

Evaluating the Ability to Achieve Efficiency in Providing Services of the Freight Forwarding Firms in Viet Nam

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Abstract: In recent years, Vietnam freight forwarding industry is growing and contributing significantly to the national GDP. However, the efficiency in providing service delivery at the domestic firms is not high to compete with multinational companies that are strong potential and finance. There have been many studies on freight forwarding, but mainly qualitative research and other studies are in-depth analysis logistics. This research presents the factors that affect efficiency in providing services. This research has been used factor analysis method and binary regression model (Binary Logistics) and identified 4 factors that affect the efficiency in providing service of freight forwarding firms: (1) Resources of business (2) Outcomes (3) The quality of staffs (4) The relationship between enterprises and their customers, and outcomes is the factor provided the highest positive correlation to the ability to achieve efficiency in providing services of freight forwarding firms. Binary Logistic model showed the probability of business efficiency is 72.5%. Thus, at the level of resources to provide services is 3.35, the outcome is 3.66, quality of the staffs is 3.59 and the relationship with customers is 3.40, shows that enterprises operate efficiently. Value prediction accuracy of the model is 93.3%.

Keywords— Include at least 5 keywords or phrases

1. INTRODUCTION

Vietnam freight forwarding industry consists of 1200 companies providing freight forwarding services and which are divided into three main groups: multinational companies, joint ventures and domestic enterprises (including the State and private) (Vietnam Freight Forwarder Associations, 2011). The multinational company has strong financial, diversified services, the global market accounted for 80% market share in the amount of only 20%.

Thus, most of the domestic firms are the availability and exploitation of the small stage in the entire chain of value-added logistics services. Freight forwarding services in Vietnam are mostly traditional services, including transportation, warehousing, customs declaration, and delivery. These activities are derived from the scale of production of small firms, depended heavily on foreign countries [1]. Therefore, being able to compete with multinational companies grow domestic enterprises should study the factors affecting the

efficiency of delivery service providers to find the direction and the appropriate measures. In financial conditions, there are not as strong multinational companies, domestic firms can concentrate on studying the factors that affect the ability to achieve efficiency in providing freight forwarding services, thereby evaluating effectiveness in providing such services delivered to customers.

There are some researches that referred to this issue, but the researches referred activities forwarding limited in number. Typically, in the study of the author analyzed the specific situation of freight forwarding activities in the early years of development in Vietnam, indicating the strengths and weaknesses in service development trend of international freight forwarders, especially in Southeast of Vietnam. The study by [1] mentioned the problem of the development of freight forwarding services. Specifically, the authors analyzed the factors affecting the development of service delivery and then offering the solution strategy freight forwarding services in the near future. The other authors in the world also had many researches and articles related to the freight forwarding industry.

Opportunities in IT systems reach beyond organizational boundaries according to Venkatraman [2]. Furthermore, the IT capability of LSPs enhances their ability to deliver and provide a significant improvement in operational performance measures such as reducing the cost of the service in the long run according to Vaidyanathan [3]. As noted by Sauvage [4], several large size logistics companies invest in information system to gain advantages in the supply chain network [4]. Similarly, Bi et al. [5] highlighted that IT capability helps the development of a higher level of logistics services. Typically, Paul & James [6] analyzed the impact of strong information technology in the sequence of operations of logistics services, thereby giving the urgency of the application of information systems in the management of delivery. Furthermore, Shang & Lu [7] had confirmed the relationship customers have a profound impact on forwarding activities, besides, the author also referred to the capacity of staff in the performance of services and their role in the process of building relationships with customers. Besides, Yizhi Lu et al. [8] analyzed the specific factors affecting the freight forwarding industry in China. These studies and articles have urgency and

high reference for the forwarding industry in Vietnam. It is possible that the study analyzed the situation clearly freight forwarding industry in particular and general logistics, besides measuring customer satisfaction with service delivery.

However, the level of efficiency of service delivery has not been studied in depth. Therefore, this research through quantitative analysis of binary logistics regression model studied some core factors of how to impact the ability to the efficiency in providing service of freight forwarding companies, contribute to improving the competitiveness of Vietnam freight forwarding firms.

