

# **INTI UNIVERSITY COLLEGE**

**MASTER OF BUSINESS ADMINISTRATION**

## **A survey on factors affecting the development of China logistics industry in Shanghai**

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## Abstract

The aim of this paper is to examine factors that affect the development of China logistics industry. Chapter 1 introduces the background of China logistics industry, and the problem statements and research objectives are shown. In Chapter two, the author establishes the hypothesis as independent variables which are transportation, government regulation, warehousing and storage, IT support and infrastructure according to previous studies by researchers. Also, three measurements that are cost, productivity and expansion are given to measure the development of China logistics industry as dependent variables. Beside these, the theoretical framework shows the relationship between independent variables and dependent variables. After testing the reliability and validity of questionnaires, the researcher conducted a survey using questionnaires and interviews in Shanghai. By analyzing the received data using Spearman Test, the researcher concluded that the high transportation cost and lack of using Information Technology (IT) are two main factors that limit the development of China logistics industry. So, as recommendations, the researcher suggests using Information Technology (IT) to reduce the transportation cost in China logistics industry as a priority.

**Keywords:** logistics, information technology, transportation cost

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# Chapter 1

## Introduction

### 1.1 Introduction

This chapter provides the reader with background information of the study which creates a pictorial flow of the research background; research objectives; research problems; significance of research as well as the limitations is stated.

### 1.2 Background of China logistics industry

With the expansion of globalization and the rapid development of Information Technology (IT), the logistics industry has become one of the most important industries in the 21<sup>st</sup> century. The scope and role of logistics have changed dramatically over recent years. In the past, logistics played a supportive role to primary activities such as marketing and manufacturing. Now logistics has expanded from its traditional aspects and includes areas such as transportation and warehousing to purchasing, distribution, storage management, packaging, manufacturing and customer service. More importantly, the role of logistics has changed from cost absorbing to an important competitive advantage for logistics companies. Modern logistics theory was introduced to China in 1980s. Since China's economic reforms began in 1978, its economy has been expanding at a growth rate of nearly 10% annually. In terms of GDP which has gradually made China a global manufacturing centre (Appendix 1). After China joined the World Trade Organization (WTO) in 2001, foreign companies were allowed to invest in China in the beginning but only in the form of joint ventures for which Chinese partners took up majority stakes. At the end of 2005, this restriction was completely phased out. At present, state-owned, private, and foreign logistics companies are all equally allowed to enter and compete in the logistics industry in China.



China's logistic industry has been experiencing fast growth because of sustainable economic growth. The logistics industry reported an annual growth rate of 31% in 1999, 35% in 2000, and 55% in 2001 (Li and Fung, 2008). According to Figure 1.0, the average annual growth rate of the logistics industry in China was 22.2% and the added value has reached to RMB 1.4 trillion in 2006 up 13.9% over 2005; and in 2007, the added value even reached to near 1.7 trillion up 20% over 2006. It is expected that China's logistics market value will continue to maintain an annual growth of 20% in 2010.

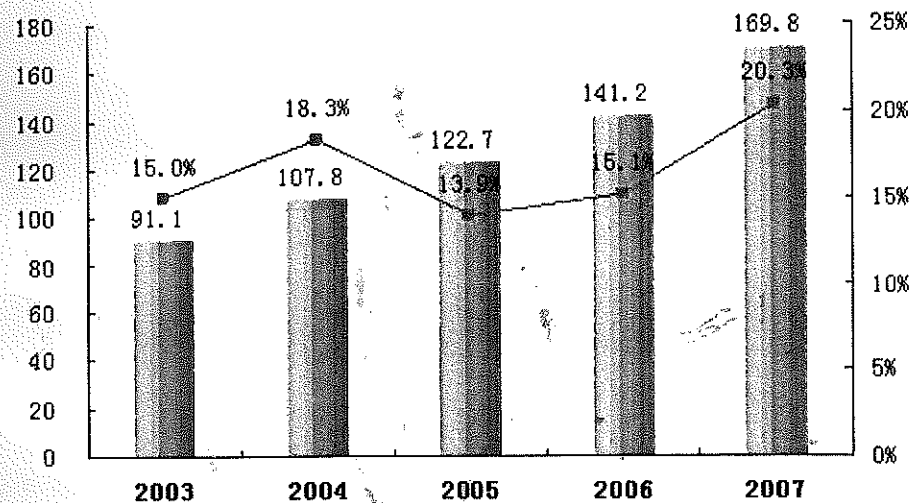


Figure 1.0: Total volume and growth trend of China's logistics industry 2003-2007 (Unit: CNY 10 million)  
(Source: Research in China, 2008)

