

FACTORS AFFECTING THE USE OF LOGISTICS SERVICES BY SEAFOOD EXPORTING ENTERPRISES IN HO CHI MINH CITY

HA CONG NGUYEN, NGUYEN THANH DUONG, NGUYEN TIEN HOANG

Foreign Trade University

hacongnguyen97@gmail.com, nguyenthanhduong.cs2@ftu.edu.vn, nguyentienhoang.cs2@ftu.edu.vn

Abstract

The study identifies the factors and measures the influence on the use of logistics services by seafood exporting enterprises in Ho Chi Minh City. Many research models on the same and relevant fields are reviewed to provide the comprehensive research background of the topic. Thereby, the research model and hypotheses are proposed with 26 observed variables for 05 factors of using logistics services. The survey is conducted in Ho Chi Minh City with 161 valid answers accepted for the analysis. After various statistical techniques to fully analyze data, the findings show that there is statistically significant relationship between all five factors and the use of logistics services by seafood exporting enterprises. Transportation time is the most influential factor, followed by reliability, cost, reputation and service quality. In accordance with these results, implications are proposed for both seafood exporting enterprises and logistics service providers to improve their operations and business performance. Despite the limitations during research process, the study has made a significant contribution to the literature of B2B buying relationship in the logistics industry.

Key words: *Factors, Ho Chi Minh City, Logistics services, Seafood exporting enterprises*

1. INTRODUCTION

As the world population is constantly increasing, the contribution of fisheries and aquaculture towards global food security and nutrition is of great importance. Based on the statistics of FAO, capture fishery production has been relatively stable since the late 1980s while aquaculture has been the main driving force for the continuing impressive growth in the supply of fish for human consumption [1]. Facing various issues, for instance, illegal fishing, climate change and ocean pollution, the future of sustainable fisheries can only be assured if consumption is linked to production of sustainable products [2].

In Vietnam, fisheries industry has long been an important and indispensable part of the economy. As a nation with a coastline of 3260 km and the wide variety of aquatic products, Vietnam has every opportunity for the success of fish production. In fact, exports value of Vietnam seafood products reached 8.8 billion USD, increasing by 6.3% [3]. Until 2015, seafood products had been exported to 164 countries and territories. The successful negotiation and settlement of barriers in trade like anti-dumping and anti-subsidies also create more confidence for shrimp exporters [4]. Nevertheless, there is a clear segmentation of distribution and scale of export processing enterprises by region. Over 80% of export processing products comes from provinces and cities in the Southeast area and Mekong Delta. Besides, as measured by the Logistics Performance Index, the 2018 ranking of Vietnam was 39, far behind that of other countries in the region (7 of Singapore and 32 of Thailand). With the aforementioned context of logistics services in Vietnam, it is critical for seafood exporting enterprises to choose the right and optimal logistics services providers to facilitate their operation.

The research is conducted to examine the selection process in order to answer challenging questions: What are the factors affecting the use of logistics services by seafood exporting enterprises in Ho Chi Minh City? How does each factor affect the logistics service provider selection process? What are the implications for logistics service providers and seafood exporting enterprises based on this research?

Therefore, the aims of this research are to identify the factors, evaluate their levels of influence on the use of logistics services by seafood exporting enterprises in Ho Chi Minh City by using a combination of both qualitative and quantitative methods to provide helpful implications for the optimization of logistics and operation expenses of seafood firms and the insights for logistics service providers to improve their service quality.

2. LITERATURE REVIEW AND RESEARCH MODEL

2.1. Related theories

2.1.1. Logistics services

Up to now, there have been many researches on the logistics field in many different approaches, resulting in various definitions of this terminology. Specifically, in military, logistics, as one of the three important functions of military support mission together with tactics and strategies, was defined as “the process by which human effort and facilitating resources are directed toward the objective of creating and supporting combat forces and weapons” [5]. From a different perspective, in the early 1960s, defined as activities to support the marketing effort to satisfy customer needs or solve customer problems, logistics concept was perceived as ‘marketing logistics’ [5].

In 1991, the definition, made by the Council of Logistics Management, drawing more attention to the purpose of meeting customer requests, defined logistics as: “the process of planning, implementing, and controlling the efficient, effective flow and storage of goods, services, and related information from point of origin to point of consumption for the purpose of conforming to customer requirements.” This concept has been widely accepted in many studies for outlining and incorporating almost every stage with its purpose in logistics. Therefore, this definition will be used throughout the thesis.

With the remarkable importance of logistics, it is no surprise that logistics industry has developed to a huge extent until now. A new concept was established to meet this increasing demand. Third party logistics (3PL hereinafter) is a business services industry that can be defined as a relationship where all or part of a firm’s logistics service is contracted to an independent service provider [6]. Wilding and Juriado [7] proposed major logistics functions executed by logistics service providers, including: transport and shipment; warehousing and inventory administration; logistics information system (tracking, order entry, forecasting); other (product returns, labelling/packaging).

2.1.2. Theoretical models about organizational buying behavior

In 1972, regarding the organizational buying behavior, Webster and Wind conducted a comprehensive study to create a framework that could help identify necessary variables for further researches. They defined that organizational buying is a complex decision-making process carried out by individuals, in the context of a formal organization, which is influenced by a variety of forces in the environment. Therefore, the four variables determining organizational buying behavior in Webster and Wind model were individual, social, organizational and environmental. Each factor involves two groups of categories: task variables (which directly related to the buying problem) and non-task variables (which extend beyond the buying problem). In general, Webster and Wind [8] proposed a critical and useful model which established foundation for later studies about organizational procurement.

