International Journal of Advanced Multidisciplinary Research and Studies

Evaluation of Competitiveness in Logistics Firms

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Abstract

In Vietnam, transportation infrastructure is increasingly being invested in construction and expansion, especially a series of key highway systems, creating favorable conditions for logistics firms in Vietnam to save time and shipping costs. The purpose of the study was to discuss the competitiveness of logistics firms in Hanoi and neighboring provinces. The study aimed to show the evaluation of the differences in competitiveness in logistics firms with participants of different genders, academic levels, and ages. The study relied on a data collection tool. The questionnaire was designed based on the opinions of experts and the results of previous studies. A group of employees in logistics firms in Hanoi and neighboring provinces represented the population of the study. 300 questionnaires were distributed, and 225 were retrieved, representing a 75.0% response rate. SPSS was utilized for a comparative evaluation of competitiveness in logistics firms between respondents. Multiple statistical techniques were employed for data analysis, including SPSS via the independent t-test and ANOVA. The study's results indicate that there is no difference in assessing competitiveness in logistics firms between different subjects in terms of genders, academic levels, and ages. This study offers theoretical and practical implications for improving competitiveness in logistics firms, thereby improving business performance. Based on this result, the study proposes some recommendations for logistics firms.

1. Introduction

Competitiveness is the ability to create, maintain, use, and create new competitive advantages for an enterprise to create products with higher productivity and quality than competitors and gain market share. Larger as well as creating high income for employees and the ability for sustainable development for the organization (Porter, 1990) [10].

In the context of economic integration and the impact of the COVID-19 epidemic, logistics firms will not avoid difficulties and challenges. This also requires firms themselves to constantly innovate, perfect, and develop. One of those contents is improving the competitiveness of firms, which is also one of the top topics of interest for domestic and foreign research.

In Vietnam, transportation infrastructure is increasingly being invested in construction and expansion, especially a series of key highway systems, creating favorable conditions for logistics firms in Vietnam to save time and shipping costs. The seaport system is also increasingly improving, with investment focused on continuous improvement and providing access to more advanced, modern, and environmentally friendly transportation services.

Along with socio-economic development, the logistics industry in Vietnam in general and logistics firms in particular have developed strongly, creating more jobs for the entire society. However, the competitiveness of the logistics industry has not improved much, is not commensurate with the country's conditions and economic development, and is facing a number of problems. For example, infrastructure logistics in Vietnam has been invested in, but there are still many limitations, including difficulties in means of transportation and transportation networks. Limited infrastructure quality affects the deployment plan and effectiveness of firms' logistics solutions. Therefore, Vietnam needs to do more to make the logistics industry a key economic sector. From the above practices and requirements, it shows that studying the competitiveness of logistics firms is necessary and meaningful.

2. Literature Review

Competitiveness is one of the metrics for comparison between firms in the same industry. It is closely linked to competitive advantage, or the basic factor determining the success of a firm (Bredrup, 1995) [3]. Many studies identify the source of

competitiveness or competitive advantage and its positive relationship with the business performance of enterprises (Hill & Deeds, 1996; Mauri & Michaels, 1998; Porter, 1991) [7, 9, 11].

Prahalad & Hamel (2006) [12] argue that the basic competitive focus in most industries is on resources, especially for similar firms operating in the same market.

According to Porter (1990) [10], the model of competitiveness of a country or an industry, also known as the diamond model, includes: (i) factors of production; (ii) demand conditions; and (iii) industries. supporting and related industries, (iv) strategy, structure, competitive environment, (v) opportunities, and (vi) state.

Barney (1991) [2] believes that a firm's competitive advantage based on differentiation will not last long because competitors can easily imitate it. Barney (1991) [2] argues that a firm's sustainable competitive advantage is to create value; core competencies provide potential access to markets, contribute to increased benefits for customers, and are difficult for others implementation.

According to Porter (1990) [10], competitiveness is evaluated through two criteria: market share and profit, which are the goals of production and business and represent the position in the market compared to competitors. Dupeyras & MacCallum (2013) [4] proposed the following criteria: labor productivity and revenue per customer.

