



The Research Summary on Logistics Safety in China

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Abstract

With the rise and rapid development of logistics industry, the safety problems which appear in the logistic operations constantly win wide attention in logistic industry. But seen from the domestic research, there are relatively few researches on logistic safety. In order to put forward constructive suggests for our country on the research of problems of logistic safety, and this article analyses research literature selected from the relevant domestic logistic safety researches through five dimensions that are the author, date of publication, published journals, research methods and research scope, then summarize the relevant results.

Key words: Logistic safety; Research method; Research summary

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INTRODUCTION

In China since 1998, government at all levels and many enterprises pay close attention to logistics, it has become the consensus to develop modern logistics, and a new

round of “logistics fever” is on the rise. At the same time, with the rise and rapid development of logistics industry, the continuous problems in logistics operation also win widespread attention in logistics industry. Nowadays, logistics has been widely considered as an important factor that has impact on the competitiveness of enterprises; moreover, the logistics industry is a “connecting link” industry in the national economy, and has a strong correlation with economic growth. It's estimated that since the 1990s the correlation coefficient between the total social logistics and GDP reaches up to 97.6%, and according to the latest data released by China United Property Group, what's more, in 2010, Chinese total social logistics and the added value of logistics industry were up to 125 trillion Yuan and 2.7 trillion Yuan respectively, that realize double in 5 years, the added value of Chinese logistics industry accounts for up to 7% of GDP and 16% of the third industry approximately, it can be seen that the safety situation of logistics operation will directly affect economic development.

Today, logistics has been become the artery of the national economy and is the link that connects the various parts of the national economy; the progress of logistics technology and economic development are the important factors to determine the national economic scale of production and the changes of industrial structure; And logistics is not only the premise of continuous production process, but also is the material basis to realize commodity circulation.

However, seen from the domestic situation of logistics research currently, there are still relatively small researches on logistics safety, and the discussed relevant contents are far from to form a unified and complete system theory. Scientifically sustainable and harmonious development is the main theme of today's society, paying attention to logistics safety problems will be an inevitable trend of the theoretical development of increasingly sophisticated logistics. Therefore, in general,

it's apparently necessary to have a systematic research summary on China's logistics safety.

1. THE DEFINITION OF THE CONCEPT AND SCOPE OF LOGISTICS SAFETY

Seen from the understanding level, currently there is no a uniform definition of China's logistics safety, there are no uniform standards for scoping definition

of logistics safety issues too, and different scholars defined logistics safety from different views. There is no the "logistics safety term" in logistics term.

LI (2005) thinks that logistics safety mainly includes equipment, personnel and operating process specification and so on, from a practical view to analyze the logistics safety, and they complement each other to form a complete safety system.

LUO (2006) thinks that logistics safety includes four aspects that are information safety, transportation safety, processing safety and store safety.

ZHANG and SHAN (2006) attributed logistics safety to contents of two aspects, and the contents are the logistics safety of general commodities and special commodities.

CHEN, CHEN and HUANG (2007) think that logistics safety is to prevent and eliminate different kinds of destructive factors that lead logistics carrier and logistics operation process to loss, and destructive factors about surrounding human health, environment and society caused by logistics operation, through effective safety management measures.

LI (2009) thinks that so-called logistics safety is a time course that all dangers can be controlled within human's acceptable range in the logistics process.

WONG, SONG and WANG (2009a, 2010b) think that logistics safety is the accident caused by the intersect of the unsafe acts of people and unsafe condition of objects in the logistics process, that will not only broke the entire logistics chain, but also may have unpredictable impact on the surrounding environment, on the basis of the crossover theory and combined with their own understanding of the logistics safety problems.

The focuses of above definitions of logistics safety are very different. CHEN defined the logistics safety from the hidden dangers of logistic safety and problems that may arise; While LUO and LI defined the logistics safety from the composition of logistics safety systems.

This article integrated the above definitions of logistics safety from different views, bases on the energy accident release theory, and references WONG's definition of logistics safety, and thinks that the logistics safety is the damage and destruction of logistics equipment and facilities, staff's life and health, ecological environment, commodities, production and consumption caused by

the unsafe acts of people, unsafe condition of objects and environment in every link of logistics activities. Logistics system is mainly made up of procurement, handing, transportation, distribution processing, storage, packaging, distribution and logistics information and so on, and the overall function of logistics is achieved through the organic integration of all aspects of logistics, so the overall logistics safety can't be separated from the safety of every functional activity. Therefore, the safety of logistics activities should first be built on the basis of every functional activity and every aspect, and finally realize the logistics system safety through a systematic and integrated management.