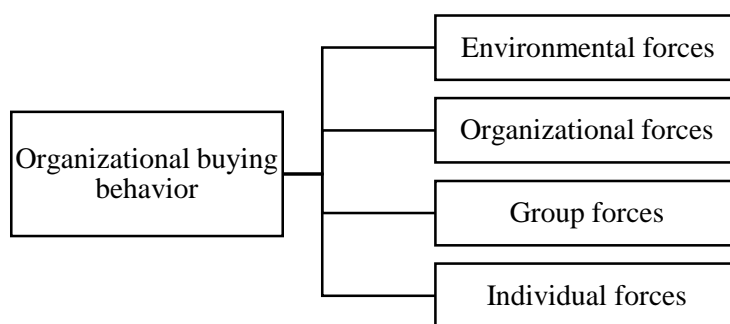


Figure 1. The general model for understanding organizational buying behavior

Source: Webster and Wind [8]

Parasuraman et al. [9] developed a comprehensive model for measuring consumer perceptions of service quality which is named as SERVQUAL model. Through the findings from the qualitative research, they developed the GAP Service Quality Model (Figure 2) depicting the key insights gained through the interviews about the service quality concept. Moreover, the focus groups revealed that, regardless of the type of service, consumers used basically similar criteria in evaluating service quality. These criteria fall

into 10 key categories which are labeled "service quality factors model" [9], including tangibility, reliability, responsiveness, competence, access, courtesy, communication, credibility, security and understanding.

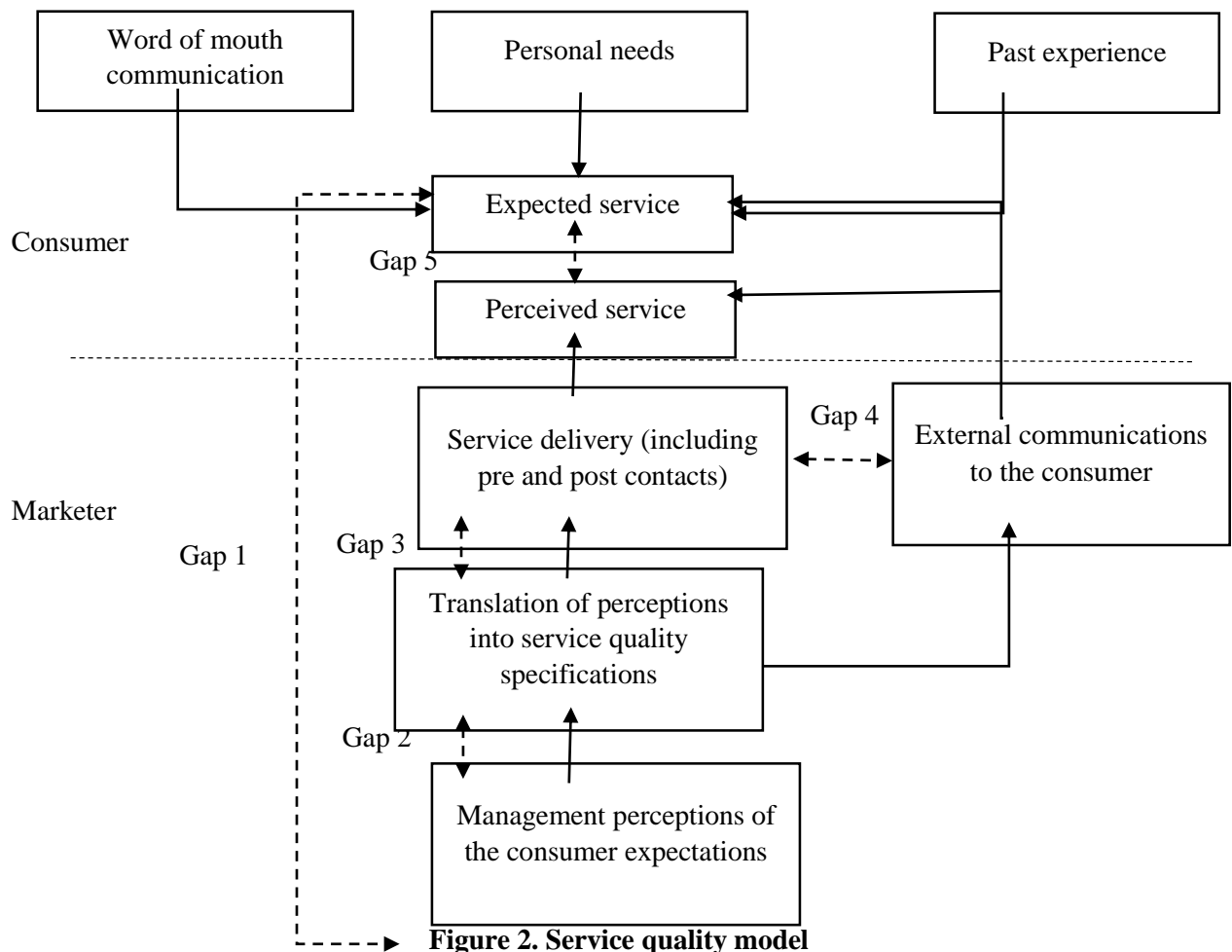


Figure 2. Service quality model

Source: Parasuraman [9]

SERVQUAL model has been used widely in measuring customers' perceptions towards various types of services. The concept of measuring the difference between expectations and perceptions of the SERVQUAL gap score proved very useful for assessing levels of service quality. Parasuraman et al. [9] argued that, with minor modification, SERVQUAL can be adapted to any service organization. This information then assists a manager in identifying cost-effective ways of closing service quality gaps and of prioritizing which gaps to focus on – a critical decision given scarce resources.

The Theory of Reasoned Action (TRA), proposed in 1975 by Ajzen and Fishbein, suggested that behavioral intentions, which existed before behavior, were a function of salient information about the likelihood that performing a specific behavior would lead to a particular outcome. The perception could be divided into two categories: attitude toward the behavior and subjective. The behavioral beliefs are assumed to be the underlying influence on an individual's attitude toward performing the behavior, whereas the normative beliefs influence the individual's subjective norm about performing the behavior [10, 11]. The theory of planned behavior (Ajzen, 1991) added a perceived behavioral control element to the TRA model. The perceived behavioral control component reflects ease or difficulty in performing behavior; which depends on the availability of resources and the opportunity to perform the behavior. Although there is plenty of evidence for significant relations between behavioral beliefs and attitudes toward the behavior, the exact form of these relations is still uncertain [12].