2. THEORETICAL FOUNDATIONS AND RESEARCH METHODS

2.1 Economic efficiency and efficiency in providing service

The economic efficiency of a phenomenon or an economic process is an economic category reflecting the level of use of resources, including human resources, financial ... to achieve the target [9,10]. Indeed, the economic efficiency expresses of quality of business operations, reflecting the use of resources such as raw materials, machinery, labor, capital ... to achieve the ultimate goal of all business operations of the maximize profits target.

To evaluate the economic efficiency of a business, there are two methods used, financial measurements and non-financial measurements [11]. These financial measurements use to measure the performance of the business based on the relationship between benefits and costs money. The economic efficiency of enterprises achieves higher when firms obtain maximum output based on minimum input costs. The non-financial measurements use to measure the performance of the business based on factors such as the degree of achievement of business objectives, level of customer reviews for products or services providers [12]. The study will evaluate the ability the economic efficiency based on non-financial measurements, especially the evaluation of customers for service providers. The economic efficiency in providing freight forwarding service (called the efficiency in providing service) is the process of combining and allocating of resources, especially in technology and people to provide customers a quality service, optimize satisfaction and appreciation received by customers to getting profits and enhance the competitiveness of enterprises providing services [13].

There are many factors that affect efficiency service providing, including most the resources of the enterprises, outcomes, the quality of the staff/employees, the price of service and the relationship between enterprises and customers.

2.2 The resources of the enterprises

Resources of the enterprises include many different factors such as properties, capabilities, organizational processes ... which now controls thus forming and implementing strategies to improve their efficiency. Enterprise resources are factors that make up the quality

of service because it presents the ability to providing services [14]. The resources of enterprises, including many factors, which are classified into three types of categories: physical capital resources, the resources of human capital and organizational capital resources [15,16,17]. The resources of the enterprises were used in the scale ROPMIS of Thai, V. V. [14], measuring the ability to provide freight forwarding services of the business. Specifically, in freight forwarding service, transportation equipment is important to provide services to clients. The system of modern means of transport, availability and operational stability are essential elements of creating effective service [18,19]. Besides, the construction of information technology to meet the trend of e-commerce and e-documents to use in forwarding services increasingly popular, so the application of e-commerce in services will impact positively on the efficiency of the service providers [6]. Therefore, the hypothesis H_1 was presented:

H₁: The resources of the enterprises impact positively on the ability to achieve efficiency in providing service delivery.

2.3 Outcomes

In this study, the scale was based on the scale SERVPERF [20] and ROPMIS scale [14]. According to Thai, V. V. [14], the results of the services required to ensure the accuracy, consistency, diversity, and speed of service. Characteristics of service delivery are the process of working with multiple stakeholders (importers, exporters, carriers, customs ...) which documents are intermediates stakeholders together and is the legal basis in accordance with the law. Therefore, the accuracy of the documents is one of the basic features that enterprises need to ensure delivery service provider with quality and efficiency [18]. Besides, performing services in a consistent manner is essential to achieve the level of efficiency in service delivery.

Freight forwarding services include a range of different activities, so these activities should ensure consistency with each other to be able to provide customers with service results according to their requirements. The performance is also reflected in the variety of services. Due to the nature of the activities of delivery, the customer can have many different options depending on the needs and the value added generated [6], it requires businesses to have sufficient capacity to provide diversified services appropriate to the needs and the added value that arises. In addition, the execution time service is also a factor affecting the efficiency of the services provided. Execution time shorter service, customers will facilitate the distribution of goods or reduce the costs of storage, demurrage or minimize the possibility of goods being tested. Therefore, as services to meet the basic characteristics are more effective in providing service delivery [21,22,23]. Therefore, the hypothesis H_2 was presented:

H₂: Outcomes impacts positively on the ability to achieve efficiency in providing service delivery.