### 1.3 Total logistics market size

The GDP of China was above RMB 10 trillion in 2002 that achieved a real growth of 8%. In the 10th Five-year Plan, the China government is forecasting an average growth rate 7% per year from 2002-2007. According to the State Development Planning Commission (SDPC), the GDP will quadruple, about US\$4.3 Trillion by 2020. Also, the China Federation of Logistics and Purchasing (CFLP) have alleged that the total logistics market was estimated at RMB1, 788 billion, 20% of the GDP in 2000. In 2002, it was estimated that the total logistics

market of China were about RMB 2 trillion. According to HK Trade Development Council, leading logistics companies in China such as UPS, FedEx and DHL-Sinotrans have all recorded annual growths in over 30% on operations in China and there are more outsourcing contributing to the growth of professional logistics companies.

#### **1.4 Players in the China logistics market**

China's logistics market is fragmented. Government registration shows there are about 700,000 logistics companies in China and many of them are small, poorly managed with fundamental infrastructure and technology (Alan, 2008). These players lack nationwide competences and customer target is narrow which mainly focus on simple transportation and warehousing activities. Competition is intense, especially in the low-end market. Traditionally, China's logistics market is dominated by the state-owned enterprises (SOEs) which provide 90% of the logistics services in China.

##### **1.4.1 State-Owned players**

There are many state-owned players in China logistics market. Before China joined WTO, China's logistics industry was a monopoly industry which could only be managed by state-owned enterprises (SOEs), mostly for transportation and warehousing. The characteristics of the SOEs are small-scale local enterprises, slow product innovation, poor management and production plans following from various government agencies. Because of government investment and monopolistic operation, these enterprises obtained large assets and became relatively large-scale business organizations. Relying on their sufficient capital and existing market share, these enterprises became leaders in China logistics industry at that time. The following is a list of SOEs that ranked top 5 in 2008 in China logistics industry:

China Ocean Shipping (Group) Company (COSCO);

China Railway Express Company Limited (CREC);

China Post Logistics Company Limited (CPLC);

China Railway Container Transport Company Limited (CRCTC) and so on.

#### **1.4.1.1 COSCO Logistics**

COSCO Logistics is a branch of China Ocean Shipping Company (COSCO) which was established in 2002. Because of the existing market share and advantageous infrastructure, it ranked number 1 in China logistics companies from 2002 to 2008 (Cen, 2005). COSCO Logistics has 300 logistics facilities, covering 90% of the China market and their competitive advantage is shipping transport.

#### **1.4.2 Private players**

Since the mid-1990s, China's private domestic logistics firms started to develop themselves such as St-Anda, PGL, China Overseas logistics and so on. The private logistics companies are of medium-sized which supports the rapid requirements in the market in terms of achievements in efficiency and effectiveness and they are more focused on geographies, service and customers. However, they lack sufficient financial support for market expansion and ineffective management to support high growth and profitability (Fu and Gwi, 2004).

##### **1.4.2.1 EAS International Transportation Ltd (Shanghai)**

This company was established in 1985. In the past twenty years, EAS has achieved tremendous improvement which has exploited a unique operation platform in China to develop its logistics business based on the demand of customers. Under the support of this platform, the EAS (Shanghai) became one of the leading private logistics firms in China.

### **1.4.3 International Logistics Companies (ILCs)**

Although the domestic companies dominate the general China logistics market, ILCs are also playing a very important role and their market shares are increasing rapidly. The most famous international logistics players in China are DHL, TNT, UPS, FedEx and so on.

#### **1.4.3.1 DHL**

DHL entered China in 1981 and in 1986 it entered a joint venture with Sinotrans, one of the biggest SOEs in China logistics industry. DHL-Sinotrans has the biggest market share in courier service. In the past twenty years, DHL has invested about \$273 million in China (Cen, 2005).