2.2. Empirical researches

In order to test and examine the theoretical studies, various empirical researches have been made under different conditions in different countries. Jharkharia and Shankar [13] conducted a comprehensive analysis on selection of logistics service provider, concentrating on illustrating the application of analytic network process (ANP) for the final selection of a provider. This method provided a more generalized model in decision-making process without making any assumptions about the independency of different level of elements on one other. In other words, the interdependencies among various criteria can be effectively captured using the ANP technique. The model suggested by Jharkharia and Shankar included four major factors, namely compatibility, cost, quality and reputation. The finding is that compatibility between the user and the provider companies is the most important factor, which influences the final selection process. Setamanit [14] and his colleagues implemented a research on Japanese automotive companies in Thailand to examine selection factors influencing the choice of ocean freight carrier. In his research, twenty four ocean freight carrier selection criteria, including both price and non-price factors, are identified and grouped into 5 categories: reliability of service, quality of service, service cost, after-sale service and perceived capability. The result concluded that after-sale service is the most influential factor affecting the ocean carrier, followed by reliability of service. This implies that the degree of importance of price factors has been decreasing and the interest was shifted towards non-price factors. Thus, carrier should place more attention to train its people and focus on customer-oriented strategies.

Xiu and Chen [15] executed a research on the logistics outsourcing behavior of enterprises in China with the purpose of enhancing competitiveness through choosing the right third-party logistics partners. The evaluation index system includes 21 third-level indicators and 5 second-level indicators, which were operational capability, service level, price level, development potential and green level. They finally came up with the result of choosing one supplier referring to the final evaluation score. In general, this methodology reduced the subjectivity of the decision-making problems to some extent; the evaluation and selection process could be quantified; and the information entropy method avoided influence of our subjective judgments to the supplier evaluation.

Kannan [16] conducted a carrier selection study undertaken in India with the purpose of supporting ocean container carriers in modifying effective marketing strategies to attract and retain Indian shippers. The paper demonstrated the list of criteria Indian shippers use in their carrier selection decisions and the amount of importance they assign to each criterion during such decisions. On the basis of SERVQUAL model, Kannan [16] proposed a model combined from a list of 45 criteria, which was grouped under seven critical factors, namely rate, customer service, operations, reputation, infrastructure, scheduling and IT orientation and communication (others). The findings showed that low freight was ranked as the most important criterion while pricing flexibility takes the second place. Based on the needs of individual shippers, carriers should develop a suitable service mix that maximizes shipper satisfaction at better rates.

Buu L.T, Chinh T.M & Thanh D.N.T [17] successfully determine eight core criteria including quick response to customers' demand, updating service supplying fares, brand reputation of logistics services suppliers; exact billing, care of customers' interests and needs; location of service suppliers, availability of e-commerce services and electronic billing, and reasonable pricing by employing EFA and binary logistic regression. This thesis also provides recommendations for further development of logistics providers in Ho Chi Minh City associated with the aforesaid criteria. Although the research satisfies the requirements for large scale of sample, its sample consists of only four industries including footwear; textile; electronics, electronic components, computers; and chemicals.

In order to determine factors affecting logistics provider selection decision in Binh Duong province, Long L.Q [18] withdraws 5 influence factors including trust, demand response, infrastructure and technology, price and brand image by applying both qualitative and quantitative methods.

2.3. The proposed research model

2.3.1. Factor explanations and proposed research hypotheses

Cost

Cost in this research means logistics service provider's charge on services and other surcharges [14]. The price level of the third-party logistics services will not only affect the operating costs of the enterprises, but

also reflects from the side the logistics technology capabilities of the selected third-party logistics provider [15]. Most companies claim that transport is the single highest logistical cost, affecting the competitiveness of the entire distribution channel [19]. If the fixed cost occupies large percentage in the transportation charge, the transportation frequency will influence the total expenditure [20].

Hypothesis H1: *Cost has a positive relationship with the use of logistics services by seafood exporting enterprises in Ho Chi Minh City.*

Transportation time

Transportation time refers to the total amount of time necessary for the completion of logistics tasks as well as the ability to follow the designated time schedule [13]. Speed provides the marketing utility of time to distribution and ensures place utility [20]. Long transit times means later payment and negatively affects the cash flow. Poor performance will reflect on the supplier's perceived service offering [19]. Therefore, delivery performance is a vital criterion to be considered in selection of 3PL services providers [21]

Hypothesis H2: *Transportation time has a positive relationship with the use of logistics services by seafood exporting enterprises in Ho Chi Minh City.*

Reliability

Reliability of service concerns the ability of logistics service provider can provide service as promise to customer [14]. From another perspective, Govindan et al. [22] argued that reliability refers to experience in similar industry, technical and academic certificates in logistics services. With high expertise in logistics field, the logistics service providers are more likely to receive preference from the customer in the selection process. Consistent on-time delivery without loss or damage of shipment will increase the satisfaction of the customers [23].

Hypothesis H3: *Reliability has a positive relationship with the use of logistics services by seafood exporting enterprises in Ho Chi Minh City.*

Reputation

Reputation is the way customers perceive about specific logistics service providers, which is influenced by the past cooperation with other partners [16]. On the other hand, Govindan et al. [22] claimed that reputation refers to people's opinion about satisfying customers' needs. Reputation of the 3PL services providers also guarantees sound financial position, which plays an important role in inviting shippers for its selection [21].

Hypothesis H4: *Reputation has a positive relationship with the use of logistics services by seafood exporting enterprises in Ho Chi Minh City.*

Service quality

Service quality is the result of a series of logistics activities in order to meet the logistics needs of customers [15]. It refers to the way logistics service provider can facilitate solution to customers [14]. Service quality measures how well the service level delivered matches customer expectations [9]. Service quality plays an important role in providing competitiveness by adding values. Logistics service provider should enhance perceived quality of customers, in order to satisfy the customers and increase market share of the logistics agent [21].

