RISS Journal
Randwick International of Social Sciences (RISS) Journal
**Vol. 4, No.3, July 2023 | Page: 731-742**
**ISSN Online**: 2722-5674 - **ISSN Print**: 2722-5666
*https://www.randwickresearch.com/index.php/rissj*

# Factors Influencing the Development of Logistics Services in Lao Cai Province, Vietnam

***DOI:*** *https://doi.org/10.47175/rissj.v4i3.759*

**| Dinh Hong Linh[1,*] | Nguyen Thi Lan Anh[2] | Nguyen Dac Dung[3] |**

[1] *Faculty of Business Administration, Thai Nguyen University of Economics and Business Administration, Thai Nguyen City, Viet Nam*

[2] *Faculty of Economics, Thai Nguyen University of Economics and Business Administration, Thai Nguyen City, Viet Nam*

[3] *Deputy head of Examinations and Education Quality Assurance Department, Thai Nguyen University of Economics and Business Administration, Thai Nguyen City, Viet Nam*

[*] *dhlinh23@gmail.com*

**ABSTRACT**

*This paper aims to investigate the main determinants of logistics development in Lao Cai Province, Vietnam. Logistics is an important service industry a country's economic structure. It is also one of the topics that Lao Cai Provincial People's Committee was very interested in for the socio-economic development strategy for the period 2021-2025. The analysis of the factors influencing the development of logistics services in Lao Cai province has high theoretical and practical significance. The author used the exploratory factor analysis method through the primary data set from the survey results of 100 enterprises providing and using logistics services in Lao Cai Province in 2022 to analyse the factors affecting the development of this type of service in Lao Cai Province. The research results showed the role of logistics services in the socio-economic development of the province and the degree of influence of logistics services on the development of this service in Lao Cai Province in many different aspects. The degree of influence of the given factors are: (1) technical infrastructure (CSHTKT); (2) ability to access and mobilise capital of enterprises (HDV); (3) experience and management capacity of enterprises (NLQL); (4) facilities of logistics enterprises (CSVC); (5) human resourcess of enterprise (NNL); (6) factors of market economy (KTTT); and legal factors (PL). On this basis, the author proposed some policy recommendation for the development of logistics services in the province in the coming period.*

**KEYWORDS**

*factor; logistics services; determinants; development.*

## INTRODUCTION

Logistics is an imperative advantage industry inside the in common structure of the national economy, playing the portion of supporting, meddle and progressing the socio-economic advancement of the total country as well as each region, and contributing to moving forward the competitiveness of the economy. As a high value-added service industry, logistics services not only support the improvement of goods production, import and export and domestic trade, but moreover contribute to the improvement of transport framework and industry. At the same time, the improvement of a sound coordination administrations will make rise to openings for enterprises in all financial sectors of the economy, advance the fascination of residential and outside speculation capital in understanding with the law counting Vietnamese law and worldwide settlements to which Vietnam could be a signatory.

Analyzing the factors influencing the improvement of logistics services is one of the keys to finding out how to develop this type of service for the socio-economic development of Lao Cai Province in the future. This paper discusses the factors influencing the development of logistics services in Lao Cai Province. The influencing factors analyzed include both

internal and external factors of enterprises such as political factors, legal factors, market economic factors, technical infrastructure, information technology systems and other factors within the scope of enterprises providing and using logistics services such as financial resources, logistics human resources, etc. for logistics activities in the province. On this basis, propose possible solutions to develop logistics services in Lao Cai Province in the context of industrial revolution 4.0. In recent years, Vietnam's logistics industry has been growing at an average rate of about 14-16% per year. According to the Emerging Market Logistics Index 2021 report, Vietnam ranks 8th among the top 10 countries, up 3 places from 2020. It can be affirmed the importance of the epidemic industry. logistics services for the economic development of Vietnam. In this context, promoting the logistics industry to develop quickly and effectively is an urgent requirement not only at the national level, but also at the level of each locality, region and area.

With the peculiarity of being a border province with a particularly important strategic position like Lao Cai, the logistics industry plays an extremely important role in promoting import and export activities with China. As one of Vietnam's largest trading partners, the Chinese market plays a particularly important role in the trade activities of Lao Cai Province in particular and Vietnam in general. However, it is also one of the most competitive markets, where Chinese companies have great advantages in terms of labour costs and cheap raw materials. Logistics costs are therefore an important issue affecting the competitiveness of Vietnamese goods in the Chinese market.