Nowadays, many foreign logistics organizations have built good relationship with Chinese logistics companies by using joint ventures. Foreign companies have competitive advantage in technology and management, when they are cooperating with Chinese firms which have more experiences and advantages in service network in the local market where they could be brought into full play. Therefore, Chinese logistics companies usually face merge and acquisition (M&A) risk. Many inland Chinese cities offer lots of commercial opportunities to foreign logistics companies but it needs time for foreign companies to fully penetrate into the Chinese market.

#### **1.4.4 Third Party Logistics companies (TPLs)**

Third Party Logistics companies (TPLs) are new concept for most of the Chinese companies. A TPL company normally provides process-base services rather than a function-base logistics service, which is generally toward the integration and full control of a part or whole process of customers' logistics network (Fu and Gwi, 2004). Because small or middle sized companies may not always achieve economies of scale in operating, this forms one of the advantages for third-party logistics companies. But due to the fundamental infrastructure of China logistics industry and developing technology, the TPLs

still need time to further improve the internal management in order to be experts in handling business.

## **1.5 Major modes of transport in China**

After entering the 21st century, the construction of transport infrastructure keeps rapidly increasing in China.

### **1.5.1 Ports**

Since China government opened ports to foreign investment companies in 2002, Chinese port facilities have taken huge steps that tremendously increased the capacity. The Ministry of Communication reported that the total investment in Chinese port construction has reached nearly US.4.3 billion compares with total investment of US.2.2 billion in 2003. Currently, China's coastal cities such as Beijing, Tianjin, Shanghai, Guangzhou and Shenzhen are primary logistics hubs which have completed new berths building (Figure 1.1). Dalian, Qingdao, Xiamen, Suzhou and Ningbo are secondary logistics hubs; also there are many emerging logistics hubs such as Hangzhou, Nanjing and some of the inland cities. In Shanghai for example, the container throughput was 11.28 million Twenty-Foot Equivalent Units (TEUs) in 2003 that increased to 14.5 million TEUs in 2004 and 16.7 million TEUs in 2005 (Brubaker, 2005). Although huge investments and abroad expansion has been made, Chinese ports still need to keep up with the fast increasing demand of logistics companies.

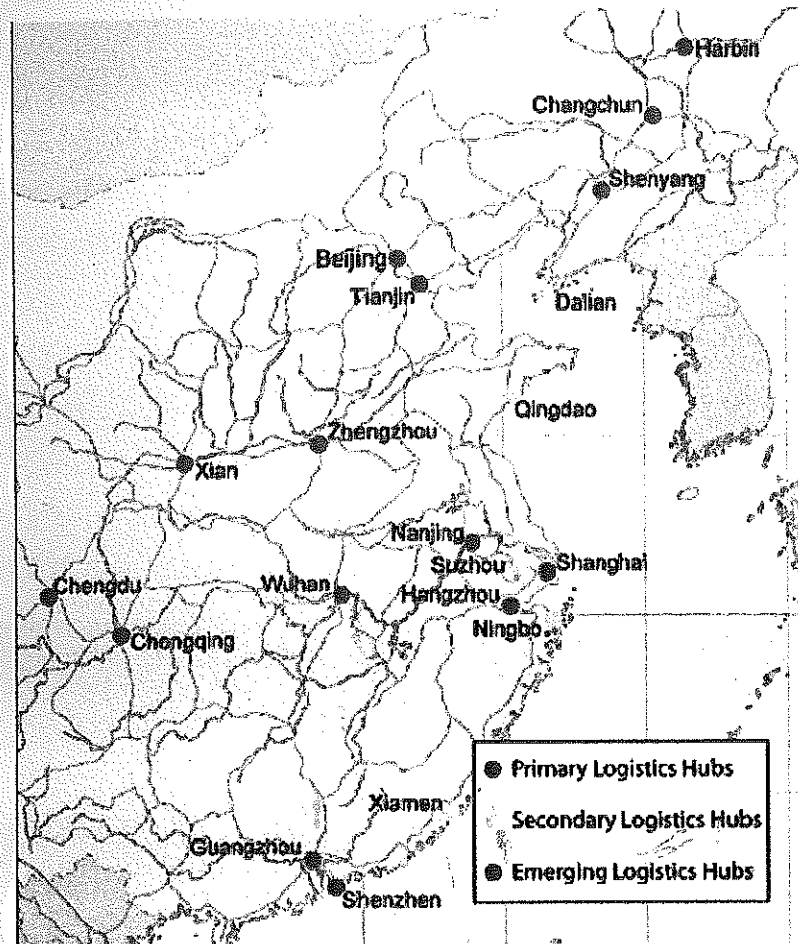


Figure 1.1: Logistics hubs in China  
(Source: Sinomania, 2009)