Hypothesis H5: *Service quality has a positive relationship with the use of logistics services by seafood exporting enterprises in Ho Chi Minh City.*

2.3.2. Research model

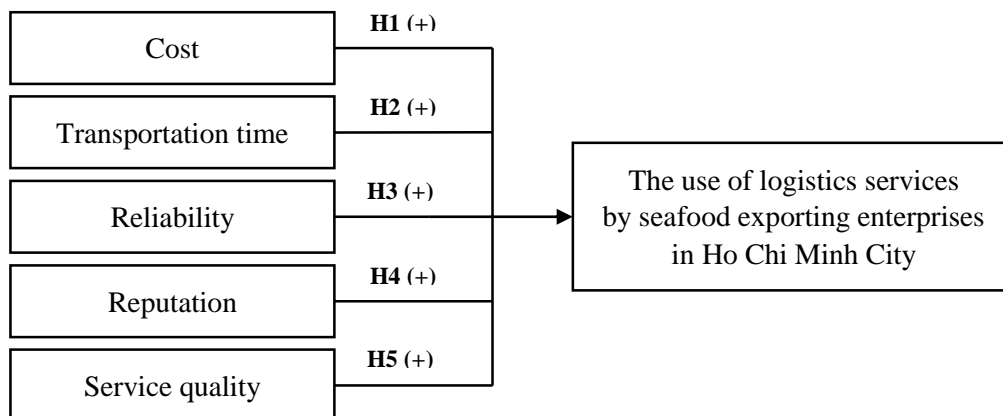


Figure 3. Proposed model

Source: Proposed by the authors

3. RESEARCH METHODOLOGY

3.1. Data collection and sample size

Survey target: The respondents are seafood exporting enterprises in Ho Chi Minh City, who must have experience cooperating with logistics service partners in the past.

Data collection method: The data was collected via online forms, email and offline interviews, in which the last way was supposed to result in the highest responding rate. The combination of three aforementioned methods help bring the required number of answers.

Sample size: The data was collected in 2019 in Ho Chi Minh City. According to Hair et al. [24], to conduct an EFA discovery factor analysis, at least five samples are needed regarding an observed variable. Thus, the study needs $26 \times 5 = 130$ valid responses. In addition, to carry out an effective regression analysis, the sample size needs to ensure the formula $8m + 50 \leq n$ with n is the sample size, m is the number of independent variables of the model. Accordingly, the study needs a minimum sample size of $8 \times 5 + 50 = 90$. This study adopts both regression analysis and EFA analysis; thus, the minimum sample size is 130.

3.2. Data analysis

Reliability analysis – Cronbach’s Alpha

The purpose of Cronbach’s Alpha reliability test is to eliminate unsuitable variables and ensure the reliability of the research. The independent variable with item-total correlation greater than 0.4 is qualified. Therefore, variables having correlation less than 0.4 will be eliminated from the research. Moreover, a scale with good reliability when it varies in the range between 0.75 and 0.95, and if the scale has an Alpha reliability of 0.6 or more, it is considered acceptable in terms of reliability [25].

Exploratory factor analysis (EFA)

Exploratory Factor Analysis (EFA) method helps evaluate two important values of scale, namely convergence value and divergence value. No observed or dependent variable exists in EFA. There are five critical indicators which must be examined via EFA. Firstly, Bartlett’s test of sphericity examines the condition for applying factor analysis. If the test shows no statistical significance, factor analysis should not be applied to the variables under consideration. If $\text{sig Bartlett’s Test} < 0.05$, the Bartlett test is statistically significant, indicating that the observed variables in the factor have correlation [25]. Secondly, Kaiser – Meyer - Olkin (KMO) coefficient considers the appropriateness of factor analysis. If KMO value lies between 0.5 and 1.0, factor analysis is appropriate. Thirdly, factor loading ensures the level of practical significance of EFA. The condition is that factor loading must be greater than 0.5 with a sample size of 100 – 350 [24]. Fourthly, Eigenvalue determines the number of factors in EFA analysis, representing the amount of variation explained by the factors. Only factors with Eigenvalue greater than 1 are retained in the model for further analysis. Finally, Total Variance Explained represents the percentage of the total variation explained by the observed variables. If $\text{Total Variance Explained} \geq 50\%$, the model is appropriate [25].

Correlation analysis of Pearson coefficient

Pearson coefficient describes the strength and direction of correlation between two quantitative variables in the research model. The purpose of Pearson coefficient analysis is to test the close linear correlation between the dependent variable and the independent variables. First of all, the value of Sig. must be less than 0.05 so that the coefficients are statistically significant at the level of 5%. Then, considering the correlation coefficient between the two variables, the closer Pearson coefficient is to 1, the stronger the correlation is. A value less than 0 indicates a negative correlation, which means as the value of one variable increases, the value of the other variable decreases. On the other hand, if the value of Sig. is more than 0.05, it means the correlation coefficient is not statistically significant. In other words, there is no correlation between the two variables under consideration [25].

Regression analysis

Regression analysis identifies the correlations between independent and dependent variables in the research and determine the level of contribution of each factor to the change of the dependent variable. In the findings obtained after regression analysis, the coefficient of determination R^2 is the index used to evaluate the suitability of the model. Another parameter is Durbin - Watson (DW), which tests the autocorrelation of contiguous errors (also known as first-degree correlation) with variable values in the range of 0 to 4. If the error sections do not have first-order chain correlation, the value will be close to 2 (from 1 to 3). If the value is smaller (close to 0), the errors are positively correlated. Without first-degree autocorrelation, the data collected is statistically appropriate. If the sig value is less than 0.05, those independent variables are statistically significant at the level of 5%. Otherwise, they are removed from the model.