2. NUMBER TO THE SELECTED PAPERS

First, search the "China Academic Journal Net (CNKI)" by cross-database, using keywords logistics and safety, and the limit of time is from 1979 to 2010, finally the selected databases are "China Journal Full-text Database", "Full-text Database of Chinese Excellent Master's Degree Thesis", and "Full-text Database of Chinese Doctoral Thesis", finally there are totally 52 articles through retrieval and screening. The specific number is shown as Table 1.

Table 1
Number Table of the Selected Papers

Number
[1], [2], [3], [4], [5], [6], [7], [8], [9], [10], [11], [12], [13], [14], [15], [16], [17], [18], [19], [20], [21], [22], [23], [24], [25], [26], [27], [28], [29], [30], [31], [32], [33], [34], [35], [36], [37], [38], [39], [40], [41], [42], [43], [44], [45], [46], [47], [48], [49], [50], [51], [52]

3. THE ANALYSIS OF DOMESTIC RESEARCH RESULT

Through comprehensively referring to the categorizing criterion of essays on logistics and safety management, this study analyses a series of references regarding to logistic safety from five perspectives, including authors, year of publishing, published journals, methods of researching and range of researching.

3.1 Analysis on Authors

This study analyzes the numbers of essays that those authors who are selected have participated in, and every essay is considered as his or her own work, no matter what he is the principal author or assistant. The Table 2 shows that the total number of references of logistics safety of each participant who have exceeded publishing two studies.

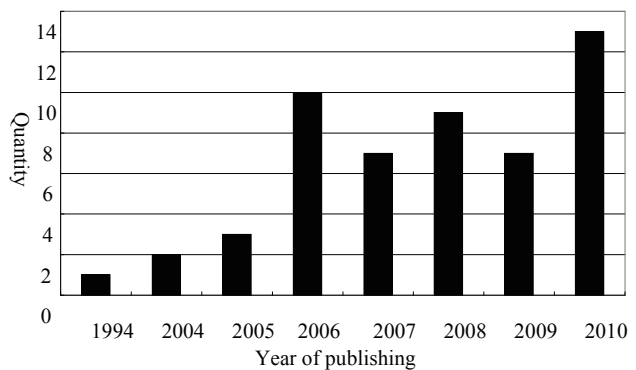
Table 2
Authors—Number of Reference

Name of authors	Number of references
XIE, R. H.	[8]
QIU, Z. Q.	[5]
LIU, Y.	[2]
LUO, Y. X.	[2]
SONG, S. X.	[2]
WANG, Y. D.	[2]
WANG, J.	[2]
WONG, Y. N.	[2]
ZHENG, Z. W.	[2]
ZOU, Y. F.	[2]

As can be seen from Table 2, XIE R. H. has participated in the most number of thesis composing, with 8 essays. Then, ZOU Z. Q., 5. While the rest share the same number, 2. As for those who aren't listed in the table above, each of them yields only one. Therefore, we can speculate that there's lacking a number of experts of logistics safety and short of related studies in our country. Most of our researchers in logistics field have not yet noticed the importance of logistics safety. Compared with European countries and US, the progress in logistics safety researching is falling behind, lacking a great deal of related studies, especially on a complicated systematic perspective and a systematic theory of logistics safety.

3.2 Analysis on Year of Publishing

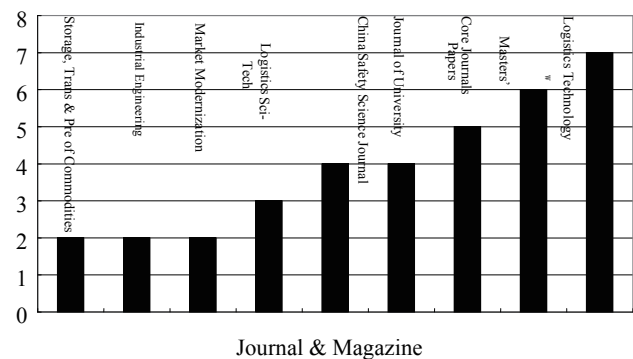
Figure 1 indicates the analysis based on the perspective of year of releasing. According to Figure 1, the earliest and the only essay about logistics safety appeared in 1994, followed by a nearly absence of studies in this field in a decade. This situation was not changed until two more essays were released in 2004 and another three in 2005. References were still insufficient even though there have been some changes. From 2006 to 2010, the number of essays about logistics safety increase sharply compared to that in 2004, with each year increasing similarly. 2006, 10; 2007, 7; 2008, 9; 2009, 7. In 2010, the number reached the record high, 13. The increasing of studies about logistics safety in recent years indicates that this subject has become an emerging researching field and has drawn more and more attentions of our logistics researchers. It's believed that more and more researchers will join in this camp.

