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Factors influencing the decision to outsource logistics services of small- and medium-sized enterprises in Vietnam

Bui Duy Linh[1]
Foreign Trade University, Hanoi, Vietnam
Nguyen Thi Dieu Hoa
General Department of Vietnam Customs, Hanoi, Vietnam

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Abstract

This study examines the factors influencing the decision to outsource logistics services of small- and medium-sized enterprises (SMEs). The Cronbach's Alpha test, exploratory factor analysis, confirmatory factor analysis, and structural equation modeling were employed to analyze data collected from 204 Vietnamese SMEs in the export of agricultural products, seafood, and textile industries. The results show that the motivation to reduce costs and the characteristics of service providers have the most significant impact on these enterprises' decisions to outsource logistics services. Moreover, outsourcing strategy also affects logistics outsourcing decisions. Based on the results, this study provides recommendations for logistics service providers to attract customers and advise SMEs on the decision-making process to outsource or operate logistics activities themselves.

Keywords: Decision, Logistics outsourcing, SMEs

1. Introduction

Outsourcing logistics services can be understood as a part of, or the entirety of the logistics tasks of the enterprise implemented by an organization or an individual providing external services (Dong *et al.*, 2007). Therefore, outsourcing logistics is considered a management tool that helps improve operational efficiency, reduce logistics costs, save time, and increase business profits. In fact, with the priority on specialization, the number of domestic enterprises outsourcing services of 3PL and 4PL logistics suppliers tends to increase. As a result, the outsourcing strategy is gradually becoming an important and popular model that facilitates businesses to prioritize maximum resources on core functions such as production, sales, and product research and development.

[1] Corresponding author: duylinh@ftu.edu.vn

In Vietnam, small- and medium-sized enterprises (SMEs) have experienced strong growth in recent years. According to the Vietnam Business White Book 2021, Vietnam has more than 760,000 SMEs, accounting for 96.7% of the total number of enterprises. Every year, SMEs contribute about 40% of GDP, 33% of the value of industrial output, and 30% of the value of exported goods, attracting nearly 60% of Vietnam's labor. However, today's SMEs face many challenges due to limited resources and weak management capacity. Therefore, outsourcing logistics services has become a popular trend in enterprises to optimize resources efficiency and improve competitiveness of enterprises.

Many studies have examined the factors affecting the decision to outsource the logistics services of enterprises (Dong *et al.*, 2007; Hsiao *et al.*, 2011; Bajec, 2013). However, in Vietnam, studies on outsourcing logistics services mainly focus on assessing the quality of outsourced services, affecting the decision to choose logistics service providers for enterprises (Nguyen, 2020). There is still no research evaluating the motivations for businesses to choose to outsource logistics services instead of performing this activity themselves. This study was conducted to determine the factors influencing the decision to outsource logistics services of SMEs in Vietnam. Research data were collected from 204 SMEs and processed by quantitative analytical techniques. From the research findings, the study proposed recommendations for logistics service providers to attract customers and lessons for SMEs in the decision-making process to outsource or operate logistics activities themselves.

The first section of this study introduces the background information and highlights the need to investigate the research topic. Section 2 systematizes the theory of service outsourcing motives of enterprises in general and logistics outsourcing in particular. Section 3 proposes a model of factors affecting the outsourcing of logistics services of SMEs in Vietnam. The results and discussions are presented in section 4. Finally, section 5 concludes this paper.

2. Literature review

2.1 Service outsourcing

Service outsourcing is when a firm hires a provider to do the work the business needs to do instead of doing it (Dong *et al.*, 2007). Outsourcing is one of the important decisions affecting the development of a firm (Gewald and Dibbern, 2009). Outsourcing services have many advantages such as reducing costs, helping businesses optimize their organizational structure, and effectively managing their resources to focus on developing their core competencies (Hafeez and Andersen, 2014). This is even more important for SMEs because these businesses often lack human and capital resources (Anders and Bjorn, 2015).

The transaction cost economics theory is one of the most popular theories explaining why firms outsource services. This theory was developed by Coase (1937) and assumes that firms outsource to save costs by taking advantage of the resources of external organizations. In other words, firms will compare the costs of outsourcing with the costs of internal transactions, which means that when internal implementation costs are greater than external transaction costs, firms tend to outsource services. This theory has been widely used when modeling the determinants of enterprises' use of outsourced services, such as the research of Williamson (1975), Ketler and Walstrom (1993), Kremic *et al.* (2006).