Variance analysis (ANOVA)

ANOVA variance analysis examines the average difference among qualitative variables [25]. If the Sig. value of Levene Statistic in this test is greater than 0.05, the variance among the qualitative variables is not different. If the value of Sig. is smaller than 0.05, the conclusion is that there is a statistically significant difference in using logistics services within that characteristic. Whereas, if Sig value is greater than 0.05, it is concluded that there is no statistically significant difference in using logistics services within that characteristic. When the Sig. value of Levene Statistic is smaller than 0.05, it can be concluded that the hypothesis of uniform variance among groups of qualitative variable is violated, which means the variance among different firm groups is not equal. Therefore, it is impossible to simply use the results from ANOVA table. Thus, the Welch test will be performed when there is a violation of the uniform variance assumption [25]. If the value of Sig. in the Robust Tests table is smaller than 0.05, it means that: "There is statistically significant difference in the factors affecting using logistics services among different firms with different capital amounts".

4. RESEARCH RESULTS AND DISCUSSION

4.1. Descriptive statistics

After the screening process, the author received 161 valid samples providing data and insights for the research. Based on the survey results, the main characteristics of research sample are clearly depicted in the following table.

Table 1. Descriptive statistics of qualitative variables

Question	Category	Frequency	Percentage
Capital amount	Under 3 billion VND	32	19.9
	3 - 50 billion VND	77	47.8
	50 - 200 billion VND	42	26.1
	Above 200 billion VND	10	6.2
Business type	State-owned company	8	5.0
	Private company	51	31.7
	Limited liability company	61	37.9
	Joint stock company	37	23.0
	Partnership company	4	2.5
Main export market	USA	49	30.4
	Japan	58	36.0

Question	Category	Frequency	Percentage
	China	25	15.5
	South Korea	25	15.5
	Others	4	2.5

Source: Analyzed by the authors via SPSS 20.0

4.2. Reliability analysis – Cronbach’s Alpha

The results show that the values of Cronbach’s Alpha of all 5 factors and the dependent variable is the largest if no observed variables are removed from each scale. Specifically, the “Reliability” factor has the highest Cronbach’s Alpha value of 0.839. The lowest Cronbach’s Alpha 0.719 belongs to the dependent variable “Using logistics services”. That value for the others like cost, transportation time, reputation and service quality are 0.799, 0.793, 0.808 and 0.733 respectively. Thus, it can be confirmed that all factors affecting the model are suitable and can be used to continue the analysis in the next steps of testing the research model.

Table 2. Results from reliability analysis – Cronbach’s Alpha

Factor	Cronbach’s Alpha	Observed variables	Smallest Item-Total Correlation	Largest Cronbach's Alpha if item deleted
Cost (CO)	0.799	5	0.526	0.777
Transportation time (TT)	0.793	4	0.549	0.768
Reliability (RL)	0.839	5	0.578	0.823
Reputation (RP)	0.808	4	0.593	0.774
Service quality (SQ)	0.733	4	0.484	0.697
The use of logistics services (ULS)	0.719	4	0.480	0.675

Source: Analyzed by the authors via SPSS 20.0

4.3. Exploratory factor analysis (EFA)

After the rotation, the variables concentrate on five different groups. With respect to factor loading, every variable possesses the factor loading value ranging from 0.560 to 0.866, complying with the 0.5 threshold for a research sample size of 161 [24]. Consequently, each group of variables have statistical relation, indicating they are observing the same factor. The KMO coefficient in this case is 0.845, staying in the expected range between 0.5 and 1.0, thus, guaranteeing the appropriateness of factor analysis. Total variance explained by the model is 60.988%, which is larger than the minimum 50% requirement. The Sig coefficient in Barlett’s Test of Sphericity is approximately equal to 0.000 (less than 0.005), proving the fact that the Bartlett test is statistically significant. Eigenvalues of all 5 factors are larger than 1, fluctuating between 1.190 and 6.825, which meet the minimum requirement and all factors are retained in the research model for further analysis.

Table 3. Exploratory factor analysis results of independent variables

Factor	Observed variable	Component				
		1	2	3	4	5
RL	RL2	0.782				
	RL3	0.767				
	RL1	0.703				
	RL5	0.690				
	RL4	0.678				
CO	CO3		0.751			
	CO1		0.707			
	CO2		0.704			
	CO4		0.630			
	CO5		0.623			
RP	RP3			0.785		
	RP1			0.769		
	RP4			0.767		

Factor	Observed variable	Component				
		1	2	3	4	5
	RP2			0.671		
TT	TT4				0.866	
	TT3				0.739	
	TT1				0.705	
	TT2				0.694	
SQ	SQ3					0.790
	SQ4					0.676
	SQ1					0.658
	SQ2					0.560

Source: Analyzed by the authors via SPSS 20.0

The results show that factor loading values of 4 variables differentiate between 0.512 and 0.576, in compliance with the minimum level of 0.5 [24]. The Sig coefficient in Barlett’s Test of Sphericity is 0.000 (less than 0.005). The KMO coefficient is 0.587, staying in the required range between 0.5 and 1.0, while total variance extracted from the model is 54.418%, satisfying the 50% requirement. Moreover, the Eigenvalue of 2.177 from this test is larger than 1, complying the required amount of variation explained by the variables. In general, the appropriateness of factor analysis is guaranteed in this circumstance and no observed variable is rejected before further analysis [25].

Table 4. Exploratory factor analysis results of dependent variable

Factor	Value
KMO coefficient	0.587
Sig. of Bartlett’s Test of Sphericity	0.000
Eigenvalue	2.177
Total variance explained (%)	54.418

Source: Analyzed by the authors via SPSS 20.0

4.4. Correlation analysis of Pearson coefficient

The goal of correlation analysis of Pearson coefficient is to examine the condition of linear correlation between the dependent variable and the independent variables. All values of Sig. are 0.000, which is less than 0.05, proving that the correlation coefficients are statistically significant at the level of 5%. In addition, the correlation coefficients are greater than 0, indicating positive correlation among variables. It is obvious from the correlation matrix that there is a close relationship between independent variables. However, it is possible to suspect that there is a multi-collinearity phenomenon in the model, which will be carefully examined in the regression analysis by using Variance Inflation Factor (VIF).