2.4 Quality of the staff/ employees

Quality of the staffs is the level that staffs meet the needs and expectations of customers [24]. Quality of staffs was used in the scale and quality of service on the ability of employees in the process of providing services by Homburg & Stock [25]. Specifically, in the freight forwarding services, staff are directly exchange agreements with customers, understand their requirements so that handling requirements most effectively. Each staff will be responsible for a different job but responsibility in providing the best customer service, so the qualifications of any professional staffs will also affect the service chain the company provides. The process performing services of the staffs presents quality of services. The staffs are directly engaged in processing and services [26]. Professional qualification of the staff is an important factor in the process of implementing the service. The staff/ employees have a good level of new business can do good service processes and give customers confidence in the professionalism of the service that customers used [18,19]. Besides, the service attitude of staff also affects the quality of services provided [25]. Specifically, staffs must respond quickly to customer requirements and solve the added problems in the course of performing services will give customers satisfaction and trust [7]. Therefore, hypothesis H₃ was presented:

H₃: Quality of staffs impacts positively on the ability to achieve efficiency in providing service delivery.

2.5 The price of services

For consumers, the price is considered as the awareness of consumers about the abandonment or sacrifice something else to own a product or a specific service [27]. Prices include factors such as the price of the object, the value of the currency is perceived and the abandoned [27]. This study will define and measure the value perceived by consumers because this is the price be interpreted in ways the most meaningful to them [27]. Price is always a factor to be taken into consideration when customers choose to use the services of the company. Pricing services company that provides most of the fixed costs depend on external factors such as the carrier's charges, handling charges, expenses of lifting container ... In the model ROPMIS [14] the price is a factor affecting the final outcome of the service provided. Research by Valarie, A. et al. [28], Parasuraman, A et al. [18], Bienstock, CC et al [29]; Wilding, R. & R. Juriado [30]; Banomyong, R & Supatn N. [19], the price component is also included in the study. The factors related to the price including the reasonableness of prices, method of payment and discount rate. The reasonableness of prices is based on the perception of the customer for the money cost to use the service, the price can be evaluated higher than the market price but the customer to evaluate the case management services for customers using or the opposite.

Besides, the convenience in paying the price is also a factor in the increase in the value perceived by the customer for the service price. Customers can pay immediately in cash for the premium service is not too high or transfer payments via bank account or debit or deposit to guarantee payment for services complex,

demanding asked the strong commitment of both parties. In addition, an increase in the form of perceived value to the customer service charge is discount. Discount prices depend on the specific pricing strategies of enterprises but also a strategy to retain customers in the future [19]. Therefore, hypothesis H₄ was presented:

H₄: The price of services impacts positively on the ability to achieve efficiency in providing service delivery.

2.6 The relationship between enterprises and customers

The relationship between customers and suppliers is the commitment and mutual interaction between the parties oriented experienced a period of coherence between the two parties [31]. The relationship between enterprises and customers is one of the strategies to develop long-term business, increase profits in fierce competition [32]. According to [33], created value and shared value are reasons that the relationship exists between the customer and associated businesses and the shared value has more influence. The factors of shared value expressed concern and care to each individual customer as part of the core business to make a success of the service provider is the human factor [18,19]. When customers get value shared interest through policies outside of business profits, customer satisfaction for the services they use the higher, resulting assessment effectiveness of services used as positive [22]. So, hypothesis H₅ was presented:

H₅: The relationship between customers and suppliers impacts positively on the ability to achieve efficiency in providing service delivery.

3. METHODOLOGY AND RESULTS

Data were collected through two forms: direct survey and online survey by email, respondents are staffs of enterprises that regularly use freight forwarding services company nationwide. Samples were selected by convenient method because of the limitation of time and cost. The sample size in the study was determined based on experience [34]. Accordingly, the sample size is 5:1 [35] based on the number of variables. The final sample size is n = 135. Industry active customer focused mainly garment textiles (23.8%), chemicals (11.3%), leather & footwear materials (20.7%), electronics (17.9%), machinery (16.8%) and other sectors.