Prahalad and Hamel (1990) propose core competency theory to explain the motivation to outsource services of firms and apply it in many subsequent studies. According to this theory, each firm has different strengths in terms of internal resources and firms need to maximize those resources. Therefore, the outsourcing decision of firms depends on the internal resources of the business; in other words, the firms choose to outsource activities they do not have the strength to perform. However, according to Aron and Singh (2005), the consideration of using external resources depends on the strategy of the enterprise and the ability to meet the requirements of service providers. In addition, the social network theory of Bourdieu (1986) suggests that the business manager's social network will play an important role when deciding whether to outsource. Accordingly, business managers with more social connections tend to be less likely to outsource.

2.2 Logistics outsourcing

Logistics is the entire process of getting things (i.e., products and services) into customers' hands. Planning, executing, and managing the transportation and storage of products, services, and related information from the point of production to the point of consumption to satisfy consumer needs are all part of logistics activities. Transportation, warehousing, forwarding, and third-party value-added services are examples of traditional logistics services (SCMP, 2013). Simply put, logistics outsourcing refers to a management strategy whereby previously internal corporate operations are now carried out by third parties (Hsiao *et al.*, 2011).

Execution activities (first level), value-added activities (second level), planning level (third level), and planning and strategic activities (fourth level) are the four levels that Bajec (2013) assigns to logistics outsourcing (fourth level). Outsourcing traditional logistics services such as transportation and warehousing is the first level of logistics outsourcing. The emergence of logistics service providers with cross-border operations is the second level. The third level of logistics outsourcing is a combination of logistics service providers and information technology, management consulting, and financial services firms. In addition, the alliance introduced a new service called supply chain solution, also known as fourth-party logistics, and created potential development that includes supply chain management.

In Vietnam, studies on outsourcing logistics services of enterprises are mainly approached from the perspective of enterprises' decision to choose logistics service providers. Most of the studies use service quality factors to consider the decision to outsource the logistics services of enterprises. Dang (2014) studies the factors affecting the decision of enterprises to choose a logistics service provider in Ho Chi Minh City. The result shows that responsiveness, reliability, empathy, and price of logistics services have a significant influence on the enterprise's decision to choose a logistics service provider. Meanwhile, Nguyen (2020) believes that the manager's point of view, the enterprise's strategy, and the responsiveness of logistics services are the factors that affect the decision to outsource logistics services of enterprises.

In general, the service quality dimensions (SERVQUAL), proposed by Parasuraman *et al.* (1988), have been widely used by researchers when evaluating the decision to outsource logistics services of enterprises. These factors belong to the logistics service provider,

including tangibility, reliability, responsiveness, assurance, and empathy. However, besides these factors, factors belonging to enterprises using outsourced logistics services are also important factors affecting their decision to outsource or perform their own logistics activities. Therefore, in this study, the transaction cost economics theory, core competency theory, and social network theory combined with service quality factors were adapted to propose a research model on these factors influencing SMES' decision to outsource logistics services.

3. Research model

Empirical studies have shown that there are many factors affecting the decision to outsource the logistics services of enterprises. In particular, many studies have confirmed the relationship between cost reduction and outsourcing logistics services. According to Omta (2010), cost reduction is one of the outsourcing considerations. Bourlakis and Melewar (2011) argue that firms outsource logistics services due to operational and cost motives. The cost reduction of outsourcing logistics services for companies is reflected in the savings in investments to develop logistics activities, operating costs, and human resources invested in this activity. SMEs often have relatively limited resources, so optimizing costs through logistics outsourcing is a factor that positively affects the decisions of these companies. Therefore, the following hypothesis is developed:.

H1: There is a positive relationship between cost reduction and the decision to outsource the logistics services of SMEs in Vietnam.

Core competence is also a factor that directly affects firms' decision to outsource logistics services. According to Solli-Sæther (2005), activities that are not core competencies are often outsourced. However, activities that are not core but are the basis for creating competitive advantages for companies are often performed directly instead of outsourcing. Outsourcing logistics services help companies redistribute resources to develop core activities and influence their market positioning. For SMEs, identifying core competencies is the basis for businesses to effectively allocate capital and human resources to achieve short-term and long-term goals. Hence, the following hypothesis is suggested:

H2: There is a positive relationship between the core competence of the enterprise and the decision to outsource the logistics services of SMEs in Vietnam.