### 1.5.2 Road

China government has invested heavily on China transport infrastructure, so the road transport becomes the prior choice for inland distribution. During the Five-year Plan from 2001 to 2005, transport infrastructure has been built significantly including 250,000 kilometers of highways and 24,700 kilometers of expressways (Fu and Gwi, 2004). By the end of 2006, the total length of Chinese highways has reached 3,457,000 kilometers and 77,000 kilometers of railways.

### **1.5.3 Rail**

Compare with China road and port infrastructure, China's railway infrastructure is relatively insufficient. Because the geography of China is huge and railway is the most cost-efficient transportation compare with airfreight and shippers, many logistics companies choose railway to deliver goods and products to inland cities. So, the demand of railway construction increased rapidly. The use of the rail system has increased 6% year from 2003 to 2004 and the China Ministry of Railways plans to construct the rail network from existing 72,000 km to 100,000 km by 2020 (Woosir, 2009). But, there are some problems that cause the inefficient use of rail system, such as poor handling practices, time involving delays and unpredictable delivery times.

### **1.5.4 Inland waterways**

The most significant Infrastructure on inland waterways is the Yangtze River, which increased 8% from 2003 to 2004 (Brubaker, 2005). Yangtze River can handle ships up to 6000 tonnes in total, however, the capacity of canals and low bridges are relatively low during the dry season in China. There are many waterway projects such as Gorges Dam which can serve to extend dry seasons and keep water levels low.

### **1.5.5 Air freight**

China's airfreight sector is developing rapidly which has become the second-largest domestic airfreight market in the world. According to Boeing's World Air Cargo Forecast, the market has grown at more than 20 percent annually since 1991 (Brubaker, 2005). The airports are fast developed by three economic zones: the Yangtze River Delta (YRD), the Pearl River Delta (PRD), and the capital of China: Beijing. Moreover, an agreement exists between Chinese mainland and Hong Kong that offers Hong Kong airlines huge opportunities to access the mainland China. But the China airfreight is limited by insufficient infrastructure. In the coastal cities, the airports are more developed than that in inland cities.

## 1.6 Statement of the problems

Since China joined WTO, the logistics industry developed rapidly. But there are lots of problems during the development; in this article the researcher mainly focuses on cost, productivity and expansion of China logistics industry.

### 1.6.1 High cost

Since China became one of the members in WTO, China logistics industry developed rapidly which kept high growth among all the industries. But the most important factor that slowed down the development of China logistics industry is the high logistics cost. China's logistics expenditures took up 20% of the GDP in 2000 whereas logistics spending accounted for 10.3% of United States's GDP, 14% of Japan's GDP, and 10% to 13% of European Union's GDP (Figure 1.2). The annual growth rate of total logistics expenditures is 10.29% in 2002, 12.99% in 2003, 16.76% in 2004 and 12.86% in 2005 (Song and Wang, 2004). Statistics published by China Federation of Logistics and Purchasing shows that China's total logistics expenses reached RMB3.8414 trillion in 2006, up 13.5% year on year at current price, a growth of 0.6 percentage points higher than in 2005. The rate of total logistics expense of GDP was 18.3%, 0.2 percentage points lower than in 2005. In 2007, the total logistics cost increased by 18.2% to RMB 4540.6 billion compare with 2006.