From the theoretical basis, the domestic and international research concerning the use and delivery of services firms, research using Binary Logistic regression models identified factors impacting positively on the ability to achieve efficiency in providing service delivery by the model:

$$P_i = E(Y=1/X_i) = \beta_0 + \sum \beta_k X_k$$

P_i: the probability of the ability to achieve efficiency in providing service (Y =1); β₁, β₂, β_k: the regression coefficients; X_i (i= 1,2,...,k): the independent variable

$$\text{With } z = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k \Rightarrow P_i = \frac{e^z}{1+e^z} = \frac{1}{1+e^{-z}} = \frac{1}{1+e^{-(\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k)}}$$

The model is written as follows: $L_e = \ln \left(\frac{P_i}{1-P_i} \right) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k$

Specifically: $\ln (P_i/1- P_i) = \beta_0 + \beta_1 * NL + \beta_2 * KQ + \beta_3 * NV + \beta_4 * GC + \beta_5 * QH + \pi$

Therefore, the probability of the ability to achieve efficiency is described:

$$P_i = \frac{E(DAT_HIEU_QUA)}{1 + e^{-(\beta_0 + \beta_1 * NL + \beta_2 * KQ + \beta_3 * NV + \beta_4 * GC + \beta_5 * QH + \pi)}} = 1/X_i$$

Table 1: Description of the variables in the model study

Factor	Concept	Hypothesis
NL	The resources of the enterprises	+
KQ	Outcomes	+
NV	Quality of the staffs	+
GC	The price of services	+
QH	The relationship between enterprises and customers	+

The dependent variable referred to the ability to achieve effective delivery of services that businesses provide to customers, taking value 1 if effective and 0 if not effective. The effective of forwarding service is defined as the resource integration of technology and human resource in order to give high quality to customer and optimize the customer satisfaction and get the better feedback from the customer and lead to the better company's revenue and profit therefore increase the competitive advantage for forwarding company [13]. All independent variables were measured on a scale from 1 to 5 (1 completely disagree, 2 - disagree; 3 - neutral; 4 - agree, 5 - strongly agree).

With the number of samples collected, the authors conducted testing the reliability of the scale through the Cronbach alpha reliability coefficient. The variables that are not suitably removed before analysis to explore factors (EFA) because they can create false factors when analyzing EFA [36].

Inspection Cronbach alpha of each element represents all elements Cronbach alpha > 0.6 and the correlation coefficient variables - total > 0.3, 18 variables were initially accepted and included in the next distribution [37]. Specifically, coefficient alpha (QH) = 0.757, coefficient alpha (KQ) = 0.706, coefficient alpha (NV) = 0.631, coefficient alpha (GC) = 0.626 and coefficients alpha (NL) = 0.625. Results 18 original variables are included in the factor analysis to explore EFA.

Factor analysis is done by exploring methods for analysis of the main factor (Principal Component

Analysis - PCA) with varimax rotation. This is the most common using [38] and load factor was chosen as 0.5. The results showed that original 18 observed variables are grouped into five factors, including variables GC15 disqualified because of loading factor < 0.5 [35], the index KMO = 0.844 and valued at a total variance explained is 59,199% > 50% (satisfactory).

Table 2: Factor loading, mean and standard deviation

		Factor Loading	Mean	Standard Deviation
The relationship between enterprises and customers				
QH_16	Security	0.822	3.40	0.757
QH_18	Promotion	0.752		
QH_17	Interested	0.732		
Outcomes		Factor Loading	Mean	Standard Deviation
KQ_5	Accuracy	0.667	3.66	0.843
KQ_6	Consistency	0.659		
KQ_7	Period of time	0.656		
KQ_4	Variety	0.542		
Quality of the staffs		Factor	Mean	Standard
NV_9	Experiences	0.626	3.59	0.787
NV_10	Respond	0.597		
NV_11	Problem	0.569		
NV_8	Professional qualifications	0.566		
The resources of the enterprises		Factor Loading	Mean	Standard Deviation
NL_1	Facilities	0.791	3.35	0.805
NL_3	Information	0.685		
NL_2	Stable	0.578		
The price of services		Factor	Mean	Standard
GC_12	Reasonable	0.813	3.53	0.748
GC_13	Updating price	0.662		
GC_14	Easy payment	0.606		

To analyze 5 factors NL, KQ, NV, GC, and QH affect efficiency service provider or not, Binary Logistics regression model was used with the significant statistics $\alpha = 5\%$.