Akbari (2013) argues that the decision to use the enterprise's resources depends on the business strategy because the outsourcing strategy must be based consistently on the enterprise's objectives and operational orientation. In other words, the choice of enterprises to outsource logistics services or perform these activities themselves is influenced by the development strategy of that enterprise. The business development strategy may change depending on the stage of the company's development. Therefore, the level of outsourcing logistics services of that business also changes in different periods. Business managers need to analyze and evaluate the suitability of each level of outsourcing logistics services to the company's development orientation and goals. Hence, the following hypothesis is proposed:

H3: There is a positive relationship between the strategy of the enterprise and the decision to outsource the logistics services of SMEs in Vietnam.

Outsourcing a part or all of the logistics functions can create risks to the outsourcing users. According to Tsai *et al.* (2012), outsourcing logistics services risks include asset, relationship, and competence risks. Relationship risk relates to potential triggers leading to failed relationships between outsourcing users and logistics providers. Asset risk is divided into risk from human resources, information, risk due to the increase of internal governance costs, and dependence risk. In addition, outsourcing logistics services can cause a risk in competence for outsourcers (Solakivi *et al.*, 2013). Risk control in outsourcing logistics services of enterprises is reflected in the ability of enterprises to identify, assess, and handle risks, especially for SMEs. This is also an influencing factor for enterprises' decision to outsource logistics services. Based on prior studies, the following hypothesis is suggested:

H4: There is a positive relationship between risk control in logistics outsourcing and the decision to outsource logistics services of SMEs in Vietnam.

Characteristics of logistics providers are factors that companies often consider carefully before deciding to outsource logistics services. According to Gonzalez *et al.* (2010), outsourcing brings client firms technological advantages, as these business organizations have access to specialized, state-of-the-art technology supplied to them by their providers. Furthermore, the experience and reputation of logistics service providers are also considered to be important factors, according to the research results of Sheng (2008). Experienced and reputable service providers will ensure to provide logistics services of high quality that also fit the needs of businesses. Besides, the diversity of logistics service providers in the market also promotes the choice of outsourcing this service of enterprises. Therefore, the following hypothesis is built:

H5: There is a positive relationship between the characteristics of logistics providers and the decision to outsource the logistics services of SMEs in Vietnam.

Based on previous studies, the proposed research model is as follows:

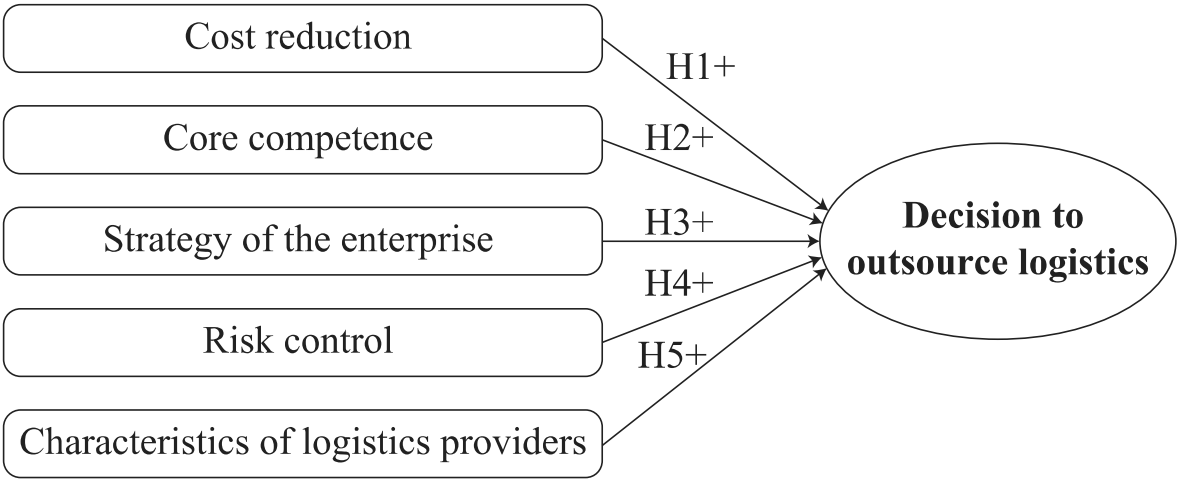

Figure 1. Proposed research model

Source: Authors' suggestion

3. Research methodology

3.1 Questionnaire design

Each factor in the research model is measured by 3-4 observed variables (Table 1). The study used a 5-point Likert scale ranging from 1- Completely disagree to 5 - Completely agree.