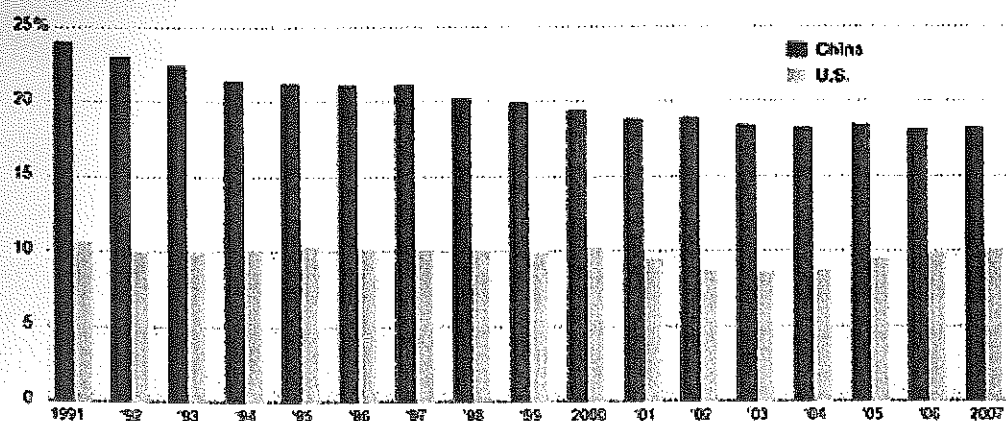


Figure 1.2: Cost of moving and storing goods (as share of GDP)

(Source: Shawn, 2008)



The total logistics costs in China generally compose of three aspects: transportation cost, inventory storage cost and management cost. In 2004, the total cost amounted to US\$ 352 billion, and grew by 16.6% compare with 2005. Of this total, transportation cost took up the largest portion which accounted US\$ 200 billion and had the highest growth rate which was 56.9% of total. Beside the transportation cost, inventory storage and management cost were US\$ 102 billion and US\$ 49 billion which took up 29.1% and 14% in the total logistics cost in 2004 (Figure 1.3).

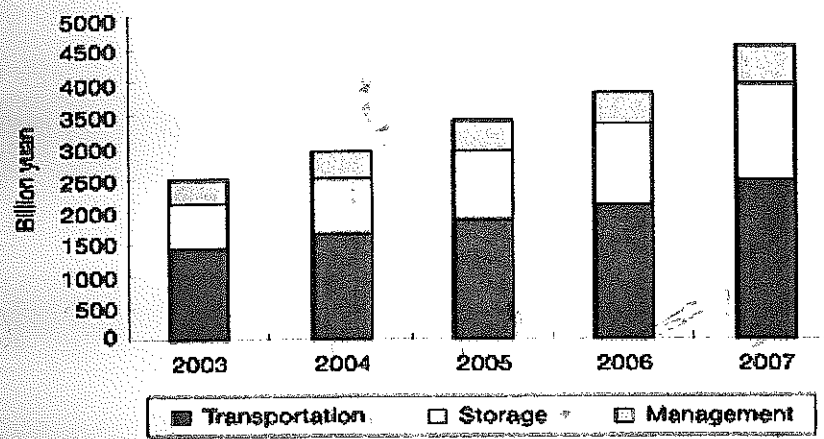


Figure 1.3: Total logistics cost and its composition, 2003-2007

(Source: Li and Fung, 2008)

Adding the costs of packing, transport, storage and damage cost, the ratio of total logistics costs to total industry production ranges from 40% to 60% in China logistics industry, whereas in the United States this percentage is close to 20% (Zhang and Andres, 2006). So, generally speaking, the transportation costs in China logistics industry are twice as expensive as in developed countries such as US, Japan and European countries.

### 1.6.2 Low productivity

The ratio of total logistics cost to GDP represents the efficiency of logistics operation in the economy which means the productivity of logistics industry. It is also used as an indicator to the level of development in logistics industry. In

general, the higher the percentage of ratio, the less efficient is the logistics industry. Figure 1.4 shows the ratio of total logistics cost as a percentage of GDP in the 10th Five-year Plan period (2000-2005) in China. Although the total logistics cost as a percentage of GDP has a downward trend that decreased from 19.4% in 2000 to 18.57% in 2005 and the total cost savings in the 10th Five-year Plan period are 109 billion RMB; according to exhibit 3, the logistics cost are higher than that in US, Japan and developed countries which means China logistics industry is still in high inefficiency (Li and Fung, 2006). As predicted by the CFLP, the ratio of total logistics cost in China to GDP will continue to be higher resulting in inefficiency of modern logistics industry and the total logistics costs during the 11th Five-year Plan (2006-2010) will grow at 10% annually, 2% higher than that of the 10th Five-year Plan. It also forecasted that the total logistics cost will reach 5,400 billion RMB in 2010, the ratio of total logistics cost to GDP is around 16.8% and cost savings yield during the period will be around 435 billion RMB