Results Binary Logistics regression analysis method Enter showed that 5 components NL, DD, NV, GC, and

QH positive influence to achieve efficiency in providing service delivery of domestic enterprises.

Table 3. Results of regression models Binary Logistics

	B	S.E.	Sig.
Factor			
Resources (NL)	1.548	0.772	0.045
Outcomes (KQ)	3.951	1.163	0.001
Quality of the staffs (NV)	2.227	1.066	0.037
Price (GC)	0.557	0.869	0.521
Relationship (QH)	1.909	0.845	0.024
Constant	-32.417	7.629	0.000

Results in table 3 showed the ability to achieve efficiency in providing service delivery with p values less than significance $\alpha = 0.05$. Therefore, the model has significant research. In such, factor GC has p-value Sig. = 0.521 > 0.05, there is no meaningful research.

Binary Logistics regression equation is based on the results in table 3:

$$\text{Log}_e \left[\frac{P(Y=1)}{P(Y=0)} \right] = -32.413 + 3.950 * KQ + 1.548 * NL + 2.227 * QT + 1.908 * QH$$

Binary Logistic regression showed that factor KQ impacts positively the probability of maximum efficiency. This shows that, when the results of the implementation of the business increased by 1 unit, while other factors constant, the odds (probability to ability efficiency/probability to ability inefficiency) the ability efficiency will increase to 3,950 units. Similarly, the factor of quality resources or personnel increased by 1 unit when other factors constant, the odds of ability effectively increases respectively 1,548 and 2,227 units.

Forecasting the probability of achieving efficiency based on the model

Based on the average values of the variables studied, the probability of achieving efficiency is predicted: Suppose a firm has the resources to provide services is 3.35, the outcome is 3.66, quality of the staffs is 3.59 and the relationship with customers is 3.40, meanwhile, the probability of achieving efficient:

$$E(Y/X) = \frac{e^{(-32.417 + 3.951 * 3.35 + 1.548 * 3.66 + 2.227 * 3.59 + 1.909 * 3.40)}}{1 + e^{(-32.417 + 3.951 * 3.35 + 1.548 * 3.66 + 2.227 * 3.59 + 1.909 * 3.40)}} = 0.725$$

Binary Logistic model showed the probability of business efficiency is 72.5%. Thus, at the level of resources to provide services is 3.35, the outcome is 3.66, quality of the staffs is 3.59 and the relationship with customers is 3.40, shows that enterprises operate

efficiently. Value prediction accuracy of the model is 93.3%.

4. DISCUSSIONS

4.1 The resources of the enterprise: Factor has positive coefficient and statistically significant (at p-value = 5%) and the sign of the parameter estimates is the sign (+) as original expectations, reflecting the way the relationship between the probability of achieving efficiency of service delivery and resources to provide services of the business. Resources can provide the resources now available that can perform and meet the requirements of customers. Enterprises with equipment operation stability will improve efficiency services that provide businesses [8]. In the freight forwarding operations, transportation equipment is necessary to transport and delivery to customers. Means of transport are more available and more stable operation that will improve the quality of service. For firms not investing in transportation systems, operations outsourcing solution is necessary to ensure the availability of resources and the effective provision of contracted service providers [39].

4.2 Quality of the staff: Factor has positive coefficient and statistically significant (at p-value = 5%) and the sign of the parameter estimates is the sign (+) as original expectations, reflecting the way the relationship between the probability of achieving efficiency and quality of the staffs. The quality of staff including staff skills and policies in relation to customers. Staffs respond quickly to customer requirements, besides that, due to the characteristics of forwarding activities affected by many external factors, the ability to solve problems arising employee is indispensable. When the staffs have all skills that will increase efficiency service providers [7].