Table 1. Observed variables in the research model

Variables	Code	Observed variables	Source
Factors influencing the decision to outsource logistics services			
Cost reduction (CO)	CO1	Saving equipment investment costs.	Bajec (2013), Bourlakis and Melewar (2011)
	CO2	Saving operating costs of logistics activities.	
	CO3	Saving costs for investment and development of logistics human resources.	
	CO4	Solving the problem of lack of resources.	
Core competence (CC)	CC1	Outsource less important jobs.	Tsai *et al.* (2012)
	CC2	Outsource to focus on developing core activities.	
	CC3	Outsource to solve the problem of capital and technology.	
Strategy of the enterprise (ST)	ST1	Logistics outsourcing is the trend.	Akbari (2013), Bandeira *et al.* (2015)
	ST2	Logistics outsourcing is a competitive strategy.	
	ST3	Improve product/service quality.	
	ST4	Logistics outsourcing is the diversification strategy.	
Risk control (RC)	RC1	Ability to identify risks in logistics outsourcing.	Solakivi *et al.* (2013), Tsai *et al.* (2012)
	RC2	Ability to assess and measure logistics outsourcing risks.	
	RC3	Ability to handle logistics outsourcing risks.	
	RC4	Sharing risks with suppliers.	
Characteristics of logistics providers (LP)	LP1	Technological capabilities of logistics providers.	Gonzalez *et al.* (2010), Sheng (2008)
	LP2	Providers' reputation.	
	LP3	Service quality of logistics providers.	
	LP4	Having a good relationship with providers.	
Decision to outsource logistics services			
Decision to outsource logistics (DE)	DE1	(DE1) If logistics outsourcing has advantages, the enterprise should outsource.	Tsai *et al.* (2012), Bourlakis and Melewar (2011)
	DE2	Outsourcing logistics services is a long-term objective.	
	DE3	Enterprises tend to increase logistics outsourcing.	

Source: Authors' compilation

3.2 Data collection

This study uses a non-probability convenience sampling method. According to Hair *et al.* (2014), the minimum sample size was determined to be from 100 to 200 for studies using exploratory factor analysis. The questionnaire was collected through email and interviews with SMEs in 5 provinces/cities, including Hanoi, Thai Nguyen, Nam Dinh, Ho Chi Minh, and Lam Dong. These enterprises mainly export agricultural products, aquatic products, and textiles. Respondents were mainly business owners and people in charge of departments related to logistics activities at enterprises. Data collection was carried out from December 2021 to June 2022. The study collected 218 responses, of which 14 were excluded due to information misalignment. The total number of samples is 204, ensuring the minimum required sample size.

Table 2. Descriptive statistics

Items		**Number of surveys**	**Percent (%)**
Localities	Hanoi	72	35.29
	Thai Nguyen	31	15.20
	Nam Dinh	26	12.75
	Ho Chi Minh	54	26.47
	Lam Dong	21	10.29
Types of economic activity	Exporting agricultural products	77	37.75
	Exporting aquatic products	48	23.53
	Exporting textiles	44	21.57
	Others	35	17.16
Sizes of enterprise	Micro enterprises	163	79.90
	Small enterprises	36	17.65
	Medium enterprises	5	2.45
Total		**204**	**100.00**

Source: Authors' research sample

3.3 Analytical methods

Both qualitative and quantitative research methodologies are used in this study. To alter the research model and questionnaire, qualitative analysis is first carried out through in-depth interviews with businesses employing outsourced logistics services. After that, Cronbach's Alpha test, exploratory factor analysis (EFA), confirmation factor analysis (CFA), and structural equation modeling (SEM) were employed to evaluate the impact of factors on the choice to outsource logistics services of SMEs in Vietnam.