Table 5. Results from correlation analysis of Pearson coefficient

		ULS	CO	TT	RL	RP	SQ
ULS	Pearson Correlation	1					
	Sig. (2-tailed)						
CO	Pearson Correlation	.648**	1				
	Sig. (2-tailed)	.000					
TT	Pearson Correlation	.578**	.398**	1			
	Sig. (2-tailed)	.000	.000				
RL	Pearson Correlation	.639**	.505**	.283**	1		
	Sig. (2-tailed)	.000	.000	.000			
RP	Pearson Correlation	.560**	.301**	.337**	.449**	1	
	Sig. (2-tailed)	.000	.000	.000	.000		
SQ	Pearson Correlation	.604**	.520**	.325**	.440**	.362**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	

Source: Analyzed by the authors via SPSS 20.0

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

4.5. Regression analysis

4.5.1. Model suitability evaluation

Considering the regression results, with the adjusted R^2 value of 0.708, the research model can explain 70.8% of the variation of the dependent variable ULS, while the remaining 29.2% results from errors in the measurement as well as absent variables in the research model due to the research objective and limited researcher capability. This result prove the high suitability of the proposed model for this research.

Table 6. Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.847 ^a	.717	.708	.27088	1.846

Source: Analyzed by the authors via SPSS 20.0

4.5.2. Regression analysis result and hypotheses testing results

Table 7. Regression analysis result

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	.008	.206		.038	.970		
CO	.224	.051	.242	4.379	.000	.596	1.677
TT	.210	.037	.274	5.675	.000	.783	1.278
RL	.217	.045	.259	4.807	.000	.630	1.588
RP	.170	.041	.206	4.118	.000	.731	1.368
SQ	.197	.052	.201	3.816	.000	.659	1.517

Source: Analyzed by the authors via SPSS 20.0

The multiple linear regression is carried out to examine the level of impact of each independent variable on the dependent variable ULS. To be more specific, if the hypothesis $H_0: \beta_k = 0$ (where k ranges from 1 to 5) is rejected at the significance level of 5%, it is concluded that the independent variable k has a statistically significant impact on the dependent variable ULS.

The results show that the dependent variable ULS is positively affected by all of five factors. Noticeably, the most influence on using logistics services belongs to transportation time, followed by reliability and cost. Service quality and reputation are proved to have the lowest level of relationship with the dependent variable. The final hypotheses testing result is summarized in the following table:

Table 8. Research hypotheses testing result summary

No.	Hypothesis	Result	Beta	Sig.
H1	Cost has a positive relationship with the use of logistics services by seafood exporting enterprises in Ho Chi Minh City.	Accepted	.242	.000
H2	Transportation time has a positive relationship with the use of logistics services by seafood exporting enterprises in Ho Chi Minh City.	Accepted	.274	.000
H3	Reliability has a positive relationship with the use of logistics services by seafood exporting enterprises in Ho Chi Minh City.	Accepted	.259	.000
H4	Reputation has a positive relationship with the use of logistics services by seafood exporting enterprises in Ho Chi Minh City.	Accepted	.206	.000
H5	Service quality has a positive relationship with the use of logistics services by seafood exporting enterprises in Ho Chi Minh City.	Accepted	.201	.000

Source: Summarized by the authors

4.5.3. Assumption violation examination

Autocorrelation: The Durbin - Watson parameter is applied to test the autocorrelation of contiguous errors. From the regression, the Durbin – Watson coefficient in the research is 1.846 (Table 4.7), which lies in the required range of (1.802; 2.198). Thus, it is evident that no first-degree autocorrelation exists in the model and the model is statistically appropriate.

Multicollinearity: Variance Inflation Factor (VIF) examines the existence of multicollinearity among variables in the research model. The VIF values of all five independent variables stays between 1.677 and 1.278, satisfying the requirement of this test. Thus, multicollinearity is proved not to exist among all independent variables of the research model.

Normal distribution of residual: In order to utilize the regression analysis, the absolute standardized residual is assumed to have the normal distribution. The regression findings reveal that the distribution of residual is approximately standard where mean is nearly 0 and standard deviation is 0.984, which is really close to 1. Therefore, it can be concluded that the assumption of normal distribution of residual is not violated.

4.5.4. Variance analysis (ANOVA)

Table 9. Result of variance analysis (ANOVA)

Characteristic	Sig. value of Levene Statistic	Sig. value of ANOVA test
Capital amount	0.916	0.044
Business type	0.520	0.902
Main export market	0.080	0.218

Source: Analyzed by the authors via SPSS 20.0

Capital amount: The value of Sig. in Levene test is 0.916, which is greater than 0.05. Moreover, the Sig. value in the ANOVA tests is 0.044, which is below 0.05, confirming that there is statistically significant difference in using logistics services regarding companies with different capital amount. This finding may, to a certain extent, reflect the difference in negotiation power between large and small-sized companies in corporation with logistics service providers.

Business type: The value of Sig. in Levene test is 0.520, which is bigger than 0.05. Thus, no variance difference exists among various types of business of seafood exporting enterprises. However, the Sig. value in the ANOVA tests is 0.902, which is also greater than 0.05, meaning that there is no difference in using logistics services with different business types. There are numerous firms with various business types working in the seafood industry. Thus, type of business may not play a decisive role in using logistics services.

Main export market: The value of Sig. in Levene test is 0.080, which is bigger than 0.05. Therefore, there is no difference in variance among various export markets of seafood exporting enterprises. However, the Sig. value in the ANOVA tests is 0.218, which is also greater than 0.05, proving that there is no difference in using logistics services when it comes to firms with different export markets. As Vietnam's key markets are remarkably distant from the exporters, the expected logistics services for them must ensure the quality and longevity of seafood in transportation. Thus, the lists of factors remains relatively the same for these key markets.