For localities that attach great importance to the role of logistics services, determining the position of this field for the increasing logistics demand in the northern market, such as Lao Cai Province, promotes rapid and sustainable development. logistics service industry is one of the important goals, contributing to the growth of this increasingly dynamic and important service industry in the context of international economic integration.

## LITERATURE REVIEW

Hee-sung Bae (2012) conducted a study to analyze the relationships between environmental uncertainty (EU), logistics information systems (LIS), logistics integration (LI) such as internal integration (II) and external integration (EI) and customer service performance (CSP) of port logistics companies. This study tested the relationships between variables by modelling structural equations. The following results were synthesized: First, EU has a positive effect on II but no effect on EI. Second, LIS has a positive effect on LI, which mean that LIS can provide a useful basis for LI in port logistics. Thirdly, II contains a positive impact on EI. When harbor coordination’s companies have productive inner forms, they can structure effective relationships with clients and providers. Fourth, II features a positive effect on CSP but EI does not specifically lead to way better execution. In other words, EI could be a necessary but not a adequate condition for making strides CSP. In spite of the need of bolster for the relationship between EI and CSP, EI features a positive impact on II and bad habit versa, it in a roundabout way influences CSP. In this way, II intervenes the relationship between EI and CSP.

Hazwani Ahmad Tarmizi et al (2014) conducted a study by surveying 156 managers from logistics companies in Peninsular Malaysia for food-based logistics players. The findings showed that factors such as management support, implementation of assurance system, environmental control, employee acceptance and changing vision of the company are factors that influence the readiness for halal logistics. By applying the mathematical method of differential equations and experimental design, Salvatore Cannella et al (2016) analyse the relationship between several reverse logistics factors (remanufacturing lead time, recycled product return rate, reverse order policy and supply chain level quantities) on order variance

amplification and inventory. The results show that, other things being equal, closed-loop supply chains perform better than forward supply chains, both in terms of single and multi-level structures and in stable and turbulent market demand.

Nguyen Thi My Van (2017) conducted a study on the impact of logistics on the trade execution of garment enterprises in Da Nang City. Primary data was collected from the direct survey of 81 garment enterprises in Da Nang and processed by SPSS 20.0 software for analysis using descriptive statistics, comparison, and multiple regression to achieve the set research objectives. The author has constructed a 5-factor scale and 27 indicators of logistics service quality, combined with EFA factor analysis method, to analyse the factors affecting the production and business efficiency of garment enterprises through the quality coordination of inside, input, yield, back and costs. Thanwadee Chinda (2017) conducted a study aimed at examining the key components that impact the effective execution of turn around coordination in the construction industry. The author uses the factors found to group 17 related factors into the key components impacting the effective usage of reverse logistics.

Research by Nguyen Thi Thao Nguyen (2018) has identified the factors affecting the development of logistics services in Vietnam, including: geographical conditions, infrastructure, legal environment, the development of multimodal transport in Vietnam, human resources for logistics, and the development of information technology and e-commerce in the country. According to Nguyen Thi Thuy Dung and Ngo Nu Mai Quynh (2020), among the components influencing the competitiveness of logistics companies, the resource factor has the strongest impact. The study also shows that factors such as infrastructure, quality of legal framework, quality of logistics services, demand for services and competitiveness of logistics enterprises all have a positive impact on the competitiveness of logistics enterprises in the central key economic region of Vietnam.

Aibin Li, Ying Chen, Daopeng Wang (2020) believed that the political system can directly influence the willingness to adopt green logistics. Similarly, a study by Ifeyinwa Juliet Orji et al (2020) concludes that " the accessibility of particular blockchain instruments, framework and arrangement, and government back are the beat three positioned basic variables impacting blockchain selection within the coordination industry".

Vuong Thi Bich Nga (2021), investigated the factors affecting the current logistics industry in Vietnam, while providing development solutions and orientations for the logistics industry to develop sustainably. The research results appear that there are 5 bunches of variables influencing the advancement of the coordination industry in Vietnam, counting: (1) lawful arrangements and regulatory strategies; (2) foundation; (3) work force and coordination companies; (4) innovation; and (5) exchange in products. Nguyen Thanh Binh and colleagues (2021) have studied the quality of logistics services at Vietnam Shipping and Maritime Services Joint Stock Company, the authors have evaluated the service quality scale of the company in terms of delivery time, safety of goods, price, facilities, service methods,.... Accordingly, customer service is the most important factor in the regression model. Price; Delivery time; Brand image; Reliability; Infrastructure. On this basis, a number of solutions were proposed to develop and improve the competitiveness of companies through customer care services, price and product safety policies, building company brands, improving reliability for customers, and thereby achieving sustainable profits for the company.