Year	Total logistics cost / GDP* (%)	Percentage decreased as compared to previous year (%)	Total logistics cost savings (billion yuan)
2000	19.40		
2001	18.80	0.58	63.4
2002	18.90	-0.10	-11.5
2003	18.92	-0.02	-2.7
2004	18.77	0.15	24.4
2005	18.57	0.19	35.4

Source: CFLP

Note: These are revised figures and differed from those shown in China Logistics Yearbook 2005

Figure 1.4: Total logistics cost as a percentage of GDP, 2000-2005

(Source: Li and Fung, 2006)

### **1.6.3 Slow expansion - outsourcing**

One of the most significant drivers of expansion in the global logistics industry is the trend of outsourcing. Although many big China logistics companies have established overseas offices from the 1980's and 1990's to support their international transportation, their businesses heavily depend on agents which means the China's global logistics network is still weak. For example, Sinotrans has business in nearly 200 countries, but there are only 40 overseas offices and most of the international businesses are done by the agents. In this situation, the expansion for China logistics industry is very slow. So, the global market share of China logistics industry is still relatively low. In Contrill (2001); cited by Gen (2005) claimed: "Don't expect a wave of Chinese third logistics companies to land on Western shores soon. The pace of change in China is slow by Western standards and there is much to do in the home market".

### **1.7 Research objectives**

The objective of this research is twofold.

- i. To understand the development of China logistics industry in the last decade.
- ii. To investigate the main factors affecting the development of China logistics industry and recommend solutions to improve on the problems to further develop logistics industry in China.

### **1.8 Research questions**

Three questions will be discussed in this article:

- i: Question reviewing the development of logistics industry in China in the last decade?
- ii: What are the main factors that affect the development of China logistics industry?

- iii. How to solve the current problems to further improve logistics industry in China?

### **1.9 Significance of study**

In this article, the author introduces the development of China logistics industry in the last decade. Also, this paper will contribute by indicating and analyzing some of the problems that affect the development of China logistics industry according to questionnaires and interview by managers in logistics companies in China. The theoretical framework is based on an extensive review of the hypothesis in the literature review (Chapter 2) to ensure the main factors that affect development of China logistics industry. After that, the researcher will give readers recommendations that solve the problems in China logistics industry.

### **1.10 Limitations of the research**

- i. Because of time restriction (from September to November, 2009), this thesis was completed within three months, but the research would cover the details of logistics management (Transportation, Warehousing and IT supporting) as specifically as possible.
- ii. Because of the location of sampling in Shanghai, China, the researcher has to come to China for around one month, so the time is limited for questionnaire distribution and collection which may cause low response rate.
- iii. There are many factors that influence the development of logistics industry in China; in this paper, the author only focus on the mentioned five main problems.
- iv. Because some logistics companies are not public listed companies, it is difficult to find the data from the current annual reports released by these companies, so the researcher may analyze data in these companies using the previous annual report (Eg: Annual Report of company A in 2007 or 2006).
- v. Some of the questions in questionnaires are directly related to the internal strategy of company management, so managers may not want to answer which

will also contribute to the low response rate.

## Chapter 2

### Literature Review

#### 2.1 Introduction

This chapter explores relevant literature; it basically deals with pertinent literature on problems in China logistics industry with discussions on related research variables such as government regulations, transportation cost, warehousing and storage, training expertise and IT support and transportation infrastructure. Also, 3 indicators for the development of China logistics industry are given to be as dependent variable when analyzing the correlation with independent variables. Beside these, the theoretical framework is given to show the relationship between independent variables and dependent variables.

#### 2.2 Definition of logistics

"Logistics" is the flow processing that planning, implementing, and controlling the processes which includes storage of goods and products using related information from the point of origin to point of destination for the purpose of fulfilling customer requirements in an efficient and effective way (Raymond and Benjamin, 2004). Luo and Christopher (2002) said that "the provision of logistics services requires inputs from a number of service providers (logistics companies); including the providers of transportation and warehousing as well as other related value-added activities." Basically, logistic is business flow that connects packaging, distribution, storage and warehousing integrated Information Technology (IT) to transfer goods and service to the end users to satisfy their requirements.