5. CONCLUSION AND IMPLICATIONS

5.1. Conclusion

The regression equation is illustrated as follow:

$$\text{ULS} = 0.242 \cdot \text{CO} + 0.274 \cdot \text{TT} + 0.259 \cdot \text{RL} + 0.206 \cdot \text{RP} + 0.201 \cdot \text{SQ} + \varepsilon$$

In which: ULS is the dependent variable for "The use of logistics services"; CO is Cost factor, TT is Transportation time, RL is Reliability, RP is Reputation and SQ is Service Quality.

Concerning the multiple linear regression results, transportation time is the most influential factor (0.274), following by reliability (0.259), cost (0.242), reputation (0.306) and service quality (0.201) respectively. This finding reflects the major concerns of seafood exporting enterprises about the accuracy of delivery time for their aquatic products as which are very sensitive to the weather and have short shelf life. Therefore, the model should be actively adopted in the decision making process to comprehensively assess numerous logistics service providers.

5.2. Implications

5.2.1. Implications for seafood exporting enterprises in Ho Chi Minh City

From this research, it is obvious that seafood exporting enterprises must effectively collaborate with their logistics service providers for the benefits of both parties. Somuyiwa [26] reveals that outsourcing logistics activities contributes to organizations ability to control costs, improve customer service and allow company to focus on its core competencies. Therefore, seafood exporting enterprises are recommended to optimize their core business areas relating aquatic products processing. Thereby, the remaining logistics functions which require high capacity of facility as well as expertise in the logistics industry will be outsourced to right logistics service providers with the adequate knowledge about the characteristics of seafood exports. Moreover, there is statistically significant difference in using logistics services regarding companies with different capital amount. With regard to Holter et al. [19], many small and medium enterprises lack competence in purchasing logistics services, which might result in the absence of “purchasing power”. If seafood exporting enterprises are able to build long-term relationship and create beneficial collaboration via the loyalty, it is very likely that they can improve their transport purchasing efforts, thereby enhancing economic and operational efficiency. Nevertheless, firms in the seafood industry must fully understand the trade-off behind all logistics transactions between cost and service quality as well as transit time.

5.2.2. Implications for logistics services providers in Ho Chi Minh City

With globalization and the rapid adoption of e-business solutions, logistics agents have become vital partners in managing supply chains, contributing to the efficient flow of goods, information and funds. The logistics service provider must have the ability to integrate the core-competency of its services in order to offer a comprehensive solution to customers [27]. Once the needs of individual shippers are identified, customized sets of logistics services for the exports of aquaculture should be developed by logistics companies to enhance not only the efficiency of their operations but also the ultimate customer satisfaction [16].

Regarding the transportation time, which is the most influential factor in the research model, more efforts from logistics service providers should be made to ensure the accuracy of delivery as well as shortening the transit time. In addition, upgrading equipment for higher capacity and service quality is the compulsory task if logistics firms want to acquire more customers as well as improve the overall customer satisfaction, thereby enhance the reliability of their operations. In terms of cost, logistics service providers should provide their customers with a variety of sets of logistics services and prices which may be suitable for different segments of seafood exporting enterprises. With regard to the reputation, logistics partners should apply different types of strategies to build and develop the sustainable partnership [28]. Last but not least, the long-term investment on innovation for better service quality should be conducted for the future of logistics providers.

5.3. Limitations and future researches

Firstly, due to limited time and resources, the research is narrow in scope with relatively small size of the survey data. In addition, the paper is unable to conduct long-term research to examine how factors change overtime perceived by the customers. Thus, more factors should be adopted into the research model to comprehensively study various dimensions behind the actual selection of customers. For instance, the environmental criteria could be added as the large attention is given to the environmental effect of transport. *Secondly*, although qualitative research was conducted to examine the influence of each factors, the applied method is rather rough. Moreover, the research ignores the possible interrelationship among the factors. Future researches could be able to use different statistical techniques to explore buying relationships. For example, researchers might model the selection problem using analytic network process (ANP), a multiple attribute decision-making methodology suitable for assessing interdependent elements, especially in the case of usual buying centers in companies.

Thirdly, the study is conducted mainly in only one geographic location of customers (Ho Chi Minh City). Thus, the findings might not be valid and applicable to measure the relationship between shippers and logistics service providers in different regions and markets. Therefore, more researches should be made in different regions of the world to study how this set of factors performs in various markets.