Another recent study by Michael Wang, Lincoln C. Wood and Bill Wang (2022) considered driver shortages as a forerunner variable to appraise the affect of transport capacity deficiencies on coordination. This think about examines the fundamental relationship between driver deficiency, coordination capacity and coordination execution concurring to resource-based hypothesis. Structural equation modelling (SEM) was utilized

to examine estimation and basic models. The experimental results showed that the shortage of drivers indirectly affects the efficiency of logistics operations. Ji-Feng Ding (2023) used the method to assess key risk components in cold chain logistics operations of holder shipping companies. After collecting significant data from the writing and conducting master interviews, this think about has to begin with distinguished the hazard components influencing coordination operations of the cold supply chain of holder shipping lines and gotten 15 hazard components in 3 perspectives of risk appraisal. The comes about demonstrated that (1) the "shipper chance" perspective was the foremost imperative chance affiliation for holder shipping lines' cold chain coordination; (2) the six primary risk components that had the most noteworthy affect on a holder shipping line's cold chain coordination were "intemperate stacking time", "inadequately pre-cooling of merchandise", "destitute or improper item bundling", "issues with control supply at the dock or on board", "improper stowage" and "human blunder influencing temperature settings".

## The Concept of Logistics

Logistics is an economic activity with the human purpose of moving products and individuals from one put to another by implies of transport.Transport plays a particularly important role in commerce. "When it comes to trade, we have to talk about transport, trade means that goods change ownership, and transport means that goods change location".

From the point of view of the coordination administration work within the company, the transportation of products is compared to the association between production and commerce exercises completely different zones of the company. Transportation to transport raw materials, semi-finished products and inputs to logistics network facilities. Delivery of goods to customers' places when customers need them, ensuring the safety of goods with agreed prices.

## The Role of Logistics Service Development

### *Increase business value of freight forwarders*

Logistics service is a type of service with a wider scope and more complex than pure transportation and transportation. In the past, freight forwarding companies only provided simple, pure and unique services to their customers. Nowadays, due to the improvement of generation and dissemination, the points of interest of a item can be provided by numerous nations and then again, the item of a company can be expended in numerous nations and numerous other markets. Hence, the administrations that clients require from cargo forwarders must be differing and wealthy. Today's cargo forwarders have advanced to supply administrations that meet the genuine needs of their clients. They ended up coordination benefit suppliers. Clearly, coordination administrations have made a difference increment the commerce esteem of shipping and shipping companies.

Agreeing to the experience of created nations, by utilizing divide logistics services, fabricating undertakings can diminish the time from accepting orders to conveying items to clients from 5-6 months to 2 months. This benefit trade portion encompasses a benefit edge 3-4 times higher than generation and 1-2 times higher than other remote exchange administrations.

### *Development of logistics as a driver of market expansion in international trade*

The reason of production is to serve utilization, so the address of the showcase is continuously an critical issue in generation and trade, and is continuously on the minds of producers and businesses. Producers and companies that need to rule and grow the advertise

for their items require the back of coordination administrations. Coordination administrations act as a bridge, moving merchandise along modern courses to unused markets at the proper time and within the right put. The advancement of coordination administrations contains a major affect on the misuse and extension of the commerce showcase for companies.

### *Reduce the costs, improve the quality in international business*

In reality, a exchange in worldwide exchange regularly requires paper and archives. The Joined together Countries gauges that the fetched of printed material for all angles of commercial exchanges around the world surpasses $420 billion yearly. Specialists gauge that the taken a toll of printed material alone accounts for more than 10% of the esteem of worldwide exchange each year, which includes a critical affect on worldwide exchange exercises. Coordination has given a assortment of divide administrations that have enormously decreased the fetched of paper and records in worldwide exchange.

In expansion, along side the advancement of electronic coordination (electronic coordination) will make a transformation in transportation and coordination administrations, the taken a toll of papers and archives within the circulation of merchandise will be reduced to the greatest, the quality of coordination administrations will be increasingly improved, which can assist limit the deterrents in terms of space and time within the stream of materials and merchandise. Nations will be closer together in generation and dissemination.

### *Competitiveness enhancement*

The compelling advancement of coordination administrations will contribute to extending the competitiveness of the economy and the country. Inside the current strong around the world slant, competition between nations within the world is getting to be increasingly furious. This has made coordination administrations one of the country's competitive points of interest. Nations that are well associated to the worldwide coordination benefit arrange can get to numerous markets and buyers from nations around the world.