3. Research Methods
3.1 Sample Selection
This paper uses a sample of logistics firms in Hanoi and neighboring provinces from 2022 to 2023. The criteria for the sample used in this paper are firms that are doing business. We narrowed down our sample to 100 logistics firms (see Table 1).

3.2 Variable Measurement
We based it on the results of previous studies and expert opinion and tailored it to the context of logistics firms. The competitiveness of logistics firms in Hanoi and neighboring provinces includes four observed variables (scales), including C1, C2, C3, and C4.

3.3 Analysis Tools
Quantitative research method through SPSS software with descriptive statistics, independent T-test accreditation, and ANOVA analysis.

Table 1: Respondents by genders, career seniority and ages

	Frequency	Percent	Cumulative Percent
Genders			
Female	81	36.0	36.0
Male	144	64.0	100.0
Ages			
From 22 to 30 years old	66	29.3	29.3
From 30 to 35 years old	59	26.2	55.6
From 35 to 45 years old	52	23.1	78.7
45 years old or older	48	21.3	100.0
Academic levels			
Bachelor	172	76.4	76.4
Postgraduate	53	23.6	100.0
Total	**205**	**100.0**	

Information on the data collected is shown in Table 1. It shows that among the respondents, 36% were female and 64% were male. Of these, 66 participants are from 22 to 30 years old, accounting for 29.3%; 59 participants are from 30 to 35 years old, accounting for 55.6%; 52 participants are from 35 to 45 years old, accounting for 23.1%; and the remaining respondents are 45 years old or older, accounting for 21.3%. There were 172 participants (76.4%) who have a bachelor's degree, and the remaining have a postgraduate degree.

4. Results
4.1 Descriptive Statistics
Table 2 indicates that the respondents agree with the variable of competitiveness in logistics firms in Hanoi and neighboring provinces, where four attributes were quite high. All four attributes were rated at an average of 4.26 or higher.

The analysis results also show that the skewness and kurtosis coefficients are in the range of -1 to 1, so the survey data ensures a relatively standard distribution. Therefore, the evaluation levels of the employees participating in the survey are relatively uniform and concentrated, with little dispersion, so the analysis results have high statistical significance.

Table 2: Descriptive analysis of attributes

Code	N	Mini	Max	Mean	Std. Deviation	Skewness		Kurtosis	
						Statistic	Std. Error	Statistic	Std. Error
C1	225	2.00	5.00	4.34	0.757	-0.901	0.162	0.150	0.323
C2	225	2.00	5.00	4.29	0.746	-0.796	0.162	0.100	0.323
C3	225	2.00	5.00	4.26	0.772	-0.725	0.162	-0.220	0.323
C4	225	2.00	5.00	4.28	0.725	-0.776	0.162	0.277	0.323
Valid N (listwise)	**225**			**4.29**					

4.2 Independent T-Test: Different Genders
A comparison of the results of the evaluation of the differences in competitiveness in logistics firms in Hanoi and neighboring provinces with participants of different genders (male and female) can be seen in Table 3. According to the results shown in Table 3, sig Levene's test is 0.861, which is more than 0.05. The variance between males and females is not different. Moreover, the sig value t-test is 0.771, which is more than 0.05, which means that there is no statistically significant difference in competitiveness in logistics firms in Hanoi and neighboring provinces between these different genders (Hoang & Chu, 2008; Hair et al., 2009; Hair et al., 2014) [8, 5, 6].