4.3 Outcomes: Factor has positive coefficient and statistically significant (at p-value = 5%) and the sign of the parameter estimates is the sign (+) as original expectations, reflecting the way the relationship between the probability of achieving efficiency and outcomes. From the specific needs of the sector given the necessary requirements for service delivery: process documents correctly, the safety during transport, delivery, and implementation services in the shortest possible time to save cost for customers. Therefore, the business services provider to meet the core requirements, enterprises have provided an efficient service to customers [18,19].

4.4 The relationship between enterprises and customers: Factor has positive coefficient and statistically significant (at p-value = 5%) and the sign of the parameter estimates is the sign (+) as original expectations, reflecting the way the relationship between the probability of achieving efficiency and the relationship between enterprises and customers. When customers get value shared interest through policies outside of business profits, customer satisfaction for the services they use the higher, resulting assessment the efficient use of services as satisfactory. In view of modern marketing, the customer is the center of administration rather than businesses. One principle is widely accepted that finding new clients will cost five to ten times higher than maintaining existing customers. In the fiercely competitive environment, the globalization retaining key

customers is the key to maintaining success [40]. Therefore, enterprises should take advantage of and develop relationships with loyal customers and build a good impression with new customers the first transaction. Besides, customers also expect the incentive program that can meet the enterprise to maintain a relationship with them. In the fiercely competitive environment of the industry, the incentive program to meet the increasing requirements of customers will be an important strategy to retain customers [7]

4.5 The price of services: Factor is no statistically significant (at p -value = 5%), does not affect the probability of achieving efficiency that businesses provide delivery. This shows that customers do not concerned about the price of the services they use so much. Price of services that enterprises provide most of the fixed costs depend on external factors such as the carrier's charges, handling charges, expenses of lifting container ... so the price of extra services dependent on objective factors. Besides, service delivery is diversity, dependent on customer requirements so that enterprises cannot offer a fixed price for each service. Enterprises can offer a low price when trying to limit the surcharge attached but the customer service requests are made in a very short time or instantaneous. This requires transport activities of enterprises are mobilized quickly, exchange fees or other contract services resulting costs will increase. Therefore, the evaluation of the effectiveness of the delivery service provider of the enterprise-based price of service is incorrect. Also, the cost of logistics services in Vietnam in general relatively low compared to the region, but the level of service provided to uncertainty and less effective. In fact, the freight forwarding industry is developing at high speed, with the fierce competition, as evidenced by the mass entry of companies active in the field of logistics. So, the price competition between companies providing services is inevitable. However, low price does not mean the service is now providing an efficient service to customers.

5. CONCLUSIONS

Based on the responses from the sample who are employees of the companies that are located in Vietnamese city often use freight forwarding services nationwide, there are four core factors effect positively on the efficiency of freight forwarding service of freight forwarding enterprises, especially the firms in Vietnam, in which factors most strongly positively impact to the performance results. This research through quantitative analysis of binary logistics regression model studied five such as resources, quality of staff, relationship, price and outcome core factors of how to impact the ability to the efficiency in providing service of freight forwarding companies, contribute to improving the competitiveness of Vietnam freight forwarding firms. The difference of the research is there is no affection of the price factor to service capabilities provide efficient services business, it is also a matter of concern for the freight forwarding business while paying strategic importance to compete on price. Regarding to this research results, Vietnamese forwarding company should pay more investment on the outcome of the service such as service quality accuracy, service quality of consistency and period of time delivery

of the service rather than reducing price for the customers. The quality of staff in service delivery is also important good experience, problem solving, fast response and professional reaction.

This research still exists some limitations, so just examine some the core factors affect the efficiency of business services that provide freight forwarding. However, this study has the objective to reflect on the effectiveness of corporate services forwarding Vietnam offers. Hopefully, there will be more researches, especially factors are not addressed in this study. Hopefully, this study will contribute a small part to improve efficiency provides freight forwarding services that the Vietnam freight forwarding enterprises supply.

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