The advancement of coordination administrations will bring incredible benefits to the economy. Coordination is an coordinates chain movement, and the effectiveness of this handle is vital to the competitiveness of industry and exchange in any nation. For created nations such as the US and Japan, coordination accounts for around 10% of GDP. For less created nations, this rate can be over 30%. The advancement of coordination administrations ought to guarantee that the generation and trade operations of other administrations are ensured in terms of time and quality. Well-developed coordination will bring the capacity to decrease costs and move forward the quality of items and administrations.

## RESEARCH METHODS

To conduct this study, the authors conducted a direct survey to collect the opinions of 100 enterprises providing and using logistics services in the economic zones of Lao Cai Province. The identification of respondents is determined as follows: first, the Lao Cai Department of Industry and Trade provides the research team with a list of enterprises providing and using logistics, then the research team randomly selects these enterprises to conduct the interview until the sample size is 100. The questions in this study focus on asking about the influence of each factor on logistics activities in Lao Cai Province. Specifically, the questionnaire is designed to cover 8 scales and 30 observed variables (of which 7 are 7 influential factors with 27 observed variables and 1 scale represents the development of logistics services with 3 observed variables), including legal factors, economic knowledge: market economic factors; industrial infrastructure: infrastructure; capital mobilization: firm's potential and

ability to raise capital; CSVC: firm's facilities; human resources: human resources and management capacity: firm's management capacity; observed variables are measured using a 5-point Likert scale (from 1: very dissatisfied to 5: very satisfied). In order to help respondents clearly understand the purpose of the study and the content of each question, and to help the research team collect complete and accurate information from men, each interview lasted between 15 and 20 minutes. The evaluation of the appropriateness of the scale in the official research is done through the analysis of the Cronbach's Alpha reliability coefficient. The data analysis techniques used include: exploratory factor analysis (EFA), and linear regression. The software used for the analysis was SPSS.20.0.

In order to model the factors influencing the development of logistics services in Lao Cai Province, the research team proposed a specific model as follows:

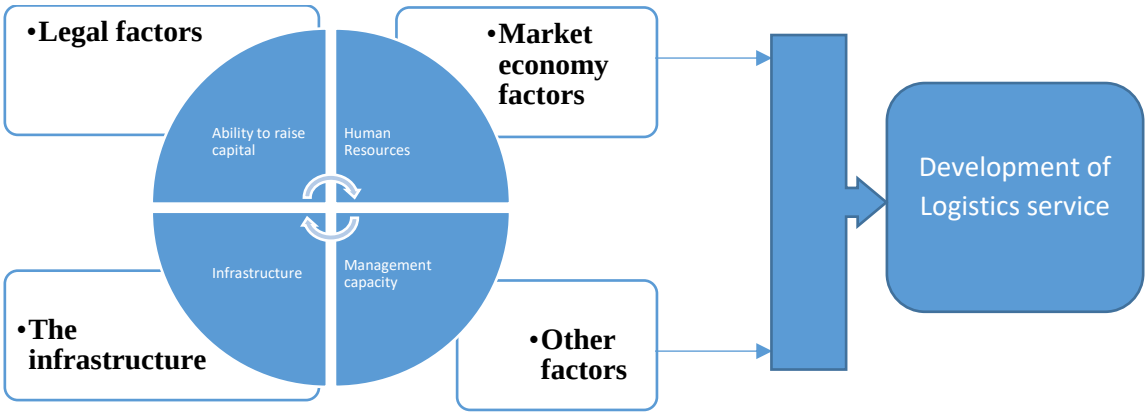


**Figure 1.** Research model of factors influencing Logistics Services Development

## RESULTS AND DISCUSSION

Based on actual observations and an overview of relevant researchs, the authors have built a factor analysis model including 8 scales and 30 observed variables. The scale and reliability of the observed variables were evaluated by Cronbach's Alpha coefficient and exploratory factor analysis (EFA). The scale is evaluated as good quality when: (1) Cronbach's alpha coefficient of the population is greater than 0.8; and (2) The total correlation coefficient of the observed variable is greater than 0.3 (Corrected Item – Total Correlation).