Table 3: Differences in competitiveness in logistics firms with participants of different genders-Independent Test

		Levene's Test for Equality of Variances		T-test for Equality of Means						
		F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
C	Equal variances assumed	0.031	0.861	0.292	223	0.771	0.02604	0.08922	-0.14978	0.20186
	Equal variances not assumed			0.291	163.942	0.772	0.02604	0.08958	-0.15084	0.20292

4.3 Independent T-Test: Academic Levels

A comparison of the results of the evaluation of the differences in competitiveness in logistics firms in Hanoi and neighboring provinces with participants of different academic levels (bachelor and postgraduate) can be seen in Table 4. According to the results shown in Table 4, sig Levene's test is 0.103, which is more than 0.05. The variance between bachelors and postgraduates is not different. Moreover, the sig value t-test is 0.875, which is more than 0.05, which means that there is no statistically significant difference in competitiveness in logistics firms in Hanoi and neighboring provinces between these different academic levels (Hoang & Chu, 2008; Hair *et al.*, 2009; Hair *et al.*, 2014) [8, 5, 6].

Table 4: Differences in competitiveness in logistics firms with participants of different academic levels-Independent Test

		Levene's Test for Equality of Variances		T-test for Equality of Means						
		F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
C	Equal variances assumed	2.675	0.103	-0.158	223	0.875	-0.01591	0.10093	-0.21481	0.18300
	Equal variances not assumed			-0.176	105.168	0.861	-0.01591	0.09039	-0.19513	0.16332

4.4 ANOVA-ages

An ANOVA test was needed to make a comparison of the results of the evaluation of the differences in competitiveness in logistics firms in Hanoi and neighboring provinces between the four subjects, including participants who are from 22 to 30 years old, participants who are from 30 to 35 years old, participants who are from 35 to 45 years old, and participants who are 45 years old or older. Table 5 shows that the sig Levene statistic of 0.222 is greater than 0.05, which means that the hypothesis of homogeneity of variance among the variable value groups (different ages) has not been violated. Table 6 shows that sig. is 0.243, which is more than 0.05, which indicates that there is no statistically significant difference in competitiveness in logistics firms in Hanoi and neighboring provinces between the mentioned four groups of ages (Hoang & Chu, 2008; Hair *et al.*, 2009; Hair *et al.*, 2014) [8, 5, 6].

Table 5: Test of Homogeneity of Variances

Descriptions	Levene Statistic	df1	df2	Sig.
C				
Based on Mean	1.477	3	221	0.222
Based on Median	1.098	3	221	0.351
Based on Median and with adjusted df	1.098	3	209.549	0.351
Based on trimmed mean	1.138	3	221	0.335

Table 6: ANOVA

	Sum of Squares	Df	Mean Square	F	Sig.
C					
Between Groups	1.721	3	0.574	1.403	0.243
Within Groups	90.335	221	0.409		
Total	92.056	224			

4.5 The Relationship between Competitiveness in Logistics Firms in Hanoi and Neighboring Provinces-Ages

Next, the line graph shows the relationship between competitiveness in logistics firms in Hanoi and neighboring provinces and each respondent's age (Fig 1). Fig 1 shows that this line tends to go down when the respondents' ages range from 30 to 35 years old. But this line tends to slope up when the respondents' ages range from 35 to 45 years old and 45 years old or older.
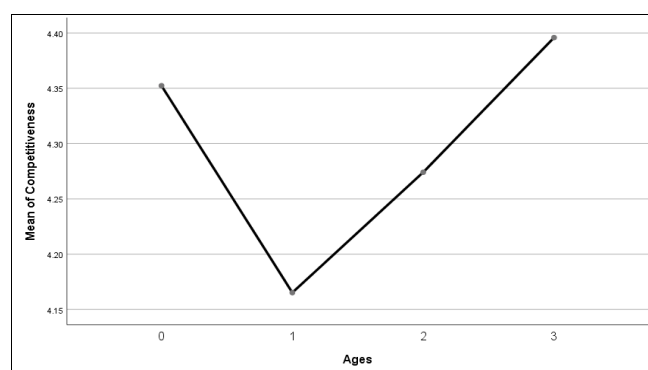

Fig 1: The line graph shows the relationship between competitiveness in logistics firms in Hanoi and neighboring provinces and each respondent's ages

5. Discussion and Implications

Logistics firms are service firms, operating mainly in the field of distribution and circulation; therefore, they are governed by the laws of the distribution and circulation of goods. This is the most basic characteristic that determines the functions, tasks, organizational structure, and business

methods of logistics firms, demonstrating differences compared to manufacturing enterprises, construction enterprises, industrial enterprises, and other enterprises in the national economy.