The concept of logistics has experienced many significant changes. Luo and Christopher (2002) divided the development of logistics into three stages:

**Stage 1:** The concept of physical distribution or outbound logistics system appeared from 1960s to 1970s. Organizations tried to systemically manage a set of interrelated activities including transportation, warehousing and inventory, packaging, distribution and materials handling to delivery finished goods to customers in efficient way.

**Stage 2:** Integrated logistics management came out from 1970s to 1980s. Firms began to understand and attempt to combine the inbound side (materials management) with the outbound side (physical distribution) to obtain opportunities for savings. At the beginning, there is a single transportation manger solely in charge of the potential savings by coordinating inbound and outbound transportation. After that, companies become to emphasis on the whole logistics processes, from raw materials to work-in-process inventory to finished goods, as well as managing the whole process from perspective of system which could lead to more efficient operation.

**Stage 3:** The systematology of Supply Chain Management formed from 1980s to 1990s. Logistics management is one of the parts of Supply Chain Management (SCM) that companies start to broaden their purpose on the logistics processes, integrating all the logistics activities and firm involved, making use of partnerships such as Merger and Acquisition (M&A) or alliance between manufacturing companies and their suppliers/vendors, customers (channels of distribution), and other related logistics parties like transportation and public warehousing companies.

### 2.3 Third Party Logistics (TPLs)

The concept of third party logistics is initially developed by researchers or consultants who work on cooperating with businesses demanding or providing third party services. Thus, the definition of TPLs reflects the phase of third party cooperation (Skjoett, 2000).

Alessandra (2008) explained the definition further: "Traditionally, companies performed logistics activities by themselves using resource from their own companies. In modern logistics industry, these traditional companies hand logistics processes to the external companies who possess the ability of operating logistics functions. So, the external companies that specialized engage in logistics activities called the third parties." According to his definition, third party logistics includes any form of externalization of logistics activities previously operated "in-house". Prabir and Helge (1996) have interviewed a number of North European third party logistics providers and pointed out the following definition: "A logistics alliance is a win-win arrangement that indicates a service provider delivery a wide range of logistics service to a customer according to its requirements and both the service provider and the customer are in a close and long-term relationship. The parties in a logistics alliance consider each other as partners that cooperate in understanding, defining and offering the logistics service to reach customer's satisfaction. Both partners participate in designing and developing logistics solutions; at the same time, the aligned parties will evaluate the performance." This definition focuses on the strategic concept of the TPLs and assuming that several characteristics have been fulfilled before the relationship between customers and logistics service providers. These characteristics include the duration of the relationship, joint efforts to develop further collaboration, solutions based on customer, a fair sharing of benefits and risks together.



## 2.4 Measuring of the development of logistics industry

In modern logistics industry, the concept of logistics has dramatically changed from a supportive role and the viewpoint of cost absorbing to a primary role and important factor in competitive advantage for logistics companies (Fu and Gwi, 2004). To obtain competitive advantage, productivity, cost-economize and expansion of logistics companies are main indicators which are also measurements to the development of logistics industry.

### 2.4.1 Productivity

Andersson et al. (1989); cited by Alan (1997) believe that the successful planning and controlling the logistics activities is a comprehensive strategy to improve the development of logistics industry. The aim to form the comprehensive strategy is to obtain the productivity. Finally, he pointed out that, there are a family of measurements to measure the performance of logistics industry, productivity is as the priority. Similarly, Ericsson (1990); cited by Alan (1997) pointed out: "The concept of productivity and its improvement has been a high priority - the first place in operation, then in marketing, and later in transportation and distribution, last in materials management in logistics industry." So, based on these theories, productivity can be seen as a measurement to estimate the level of development to a certain logistics industry.

Basically, the term productivity is as a measurement that describing the resources consumed. It can be divided into three main types:

- i. A ratio of partial measurement between output and a single input, such as labour, materials or capital.
- ii. A ratio of value-added productivity such as goods, materials or services being based on sales.
- iii. A ratio of total productivity measurement between total output and total input.