The authors have tested the suitability of EFA by KMO coefficient:

**Table 1.** KMO and Bartlett's test for independent variables

| | | |
|---|---|---|
| ***Kaiser-Meyer-Olkin Measure of Sampling Adequacy*** | | 0.706 |
| *Bartlett's Test of Sphericity* | Approx. Chi-Square | 1819,246 |
| | DF | 351 |
| | Sig. | 0.000 |

*(Source: Primary data analysis results, 2022)*

We see that the value of KMO=0.706 is greater than 0.5, meeting the condition 0.5<KMO<1. Thus, the application of factor analysis techniques in this case is completely consistent with the actual data set.

### *Test The Explanatory Level of The Observed Variables for The Factor*

Utilize the extricated change (% cumulative variance) to assess the illustrative level of the watched factors for the calculate. The extricated change esteem must be more prominent than 50%. After analyzing the data, the results showed that 27 observed variables were

extracted into 7 main factors (groups) with the Eigenvalues >1. The smallest eigenvalues are: 1.343. The total variance extracted is 75.543%.

**Table 2.** Total explanatory variance of the independent variables

| Compo-nents | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | | Rotation Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|---|---|---|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 6,205 | 22,981 | 22,981 | 6,205 | 22,981 | 22,981 | 4.029 | 14,924 | 14,924 |
| 2 | 3.943 | 14.603 | 37,584 | 3.943 | 14.603 | 37,584 | 3,675 | 13,611 | 28.534 |
| 3 | 2,832 | 10,490 | 48,074 | 2,832 | 10,490 | 48,074 | 3.125 | 11,573 | 40,108 |
| 4 | 2.313 | 8.566 | 56,640 | 2.313 | 8.566 | 56,640 | 2.864 | 10,609 | 50,717 |
| 5 | 2,072 | 7,676 | 64.316 | 2,072 | 7,676 | 64.316 | 2.485 | 9,205 | 59,921 |
| 6 | 1.689 | 6.254 | 70,570 | 1.689 | 6.254 | 70,570 | 2.478 | 9,177 | 69,099 |
| 7 | 1.343 | 4,972 | 75,543 | 1.343 | 4,972 | 75,543 | 1,740 | 6.444 | **75,543** |

*(Source: Primary data analysis results, 2022)*

The above results show that the extracted variance (% cumulative variance) = 75,543, (ensure the condition >50%), shows over 75% of the change of the components clarified by the watched factors within the demonstrate which was clarified in this model.

*The results of exploratory factor analysis are shown in the table below.*

**Table 3.** Rotation component matrix of independent variables

| Factors | Components | | | | | | |
|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| **KTTT4** | 0.852 | | | | | | |
| **KTTT5** | 0.830 | | | | | | |
| **KTTT3** | 0.815 | | | | | | |
| **KTTT2** | 0.808 | | | | | | |
| **KTTT1** | 0.797 | | | | | | |
| **KTTT6** | 0.677 | | | | | | |
| **PL1** | | 0.860 | | | | | |
| **PL5** | | 0.817 | | | | | |
| **PL3** | | 0.804 | | | | | |
| **PL2** | | 0.784 | | | | | |
| **PL4** | | 0.728 | 0.328 | | | | |
| **NLQL3** | | | 0.853 | | | | |
| **NLQL2** | | | 0.821 | | | | |
| **NLQL1** | | | 0.819 | | | | |
| **NLQL4** | | | 0.797 | | | | |
| **CSHTCN2** | | | | 0.884 | | | |
| **CSHTCN1** | | 0.386 | | 0.794 | | | |
| **CSHTCN3** | | | | 0.787 | | | |
| **CSHTCN4** | | | 0.317 | 0.724 | | | |
| **NNL3** | | | | | 0.869 | | |
| **NNL1** | | | | | 0.866 | | |
| **NNL2** | | | | | 0.866 | | |
| **CSVC3** | | | | | | 0.888 | |
| **CSVC2** | | | | | | 0.881 | |
| **CSVC1** | | | | | | 0.874 | |
| **HDV2** | | | | | | | 0.920 |
| **HDV3** | | | | | | | 0.900 |

*(Source: Primary data analysis results, 2022)*

The results of the calculate revolution network appeared that the factor loading coefficients of the watched factors all fulfill the conditions for figure examination (Calculate stacking coefficient ≥0.5) and the number of components produced when Figure investigation is 7 components with 27 watched variables. These factors all satisfy the discriminant and convergent properties.