Logistics firms operate in the field of distribution and circulation of goods, performing service activities to transport goods from the place of production to the place of consumption in the most convenient way. Logistics firms carry out activities such as forwarding, transporting, transshipping, storing goods, carrying out customs procedures, etc. in order to circulate goods in order to serve the production, transportation, and distribution of goods to customers. In essence, service activities continue the production and consumption processes of people. The results of these activities are to ensure the continuity of the production process at the fastest time and lowest cost. In order to perform well the function of circulating and supplying goods, logistics firms need to well organize the product supply process in a timely and synchronous manner for the specific needs of customers, or, to speak from the right perspective, provide the right product to the right customer in the right quantity, in the right condition, at the right place, at the right time, and at the right cost for the customer consuming the product. To be able to survive and develop, logistics firms must have good "logistics" of production and consumption, providing customers with goods in sufficient quantity, good quality, and synchronous structure, on time and at a reasonable price.

In recent years, the freight transportation industry has been focused on, made many strides, and developed strongly. Logistics firms are increasingly established, improving quality and service as well as creating a reputation in the domestic market. Infrastructure is being improved and perfected day by day. National Highway 1A and many repaired, expanded, and smooth roads are the North-South arterial road, linking all regions of the country. However, the sudden increase in vehicle traffic in recent years has caused many difficult infrastructure challenges for localities. Many difficulties arise in the border area: the border is closed, agricultural goods are often pressured by foreign traders, and the quality of goods does not meet food hygiene and safety criteria, causing many vehicles to have to wait in line at the border gate. Increasing costs cause both transport firms and people to face countless difficulties.

Means of transportation are still rudimentary, service quality is limited, and they do not meet safety and reliability standards. Human resources are still limited in terms of professional expertise and qualifications, so it still does not create absolute peace of mind for partners.

With the current state of information technology development, Vietnam also has many advantages in logistics development thanks to access to modern, fast, and convenient management options. The modern, automated management system has helped seaports simplify paperwork, minimize the possibility of errors, and save time and costs in port operation and exploitation. In addition, container loading and transportation activities at seaports are also completely automated to optimize loading, unloading, and transportation.

Vietnamese consumers are starting to become more conscious about consuming logistics services; this is the point of promoting the logistics of service providers.

Developing multimodal transport to limit the limited impact of the transport system on the environment. In inland waterway transport, the river bed is shallow, so barges carrying containers cannot be used, even though this is an environmentally friendly means of transport. The limitation on wharf length at Vietnamese ports today also makes it difficult for two ships to dock at the same port at the same time, leading to a situation where one ship has to anchor outside the wharf, wasting fuel and increasing fuel consumption. amount of waste from the ship during the waiting time (Bao Han, 2023) [1].

The number of means of transport is too large, while the capacity of the transport infrastructure system is weak, inevitably leading to congestion. When congestion occurs, transport vehicles stop on the road and still consume energy, leading to inefficient use of fuel as well as releasing more emissions into the environment (Bao Han, 2023) [1].

The application of information technology in the business activities of Vietnamese enterprises is still far from international standards. With the current state of facilities and financial capacity, Vietnam cannot immediately deploy the most modern and advanced management tools and technological elements, although they are accessible (Bao Han, 2023) [1].

Faced with the severe impact of the COVID-19 pandemic, logistics firms need to further promote innovation capacity, thereby changing the way they operate and develop new products. Adapting to the environment based on market orientation and applying knowledge from the network will contribute to improving business performance. In addition, under the impact of globalization and regional economic integration, the ability to grasp market changes and be sensitive to customer tastes is a decisive factor in the competitiveness of firms and contributes to improving business performance. In particular, firms can reshape their competitiveness on the basis of carefully analyzing the components of dynamic capabilities, thereby building programs and plans to nurture and develop dynamic capabilities to create competitive advantage for firms, thereby contributing to improving business performance.

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