4. Research results and discussions

4.1 Research results

4.1.1 Testing the reliability of the scale

To assess the reliability of the factors and the degree of the close correlation between the observed variables in the same factor, this study uses Cronbach's Alpha coefficient of the minimum factor,

which is 0.6 (Hair *et al.*, 2010). To evaluate the relevance of a question item (observed variable), the study considers the correlation coefficient of the total variable, which is greater than 0.3 (Hair *et al.*, 2010). The Cronbach's Alpha test results of all factors are greater than 0.6 (the smallest is the dependent variable DE with Cronbach's Alpha being 0.783). The correlation coefficients of all 22 observed variables belonging to 6 factors in the model are greater than 0.3 (the smallest is the observed variable DE3 with the total correlation coefficient of 0.489), and there is no case of excluding variables making Cronbach's Alpha of the sum variable larger. Therefore, all observed variables are accepted and used in the next step of factor analysis.

Table 3. The results of testing the reliability of the scales

Variable name	Number of items	Variable code	Cronbach's Alpha
Cost reduction	4	CO1, CO2, CO3, CO4	0.883
Core competence	3	CC1, CC2, CC3	0.846
Strategy of the enterprise	4	ST1, ST2, ST3, ST4	0.860
Risk control	4	RC1, RC2, RC3, RC4	0.804
Characteristics of logistics providers	4	LP1, LP2, LP3, LP4	0.849
Decision to outsource logistics	3	DE1, DE2, DE3	0.783

Source: Authors' calculation

4.1.2 Exploratory factor analysis

According to the EFA result, Sig. = 0.000<0.05 and the KMO coefficient is 0.749>0.6. This demonstrates that there is a correlation between the observed variables, proving that EFA is necessary. The EFA identifies five factors from observed variables with Eigenvalues values larger than 1 with Varimax rotation, and the extracted variance of 72.90% (more than 50%) satisfied the criteria. As a result, the EFA results are appropriate.

Table 4. EFA analysis of the scale factors influencing the choice to outsource logistics services

Cost reduction	Core competence	Strategy of the enterprise	Risk control	Characteristics of logistics providers
		Factor loadings		
0.902 (CO1)	0.873 (CC3)	0.901 (ST1)	0.843 (RC3)	0.826 (LP1)
0.868 (CO2)	0.870 (CC2)	0.861 (ST2)	0.656 (RC1)	0.834 (LP2)
0.797 (CO3)	0.812 (CC1)	0.785 (ST4)	0.704 (RC2)	0.899 (LP3)
0.771 (CO4)		0.796 (ST3)	0.859 (RC4)	0.742 (LP4)
KMO = 0.749; Sig. = 0.000; Eigenvalue = 1.661 > 1; Total Variance Explained = 72.90%				

Source: Authors' calculation

The decision to outsource logistics services is the dependent variable, and the results of EFA show that the KMO coefficient is greater than 0.6 (0.646), the factor loadings are all greater than 0.5, the explanatory variance is greater than 50% (70.33%), and the observed variables converge on a single factor. This demonstrates that utilizing exploratory component analysis is appropriate given the dependent variable.

Table 5 EFA analysis results for the scale of the logistics outsourcing decision

Variable	KMO	Bartlett's test	Total variance explained (%)	Eigenvalue	Number of groups
The decision to outsource logistics services	0.646	0.000	70.33	2.110	1

Source: Authors' calculation

4.1.3 Confirmatory factor analysis

CFA evaluates the convergent and discriminant value of the scale and the fit of the model. To check the appropriateness of the CFA model, we use the criteria of Hair *et al.* (2010). The results of data analysis show that CMIN/df is 2.779 less than 5; the CFI value of 0.848 is greater than 0.8; the GFI value of 0.907 is greater than 0.9; and the PCLOSE is 0.053 greater than 0.05. This shows that the compatibility with field data of the proposed research model is relatively good.

Table 6. CFA results for the scale of the logistics outsourcing decision

Index	Value
CMIN/DF	2.779
CFI	0.848
GFI	0.907
PCLOSE	0.053

Source: Authors' calculation

4.1.4 A theoretical testing model with SEM

Table 7 indicates that, at a 95% confidence level, there are four factors influencing the decision to outsource logistics services of SMEs in Vietnam, including cost reduction, logistics outsourcing risk control, logistics service provider characteristics, enterprise's strategy. The cost-cutting incentive has the biggest and most significant influence on SMEs' decisions to outsource their logistical services. The findings of this study are completely in line with those of the earlier ones. In addition, this study found that the decision to outsource logistics services is impacted by the characteristics of logistics providers, the business strategy, and risk management. According to research findings, factors can influence a choice to outsource logistics services by up to 58%.