**Figure 1**
Statistics Figure of Publishing Year

3.3 Analysis on Published Journals

This study also undertakes analysis from the perspective of published journals. Figure 2 shows the journals that contains more than two articles about logistics safety.

Seen from Figure 2, the magazine in which published the most number of articles about logistics safety is logistics technology, 7 articles. Then, China safety science journal, 4. Logistics Sci-Tech, 3. Industrial Engineering Journal; Storage, Transportation & Preservation of Commodities and Market Modernization published 2 articles respectively. Those which are not depicted in figure 2 published only 1 article, such as Authority Forum, Contemporary Manager. As showed in table 3, among 52 pieces of references analyzed in this study, 5 have been published in core journals, 6 are masters' papers and 4 are released in university reports.

**Figure 2**
Statistics Figure of Journals

It can be concluded from Figure 2 and Table 3, *logistics technology* published most of domestic researches regarding to logistics safety, and the rest of magazines mostly cover only one article. Thus, we haven't focused on the journals published on magazines. Among 52 pieces of references analyzed in this study, 5 of which are published in core journals, 6 are masters' papers, and 4 are published in journals of university. Therefore the researches in logistics safety have a certain level of quality, though the articles about this field are insufficient.

Table 3
Core Journals, Masters' Thesis and University Reports

Core journals	Masters' papers	University reports
Science& Technology Review (1)	Dalian Maritime University (2)	Journal of Guangzhou University (1)
Industry Engineering Journal (2)	Capital University of Economics and Business (1)	Journal of Central South University of Forestry & Technology (1)
Enterprise Economy (1)	Lanzhou University (1)	Journal of Southeast University (Philosophy and society science) (1)
Journal of Southeast University (Philosophy and society science) (1)	Guangxi University (1)	Journal of Wuhan University of Technology (Transportation Science & Engineering) (1)
	Qufu Teachers' University (1)	

3.4 Statistics on Study Methods

This article counts the study methods of all selected papers. If some papers use two or more than two study approaches, the frequency will increase in the corresponding method. The following Figure 3 shows the frequency of research methods used in all selected papers. From the Figure 3, we can know that the descriptive study method is the research method that is used most, there are 43 papers that use this research method, followed by cross-study method, 21; then survey method and quantitative analysis method, 5; and case analysis method, 4; model analysis method, 3; finally documentary research method and experiential summary method, each only 1.

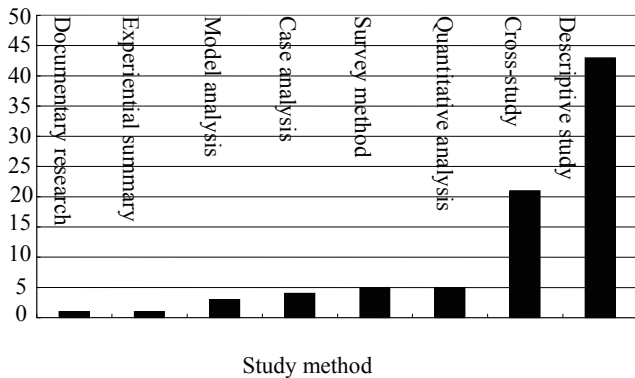


Figure 3
Statistical Figure of Study Methods

From the statistical results, we can know that China's current study methods of most papers related to logistics safety are descriptive study method and cross-study method, while the other methods are relatively less, especially experimental study method, so it's obvious that the research method is still relatively simple. At present in the field of logistics safety in China, most of the published papers have just a theoretical description, or use other disciplinary theories, methods, technology and results to analyze and study logistics safety. This situation may be related to the just started domestic research of logistics safety and insufficient attention to research methods, such as case, experience, and model and so on.

3.5 Statistics on Research Range

The statistics of the selected papers according to the range of study is shown in Figure 4. At present, seen from the scope of study in domestic study of logistics safety, the corporation logistics is studied mostly, there are 21 papers, and then food logistics, 16; Dangerous goods logistics, 6; Industrial chemical logistics, 3; Finally Third-party logistics, machinery manufacturing enterprises logistics, feed logistics, commodity vehicle logistics, tobacco logistics and medical waste logistics each has only 1 paper.