REFERENCES

- [1] Food and Agriculture Organization of the United Nations (FAO), *The state of world fisheries and aquaculture*, 2018.
- [2] Watson, R. A., Green, B. S., Tracey, S. R., Farmery, A., & Pitcher, T. J., "Provenance of global seafood", *Fish and Fisheries*, 17(3), 585-595, 2016.
- [3] General Statistics Office of Vietnam (2019), *Socio-economic situation of 2018*, 2019.
- [4] Vietnam Association of Seafood Exporters and Producers (VASEP), *Overview of Vietnam seafood industry*, 2018, <http://vasep.com.vn/1192/OneContent/tong-quan-nganh.htm>.
- [5] Pfohl, H. C., "Logistics: State of the art", *Human Systems Management*, 16(3), 153, 1997.
- [6] Coltman, T. R., Devinney, T. M., & Keating, B. W., "Best-worst scaling approach to predict customer choice for 3PL services", *Journal of Business Logistics*, 32(2), 139-152, 2011.
- [7] Wilding, R., & Juriado, R., "Customer perceptions on logistics outsourcing in the European consumer goods industry", *International Journal of Physical Distribution & Logistics Management*, 34(8), 628-644, 2004.
- [8] Webster Jr, F. E., & Wind, Y., "A general model for understanding organizational buying behavior", *Journal of marketing*, 36(2), 12-19, 1972.
- [9] Parasuraman, A., Zeithaml, V. A., & Berry, L. L., "A conceptual model of service quality and its implications for future research", *Journal of marketing*, 49(4), 41-50, 1985.
- [10] Ajzen, I., & Fishbein, M., "Attitude-behavior relations: A theoretical analysis and review of empirical research", *Psychological bulletin*, 84(5), 888, 1977.
- [11] Madden, T. J., Ellen, P. S., & Ajzen, I., "A comparison of the theory of planned behavior and the theory of reasoned action", *Personality and social psychology Bulletin*, 18(1), 3-9, 1992.
- [12] Ajzen, I., "The theory of planned behavior", *Organizational behavior and human decision processes*, 50(2), 179-211, 1991.
- [13] Jharkharia, S., & Shankar, R., "Selection of logistics service provider: An analytic network process (ANP) approach", *Omega*, 35(3), 274-289, 2007.
- [14] Setamanit, S. O., & Pipatwattana, A., "Criteria for ocean freight carrier selection: A perspective of Japanese automotive company in Thailand", *ASBBS E-Journal*, 11(1), 89, 2015.
- [15] Xiu, G., & Chen, X., "The Third Party Logistics Supplier Selection and Evaluation", *JSW*, 7(8), 1783-1790, 2012.
- [16] Kannan, V., Bose, S. K., & Kannan, N. G., "An evaluation of ocean container carrier selection criteria: an Indian shipper's perspective", *Management Research Review*, 34(7), 754-772, 2011.
- [17] Buu L.T, Chinh T.M & Thanh D.N.T, "Core criteria affecting decisions to select logistics service suppliers in Ho Chi Minh City", *Economic Development Journal*, 285, 111-128, 2014.
- [18] Long L.Q, *Determinants of logistics provider selection decision in Binh Duong province*, University of Finance -Marketing, 2015.
- [19] Holter, A. R., Grant, D. B., Ritchie, J., & Shaw, N., "A framework for purchasing transport services in small and medium size enterprises", *International Journal of Physical Distribution & Logistics Management*, 38(1), 21-38, 2008.
- [20] Samwel, O. M. O., "Factors affecting Choice of Transportation Mode for White Petroleum by Oil Marketing Companies in Kenya", *IOSR Journal of Business and Management*, Volume 16, Issue 2, 135-148, 2014.
- [21] Qureshi, M. N., Kumar, D., & Kumar, P., "An integrated model to identify and classify the key criteria and their role in the assessment of 3PL services providers", *Asia Pacific Journal of Marketing and Logistics*, 20(2), 227-249, 2010.
- [22] Govindan, K., Khodaverdi, R., & Vafadarnikjoo, A., "A grey DEMATEL approach to develop third-party logistics provider selection criteria", *Industrial Management & Data Systems*, 116(4), 690-722, 2016.
- [23] Anderson, E. J., Coltman, T., Devinney, T. M., & Keating, B., "What drives the choice of a third-party logistics provider?", *Journal of Supply Chain Management*, 47(2), 97-115, 2011.
- [24] Hair, J.F., et al., *Multivariate Data Analysis*, Prentice - Hall International, 1998.
- [25] H. Trong, C. N. M. Ngoc, *Data Analysis with SPSS*, Hong Duc Publisher, 2008.

- [26] Somuyiwa, A. O., Odepidan, O. M. & Dosunmu, V. A., “Impact of logistics outsourcing services on company transport cost in selected manufacturing companies in South Western Nigeria”, *European Journal of Logistics*, Vol.3, No.4, 30-41, 2015.
- [27] Singh Bhatti, R., Kumar, P., & Kumar, D., “Analytical modeling of third party service provider selection in lead logistics provider environments”, *Journal of Modelling in Management*, 5(3), 275-286, 2010.
- [28] Banomyong, R., & Supatn, N., “Selecting logistics providers in Thailand: a shippers' perspective”, *European Journal of Marketing*, 45(3), 419-437, 2011.

CÁC NHÂN TỐ ẢNH HƯỞNG ĐẾN VIỆC SỬ DỤNG DỊCH VỤ LOGISTICS CỦA DOANH NGHIỆP XUẤT KHẨU THỦY SẢN TẠI THÀNH PHỐ HỒ CHÍ MINH

HÀ CÔNG NGUYỄN, NGUYỄN THANH DƯƠNG, NGUYỄN TIẾN HOÀNG

Trường Đại học Ngoại thương

hacongnguyen97@gmail.com, nguyenthanhduong.cs2@ftu.edu.vn, nguyentienhoang.cs2@ftu.edu.vn

Tóm tắt

Nghiên cứu này nhận diện và đo lường mức độ ảnh hưởng của các nhân tố đến việc sử dụng dịch vụ logistics của các doanh nghiệp xuất khẩu thủy sản tại thành phố Hồ Chí Minh. Nhóm tác giả đã lược khảo và tổng hợp nhiều mô hình lý thuyết và các nghiên cứu thực nghiệm với ý nghĩa là nền tảng lý thuyết cho nghiên cứu này. Từ đó, mô hình nghiên cứu và các giả thuyết được đề xuất gồm 26 biến quan sát đại diện cho 5 nhân tố ảnh hưởng đến việc sử dụng dịch vụ logistics. Việc khảo sát được thực hiện tại thành phố Hồ Chí Minh với 161 mẫu hợp lệ được sử dụng vào phân tích định lượng. Kết quả nghiên cứu cho thấy tồn tại mối quan hệ giữa 5 nhân tố và việc sử dụng dịch vụ logistics của các doanh nghiệp xuất khẩu thủy sản. Trong đó, thời gian vận chuyển là nhân tố ảnh hưởng lớn nhất, sau đó lần lượt là các nhân tố về độ tin cậy, chi phí, uy tín và chất lượng dịch vụ của doanh nghiệp cung ứng dịch vụ logistics. Trên cơ sở đó, một số hàm ý được đề xuất nhằm cải thiện hoạt động đối với cả doanh nghiệp xuất khẩu thủy sản và doanh nghiệp cung ứng dịch vụ logistics. Mặc dù còn một số hạn chế nhưng nghiên cứu này đã có đóng góp nhất định đối với mối quan hệ B2B trong ngành logistics.

Từ khóa: Nhân tố, Thành phố Hồ Chí Minh, Dịch vụ logistics, Doanh nghiệp xuất khẩu thủy sản

Ngày nhận bài: 20/04/2020

Ngày chấp nhận đăng: 23/09/2020