The study has identified 7 factors as independent variables, specifically as follows:

**Table 4.** Adjusted model through Cronbach Alpha test and analysis discovery factor

| Ord | The scale | Feature variable | Scale explanation |
|---|---|---|---|
| **1** | PL(F1) | PL1, PL2, PL3, PL4, PL5 | Legal environment |
| **2** | KTTT (F2) | KTTT1, KTTT2, KTTT3, KTTT4 | Market economy |
| **3** | CSHTCN(F3) | CSHTCN1, CSHTCN2, CSHTCN3, CSHTCN4 | Technology infrastructure |
| **4** | HDV (F4) | HDV1, HDV2 | Ability to raise capital |
| **5** | NNL (F5) | NNL1, NNL2, NNL3 | Enterprise's human resources |
| **6** | CSVC(F6) | CSVC1, CSVC2, CSVC3 | Enterprise facilities |
| **7** | NLQL (F7) | NLQL1, NLQL2, NLQL3, NLQL4 | Management capacity of the enterprise |
| **8** | PTDVL (F8) | PTDVL1, PTDVL2, PTDVL3 | Developing logistics services |
| **Total** | **8** | **30** | |

*(Source: Construction Research Group, 2022)*

Thus, there are 7 groups of factors including internal and external factors that directly and indirectly affect logistics activities in Lao Cai province as the EFA result have been shown.

## *Multivariate Regression Analysis*

The results of the fit scores of the regression model are appeared within the taking after table:

**Table 5.** Model Summary [b]

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Durbin-Watson |
|---|---|---|---|---|---|
| 1 | 0, 738[a] | 0.54 5 | 0.5 11 | 0,48866 | 2.119 |
| a. Predictors: (Constant), PL, KTTT, CSHTCN, HDV, NNL, CSVC, NLQL | | | | | |
| b. Dependent Variable: PTDVL | | | | | |

*(Source: Primary data analysis results, 2022)*

The analysis results show that $R^2 = 0.545 > 0.5$. Thus, the variation of the independent variables explains 54.5 % of the variation of the dependent variable . That is, the factors proposed by the research team above explain more than 50% of the development of logistics services in Lao Cai province.

## *Check The Fit of The Regression Function*

**Table 6.** NOVA [a]

| Model | | Sum of Squares | Df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 26,337 | 7 | 3.762 | 15,757 | 0.000b |
| | Residual | 21,968 | 92 | 0.239 | | |
| | Total | 48,306 | 99 | | | |
| a. Dependent Variable: PTDVL | | | | | | |
| b. Predictors: (Constant), PL, KTTT, CSHTCN, HDV, NNL, CSVC, NLQL | | | | | | |

*(Source: Primary data analysis results, 2022)*

In Table 06, with Sig. <0.01, so the regression function is completely reliable with the real information. In other words, the free factors are straightly connected with the subordinate variable and 99% certainty level.

## *Check The Significance of the Regression Coefficients in The Model*

**Table 7.** Regression coefficients

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | Collinearity Statistics | |
|---|---|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | | Tolerance | VIF |
| 1 | (Constant) | - 0.345 | 0, 385 | | - 0.896 | 0, 373 | | |
| | PL | 0.186 | 0.083 | 0.179 | 2.245 | 0.027 | 0.778 | 1.304 |
| | KTTT | 0.184 | 0.073 | 0.190 | 2.528 | 0.013 | 0.871 | 1.306 |
| | CSHTCN | 0.208 | 0.072 | 0.244 | 2.887 | 0.005 | 0, 691 | 1.004 |
| | HDV | 0.204 | 0.061 | 0.241 | 3.350 | 0.001 | 0.954 | 1.004 |
| | NLL | 0.185 | 0.065 | 0.206 | 2.851 | 0.005 | 0.948 | 1.008 |
| | CSVC | 0.192 | 0.065 | 0.212 | 2.972 | 0.004 | 0.975 | 1.007 |
| | NLQL | 0.180 | 0.068 | 0.224 | 2.649 | 0.010 | 0.694 | 1.441 |

*(Source: Primary data analysis results, 2022)*

The results of the above analysis show that all regression coefficients are statistically significant, including the free coefficient alone, which is not statistically significant because the sig value is > 0.05. All variables are significant at the 5% level and have a positive impact on the dependent variable. The technical infrastructure of the province has the greatest impact on the advancement of logistics services in the area with a standardised regression coefficient of 0.244. This means that when the technical infrastructure is improved, it will most strongly promote the development of logistics services in a positive direction.