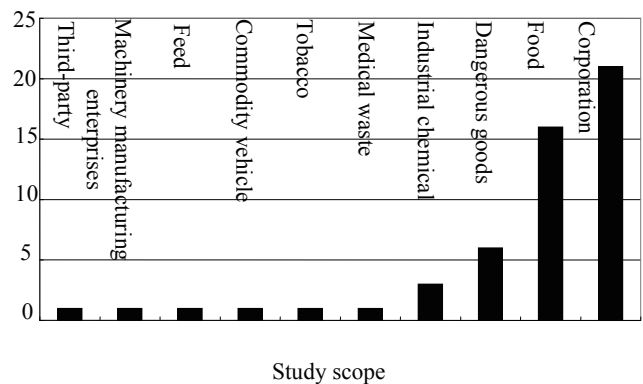


Figure 4
Statistics Figure of Study Scope

At present, most scholars pay their attention on logistics safety of specific industry in domestic study scope of logistics safety, while the number of general enterprises' study is relatively less. In specific industries, there are mainly food logistics, dangerous good logistics, the Third-party logistics, machinery manufacturing enterprises, feed logistics, industrial chemical logistics, commodity vehicle logistics, tobacco logistics and medical waste logistics, and food logistics is studied mostly, followed by the dangerous good logistics. Thus, the study scope of logistics safety in China is still relatively narrow, especially now economic develops very rapidly, and logistics has been closely related to other industries, therefore the study scope of logistics safety should be expanded, rather than be confined to a limited number of industries.

CONCLUSION

This article analyses research literature selected from the relevant domestic logistic safety researches through five dimensions that are the author, date of publication, published journals, research methods and research scope, then summarize the relevant results:

(1) Seen from the author, at present there are few scholars in the field of logistics safety research in China, and the scholars who have ever studied the field just published a small number of papers about logistics safety, now most scholars in the field fail to pay attention to the importance of logistics safety. The research results on logistics safety are far from to form a unified and complete system theory.

(2) Seen from the date of publication, in recent years the increase in the number of papers proves that logistics safety has become an emerging research field, through is relatively less compared to foreign countries, and the scholars in logistics field are increasingly paying attention to the field of logistics safety. I believe that in China more and more scholars will join in the field of logistics safety in the future.

(3) At present the journals and magazines where the thesis about domestic logistics safety published are still decentralized, but the quality of these thesis are still relatively high.

(4) China's current research methods of most of the papers on logistics safety are descriptive research method and cross-study research method; on the contrary, the other research methods are relatively less, especially experimental research method. So it is obviously that the research methods of the thesis on logistics safety are still relatively single.

(5) Seen from the research scope of logistics safety, at present most scholars in China focus on logistics safety in specific industry, but the number of logistics safety research in general sense of enterprises. At the same time, the domestic research scope of logistics safety is still relatively narrow.

In comparison to China, America, Europe, Japan etc. which are economically developed countries, and also the most mature countries that developed logistics industry and logistics markets, and whose logistics market share of GDP is quite large and logistics management, logistics technology and degree of logistics specialization are pretty high, walk in the forefront of the world not only in logistics research, but also in logistics safety.

With the increasingly strong constraint of economic growth by resource, energy, environment and so on, developed countries began to shift from the focus of the forward logistics to considering the integration of the forward logistics and the reverse logistics, that is to focus on building system of logistics cycle, which makes waste collection, transportation, recycle and final disposal in developed countries as a new development trend.

What's more, in recent years, developed countries have also greatly strengthened the construction of logistics security system, mainly in view that accidents in logistics process will lead to unexpected serious damage, such as personal injury, equipment damage, product loss and environmental damage, etc. Especially after the "the 911 event", they strengthened the security measures on goods and human beings in logistics process, and promoted the safety of logistics and supply chain to the strategic level of national security.

As YANG and XU (2007) put it, nowadays logistics safety pays more attention to people-oriented, modern science and technology, and environmental protection, green circle and harmonious development. Therefore, logistics safety will make great progress not only in theory, but also must in practice. Logistics safety is a huge systematic project, it not only involves in all aspects of logistics system, but also is closely related with social environment, and it is to ultimately promote a people-oriented theme, what's more, it also coincides with the voice of creating a harmonious society and the trend of times. Therefore, it's necessary to make the awareness of logistics safety penetrate deeply into all layers of logistics works even all layers of staff, and promote it to the level of corporate philosophy and corporate culture. Therefore, there should be related laws to protect it, and let culture play a role of casting the soul, be the conscious foreshadowing for material's consolidating essence and institutions' establishing principle.

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APPENDIX

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