Table 7. Findings from SEM examine the connection between the factors in the study model (Regression weights)

Relationship			Estimate	S.E.	C.R.	P
Decision to outsource logistics services	←	Cost reduction	0.521	0.100	5.195	0.000
	←	Core competence	0.001	0.077	0.011	0.991
	←	Strategy of the enterprise	0.112	0.042	2.665	0.008
	←	Risk control	0.098	0.069	1.425	0.054
	←	Characteristics of logistics providers	0.366	0.059	6.235	0.000

Source: Authors' calculation

4.1.5 Summary of testing the hypotheses

The analysis shows that cost reduction is the most influential factor in the decision to outsource logistics services. The second highest influential factor is the characteristics of logistics providers, and the third is the enterprise's strategy.

Table 8. Results of hypothesis testing

Hypotheses	Standardized regression weights	Sig	Hypothesis confirmation
H1	0.406	0.000	Accepted
H2	0.001	0.991	Rejected
H3	0.181	0.008	Accepted
H4	0.098	0.054	Rejected
H5	0.405	0.000	Accepted

Source: Authors' calculation

4.2 Discussion

Research results show that the motivation to reduce logistics costs is the most important factor influencing the decision to outsource the logistics services of SMEs. This result is consistent with Bajec (2013), Bourlakis and Melewar (2011), proving that cost is the most influential factor in the decision to outsource logistics activities instead of performing them themselves. For export businesses, logistics costs always account for a large proportion of business expenses, including many types of costs such as transportation costs, warehousing, customs clearance costs, and order management costs. Reduced logistics costs mean the ability to reduce product costs and improve the competitiveness of businesses in the market. Therefore, when there is an increase or irrationality in logistics costs, searching for logistics service providers, especially 3PLs, is necessary and should be carefully considered. On the side of logistics service providers, they need to research

and implement cost optimization based on the expansion of scale to offer competitive prices and meet the needs of enterprises.

According to the study results, the characteristics of the logistics providers of the enterprise have a significant impact on the logistics outsourcing decision of SMEs. This result is consistent with previous findings in the study of Gonzalez *et al.* (2010), Sheng (2008), and Nguyen (2020). The ability to find and cooperate with professional logistics service providers is necessary when businesses decide to outsource. When businesses cannot invest in warehouses themselves, outsourcing is inevitable; however, it is very important to find a logistics partner that meets the requirements, if there is a suitable provider. Therefore, logistics service providers need to improve their market access, pay attention to brand building, and constantly improve service quality to meet their logistics service needs of the enterprise better. As for businesses using logistics services, capturing and analyzing information quickly and effectively will help businesses choose the right service providers.

In addition, the strategy of enterprises affects the decision to outsource logistics services of enterprises. This result is consistent with previous findings in studies by Tsai *et al.* (2012) and Nguyen (2020). In fact, businesses often have certain resources and different goals in each stage of development. Strategy is simply the use of resources in the most efficient way to achieve the goals of the business. Therefore, managers look at the business's goals to consider outsourcing or performing these activities themselves. Enterprise resources also need to be allocated appropriately to ensure that outsourcing logistics services are effective for businesses. Furthermore, this study also shows that core competence and risk control have no statistically significant relationship with the decision to outsource logistics services of small and medium enterprises. This result contrasts with previous studies on the importance of core competencies and risk control (Tsai *et al.*, 2012; Solakivi *et al.*, 2013).

These findings suggest some implications. Firstly, logistics service providers need to optimize costs to offer a reasonable cost for services because the cost is the most important factor for SMEs when considering outsourcing or self-implement logistics services. Secondly, logistics service providers need to improve their capabilities, such as service delivery and marketing capacities, and focus on building close relationships with businesses. Thirdly, the choice of outsourcing logistics services depends on the strategies of enterprises; therefore, SMEs need to compare and make long-term calculations for the choice of outsourcing or self-implementing logistics activities.

5. Conclusion

This study was conducted to analyze the influence of factors on the decision to outsource logistics services of SMEs in Vietnam with a sample of 204 enterprises by direct interview method. The results show that four factors affect the decision to hire logistics services for SMEs, including cost reduction, characteristics of logistics providers, the strategy of the enterprise, and risk control in logistics outsourcing. However, this study used a convenient

sampling method with the subjects being SMEs in five provinces and cities in Vietnam, which can cause a lack of representation to some extent. Further studies can choose to sample by probability method and expand the survey object to enterprises in other provinces/cities or expand the business population in general.

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