According to the results of the multivariable regression analysis, the study discussed the unnormalised regression coefficients (B) and the standardised regression coefficients (Beta) of the regression model. The unnormalised coefficient (B) reflects the change in the value of Y when one unit of X changes. Meanwhile, the normalisation coefficient (Beta) reflects the variation of the standard deviation of Y when one standard deviation unit of X changes. More specifically, the normalisation coefficient (Beta) is the result of a regression analysis, where the The independent and dependent variables were normalized (variance = 1). The denormalized coefficient (B) is the result of the regression analysis, in which the variables remain at their values. Normalisation coefficient Beta is often used to answer the question: In multiple regression analysis, in case the independent variables have different units of measure, which independent variable has a stronger impact on the dependent variable? .

Table 07 showed that the non-standardized regression coefficients (B) of the independent variables (influential factors): PL, economic knowledge, technical infrastructure, capital mobilization, human resources, administrative capacity, management capacity are: 0.186, respectively; 0.184; 0.244; 0.208; 0.204; 0.185;0.192;0.180 (all greater than zero). This proves that the independent variables (influential factors) have a proportional relationship with the dependent variable (PTDVL).

*We have the following multivariable regression model:* PTDVL = - 0.345 + 0.186 PL + 0.184 KTTT + 0. 208 CSHTCN + 0.204HDV + 0.185NNL + 0.192 CSVC + 0.180 NLQL.

As a percentage, it shows that PL (Legal factors) accounted for 11.96%, Knowledge-based economy (Market economy factors) accounted for 12.70%, Industrial infrastructure (technology infrastructure factors) accounted for 16, 30%, capital mobilization (factor of enterprise's ability to raise capital) accounted for 16.10%, human resource (factor of enterprise's human resources) accounted for 13.70%, CSVC (factor of facilities in the enterprise) ) accounted for 14.20% and management capacity (management capacity of the enterprise) accounted for 15% of the change of the dependent variable.

Logistics plays an vital part in enhancing the competitiveness of enterprises, especially in the context of increasingly fierce competition. The competitiveness of companies is a composite category of many factors, including external factors such as legal institutions, the business environment, the supportive role of the state... as well as internal and intra-company factors. The internal factors often mentioned are the quality of human resources, labour costs and product quality. While labour costs are only increasing, not decreasing, product quality that wants to be improved requires a lot of money to invest, the quality of human assets takes time to improve, another method is by reorganising the work process, production, reducing unnecessary costs, or in other words, by applying logistics in business operations.

From the analysis results and the correlation regression test, it can be seen that the given factors all have a positive influence on the development of logistics services in Lao Cai, in order of importance from highest to lowest: Technical Infrastructure (TI); Firms' ability to access and mobilise capital (Board of Shareholders); Firms' experience and management capacity (NLQL); Firms' facilities (CSVC); Firms' human resources (Human Resources); Market Economy (TT-Economy); and finally, the legal factor (PL). Firstly, the technical infrastructure is considered to have the greatest impact on the development of logistics services in Lao Cai, as it plays an important role in providing the necessary facilities and infrastructure for logistics activities. If the technical infrastructure does not meet the requirements of the logistics industry, it will cause difficulties and limitations in the transportation and management of goods. The ability of firms to access and mobilise capital (BOD) comes next, which can be explained by the fact that having enough capital and access to capital helps firms to invest in logistics activities, expand scale and improve service quality. The experience factor and the management capacity of the firm (NLQL) also play an important role in the development of logistics services. Professional management knowledge and skills help companies to optimise processes, improve efficiency and better respond to customer needs. In addition, the physical element of the firm (CSVC), including physical assets such as warehouses, equipment and technology, also plays an important role in the provision and management of logistics services.

High quality and modern facilities facilitate the transport and storage of goods, which helps to accelerate the development of this type of service. Another factor that influences the development of logistics services is the company's human resources (NNL). Indeed, the presence of staff with the right qualifications, skills and experience increases productivity and service quality. Meanwhile, the market economy factor is related to economic factors and the consumer market, the development of other industries and the level of competition in the logistics industry. This can affect the growth and accessibility of the company in the market. Finally, the legal factor (PL) also influences the development of logistics services. Regulations, policies and legal powers can affect the operations and processes of companies in the logistics sector.

## CONCLUSION

Logistics plays a vital part in all activities of the economy. For the production and business activities of enterprises, logistics plays an important role from the input of raw materials and

accessories to the output and transport of the final product to the customer's hands. Therefore, a comprehensive study of the theoretical basis of the development of logistics services will contribute to the correct assessment of the importance of the activities, to the state administration, generation and trade exercises, trade speculations, logical inquire about and communication within the field of coordination.

