. However, to penetrate deeper into semi-urban or rural India, marketers need to tailor their strategies depending on different consumer characteristics. Therefore, there is an opportunity for future researchers to replicate the present study model in semi-urban and/or rural India to capture the differences. Future researchers could conduct studies that confirm the results of the current study using data obtained from consumers in rural areas. Future researchers could also conduct a new study to determine the WTP for OF for consumers of different occupational groups. Other demographic variables such as age, gender, education level, and income may also play an important role in consumer preferences for green products. Therefore, environmental researchers in India should study the role of such demographic variables in influencing WTP towards OF. This additional information can be useful to capture and contribute to the preferences of the culturally diverse Vietnamese population.

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REFERENCES

[1] Ajzen, I. (1991): The theory of planned behavior. – Organizational Behavior and the Human Decision Process 50(1): 179-211.
[2] Ajzen, I., Fishbein, M. (1980): Understanding Attitudes and Predicting Social Behavior. – Prentice-Hall, Englewood Cliffs, NJ.
[3] Baretls, J., Hoogendam, K. (2011): The role of social identity and attitudes towards sustainability brands in buying behavior for organic products. – Journal of Brand Management 18(9): 697-708.
[4] Chan, R. Y. K. (2001): Determinants of Chinese consumers' green purchase behavior. – Psychology and Marketing 18(4): 389-413.
[5] Chaudhuri, D. (2014): Analysis of the awareness of green products in the city of Kolkata. – Journal of Global Marketing 27(4): 207-212.
[6] Duc, B. H., Do Ba, K. (2017): Business responses to climate change: strategies for reducing greenhouse gas emissions in Vietnam. – Asia-Pacific Business Review 23(4): 1-25.
[7] Ergönül, B. (2013): Consumer awareness and perception to food safety: a consumer analysis. – Food Control 32. 461-471. 10.1016/j.foodcont.2013.01.018.
[8] FAO (2022): The State of Food and Agriculture. – Food and Agriculture Organization, Geneva.
[9] Griskevicious, V., Tybur, J. M., Van der Bergh, B. (2010): Going green to be seen: status, reputation, and conspicuous conservation. – Journal of Personality and Social Psychology 98(3): 392-403.
[10] Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E. (2010): Multivariate Data Analysis. 7th ed. – Pearson Prentice-Hall, Upper Saddle River, NJ.
[11] Holden, E., Linnerud, K., Banister, D. (2017): The imperatives of sustainable development. – Sustainable Development 25(3): 213-226.
[12] Hughner, R. S., McDonagh, P., Prothero, A., Schultz, C. J., Stanton, J. (2007): Who are the organic food consumers? A compilation and review of why people purchase organic food. – Journal of Consumer Behaviour 6(2): 94-110.
[13] Joshi, Y., Rahman, Z. (2017): Investigating the determinants of consumers' sustainable purchase behaviour. – Sustainable Production and Consumption 10(1): 110-120.
[14] Khare, A. (2014): Consumers' susceptibility to interpersonal influence as a determining factor of ecologically conscious behaviour. – Marketing Intelligence & Planning 32(1): 2-20.
[15] Kim, Y., Choi, S. M. (2005): Antecedents of green purchase behaviour: an examination of collectivism, environmental concern, and PCE. – Advances in Consumer Research 32(1): 592-599.
[16] Kirmani, M. D., Khan, M. N. (2016): Environmental concern to attitude towards green products: evidences from India. – Serbian Journal of Management 11(2): 159-179.
[17] Kumar, B., Manrai, A. K., Manrai, L. A. (2017): Purchasing behaviour for environmentally sustainable products: a conceptual framework and empirical study. – Journal of Retailing and Consumer Services 34: 1-9.
[18] Kumar, P., Ghodeswar, B. M. (2015): Factors affecting consumers' green product purchase decisions. – Marketing Intelligence & Planning 33(3): 330-347.

http://www.aloki.hu ● ISSN 1589 1623 (Print) ● ISSN 1785 0037 (Online)
DOI: http://dx.doi.org/10.15666/aeer/2202_12971313

[19] Laroche, M., Bergeron, J., Barbaro-Forleo, G. (2021): Targeting consumers who are willing to pay more for environmentally friendly products. – Journal of Consumer Marketing 18(6): 503-520.
[20] Le, K. N., Truong, D. K. (2019): Trade credit use by shrimp farmers in Ca Mau province. – Journal of Economics and Development 21(2): 270-284. 10.1108/JED-09-2019-0030.
[21] Le, T. N. P., Nguyen, K. H. (2019): Impact of removing industrial tariffs under the European–Vietnam free trade agreement: a computable general equilibrium approach. – Journal of Economics and Development 21(1): 2-17. 10.1108/JED-06-2019-0011.
[22] Lin, Y. C., Chang, C. C. A. (2012): Double standard: the role of environmental consciousness in green product usage. – Journal of Marketing 76(5): 125-134.
[23] Mahapatra, S. (2013): A study on consumer's perception for green products: an empirical study from India. – International Journal of Management & Information Technology 7(1): 924-933.
[24] Ministry of Agriculture and Rural Development (2017): Regulations on production management and certification of Safe Food. – Decision No. 04/2017/QD-BNN, dated 19/01/2017.
[25] Ministry of Health (2022): Annual Report 2022. – Ministry of Health, Hanoi, Vietnam.
[26] Moser, A. K. (2015): Thinking green, buying green? Drivers of pro-environmental purchasing behaviour. – Journal of Consumer Marketing 32(3): 167-175.
[27] Muralidharan, S., Xue, F. (2016): Personal networks as a precursor to a green future: a study of 'green' consumer socialization among young millennials from India and China. – Young Consumers 17(3): 226-242.
[28] Nguyen, T. N., Lobo, A., Greenland, S. (2017): The influence of cultural values on green purchase behaviour. – Marketing Intelligence and Planning 35(3): 1-21.
[29] Ogbeide, O. A. (2015): Consumer willingness to pay a premium for organic wine: discriminant analysis. – Mayfair Journal of Agribusiness Management 1(1): p. 24-42.
[30] Pandit (2021): Willingness to pay for pesticide-safe food in Nepal. – International Journal of Environment, Agriculture, and Biotechnology 6. 153-162. 10.22161/ijeab.65.20.
[31] Persaud, A., Schillo, S. R. (2017): Purchasing organic products: role of social context and consumer innovativeness. – Marketing Intelligence and Planning 35(1): 130-146.
[32] Punyatoya, P. (2014): Linking environmental awareness and perceived brand eco-friendliness to brand trust and purchase intention. – Global Business Review 15(2): 279-289.
[33] Tang, C. M. F., Lam, D. (2017): The role of extraversion and agreeableness traits on Gen Y's attitude and willingness to pay for green hotels. – International Journal of Contemporary Hospitality Management 29(1): 607-623.
[34] Thanh. T. T. (2021): Assessment of anti-COVID-19 policies to support the economy and policy recommendations for the next phase. – Journal of Economics and Development. 283. 10-20.
[35] Varshneya, G., Pandey, S. K., Das, G. (2017): Impact of social influence and green consumption values on purchase intention of organic clothing: a study on collectivist developing economy. – Global Business Review 18(2): 1-16.
[36] Xuan, B. B. (2021): Consumer preference for eco-labeled aquaculture products in Vietnam. – Aquaculture 532:4. DOI: 10.1016/j.aquaculture.2020.736111.

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