Through the results of analysis and correlation regression test, the study concludes that the given factors all have a positive impact on the improvement of logistics services in Lao Cai, in order of importance from highest to lowest: technical infrastructure (CSHTCN); ability to access and mobilize capital of enterprises (Board of Members); experience and management capacity of enterprises (NLQL); enterprise facilities (CSVC); human resources of enterprises (Human Resources); market economy (TT-Economy); and finally the legal factor (PL).

The results of the analysis of the factors affecting the development of logistics services to support enterprises in the province's economic zones open up suggestions for improving the legal system, policies, infrastructure and technology. ...how to maximize operational efficiency and improve competitiveness in the provision of logistics services by enterprises in the province in general and enterprises in the province's economic zones in particular.

There are still many difficulties to be solved in order to rapidly develop logistics activities in the province. Logistics enterprises in Lao Cai also have small scale, limited capacity, fragmented operation and lack of links. Arranging work between divisions and areas is still not closely linked, and there is overlap in management, which causes some difficulties for enterprises. The transport, trade and information technology infrastructure is still limited. The combination of e-commerce and coordination is not successful. The main activity of logistics companies in the province is road transport services. This is a service sector that faces competition from many companies in neighboring localities and is heavily dependent on rising input costs such as petrol and oil prices. These costs contribute to high logistics service costs, increase transport costs, and indirectly reduce the competitiveness of merchandise within the area in specific, and the competitiveness of the economy in common. In expansion, human assets for coordination exercises have not however met the prerequisites in terms of quantity and quality, expertise and foreign language skills to integrate into the new era.

## REFERENCES

Aibin Li, Ying Chen, Daopeng Wang (2020), An empirical study of the factors influencing the willingness to implement green coal logistics in China, *Journal of Cleaner Production*, Volume 245, 1 February 2020, 118932

Hazwani Ahmad Tarmizi, Nitty Hirawaty Kamarulzaman, Ismail Abd Latiff, Azmawani Abd Rahman, (2014), Factors Influencing Readiness towards Halal Logistics among Food-based Logistics Players in Malaysia, *UMK Procedia*, Volume 1, 2014, Pages 42-49.

Hee-sung Bae. (2012). The Influencing Factors of Logistics Integration and Customer Service Performance for Value Creation of Port Logistics Firms, *The Asian Journal of Shipping and Logistics*, Volume 28, Issue 3, Pages 345-368.

Ifeyinwa Juliet Orji et al. (2020). Evaluating the factors that influence blockchain adoption in the freight logistics industry, *Transportation Research Part E: Logistics and Transportation Review*, Volume 141, September 2020, 102025.

Ji-Feng Ding, Ju-Hui Weng, Chien-Chang Chou. (2023). Assessment of key risk factors in the cold chain logistics operations of container carriers using best worst method, *International Journal of Refrigeration*, Available online 16 June 2023.

Michael Wang, Lincoln C. Wood, Bill Wang. (2022). Transportation capacity shortage influence on logistics performance: evidence from the driver shortage, Volume 8, Issue 5, May 2022.

Nguyen Thanh Binh et al. (2021). Factors affecting the quality of logistics services at Vietnam Shipping and Maritime Services Joint Stock Company, *Industry and Trade Journal*, April 2021.

Nguyen Thi My Van. (2017). Research on the influence of logistics on the business performance of garment enterprises in Da Nang city, Master thesis of business administration, Danang University of Economics.

Nguyen Thi Thao Nguyen. (2018). Factors affecting the development of logistics services in Vietnam.

Nguyen Thi Thuy Dung and Ngo Nu Mai Quynh. (2020). Factors affecting the competitiveness of logistics enterprises in the central key economic region. Proceedings of the National Scientific Conference: Training human resources in the international career-oriented logistics industry, Ho Chi Minh City. Ho Chi Minh: National University Publishing House, Ho Chi Minh City. Ho Chi Minh.

Salvatore Cannella, Manfredi Bruccoleri, Jose M. Framinan. (2016). Closed-loop supply: What reverse logistics factors influence performance?, *International Journal of Production Economics*, Volume 175, May 2016, Pages 35-49.

Thanwadee Chinda. (2017). Examination of Factors Influencing the Successful Implementation of Reverse Logistics in the Construction Industry: Pilot Study, *Procedia Engineering*, Volume 182, 2017, Pages 99-105.

Lao Cai Provincial People's Committee (2021), Lao Cai logistics service development project to 2025, vision to 2035

Vuong Thi Bich Nga. (2021). Testing of factors affecting the sustainable development of Vietnam's logistics industry, *Industry and Trade Journal*, No. 23.