The above three types of productivity are inter-related with the performance of logistics industry. Lynch and Cross (1995); cited by Alan (1997) has indicated that there is a clear link between productivity and development of logistics industry. They show productivity as a pyramid which is impenetrated from the corporate level, managerial level to functional level and supportive level. In logistics companies, the productivity measures whether the service providers could offer goods and service in effective and efficient way. If the productivity in logistics industry is good which implies the performance of this logistics industry is good, thus the whole logistics industry is developed and vice versa. Based on a survey conducted by Alan (1997), he used productivity to measure all respondents, as well as for those respondents working in logistics field and he concluded that the level of productivity interrelated with the profit of the company and the level of development in that industry.

Hence, productivity should be viewed as a meaningful indicator to measure the performance of logistics industry which also is a benchmark to estimate the level of development in logistics industry. Thus, every company in the logistics industry should understand and focus on such measurement which providing a strategic focus to achieve companies' objectives and further improve the logistics industry.

#### **2.4.2 Cost**

There are large amount of literature felicitous to talk about the relationship between financial performance and creating value in strategic role in logistics industry. As reported by Richardson (1995); cited by Gilmore (2002) and later critiqued by Amy and Christian, (2003): "in modern logistics industry, total logistics cost has become one of the most important economic indicators which not only decides efficiency of the supply chain, but also is a measurement to logistica industry." Because, the cost in logistics processes controls a significant amount of assets and has direct influence on cash flow and total revenue.

According to equation:

$$\text{Total Profit} = \text{Total Revenue} - \text{Total Cost}$$

So, the decreasing in Total Cost will cause the increasing in Total Profit which indicates there is benign development in the industry (IMA, 2008). Generally, the ratio between total logistics cost and Gross Domestic Product (GDP) has widely been used as an indicator of the development level of the logistics industry in many developed countries which means the higher the percentage (Total Cost) , the less efficient is the logistics industry. So, the logistics cost affect the development level of logistics industry significantly.

Lambert et al. (1998) and Saccomano (1999); cited by Amy and Christian (2003) have investigated that the total logistics cost related with logistics activities generally consist of transportation, storage and warehousing, order processing, administration, packaging and customer service, thus total logistics cost usually take a large portion in total supply chain cost, especially when the supply chain is expanded to the global market which are the burden for logistics industry. So, the total logsitics cost becomes one of the critical factors that affect the development of logisics industry.

### **2.4.3 Outsourcing**

Outsourcing is a sign that indicates the rapidly growth of logistics industry. In modern logistics industry, many firms are seeking opportunities to go outsourcing because this can enhance theirs competitive advantages and achieving more efficiency in the logistics processes (Abdur and Sheng, 1998). Through outsourcing, logistics firms can ensure their advantages and pushing the improvement of the whole logistics industry. In other words, outsourcing is one of the measurements that weighting the levels of logistics industry. Also, many researchers have examined that logistics outsourcing has become a rapidly expanding for logistics companies to gain competitive advantages and cost savings in logistics industry. Elliot et al. (1999) explained that the increasing trend of outsourcing affects the development of logistics industry because the more firms are achieving outsourcing, the more Third-Party

logistics (TPLs) will come out which means the whole industry are going to mature. So, the growth of outsourcing partnerships has contributed to the development of logistics industry, based on core competencies and benefit from each other in longer-term relationships.

Abdur and Sheng (1998) said that, "The result of going outsourcing has become a powerful concussion to the traditional logistics industry, thus in modern logistics industry, more and more companies are going to achieve outsourcing." Logistics companies play important role in logistics industry, effeicient and effective of logistics firms means the development of the whole industry. Outsourcing incentives the improvement of logsitics industry which is also a significant trend. So, outsourcing is a result during the development of modern logistics industry.

## **2.5 Factors affecting development of China logistics industry**

### **2.5.1 Transportation cost**

For firms in logistics industry, to minimize the transportation cost is one of the core objectives during logistics activities because the transportation cost directly affects the development of logistics industries. Sreenivas and Srinivas (2006) have pointed that no matter the firm is in small-scale or large-scale in the logistics industry, to reduce transportation cost is as priority goal. He has concluded that the reasons why the development of logistics industry in developed counties is faster than that in developing countries: one of the main reasons is the lower in transportation cost in developed counties after he compares the transportation cost in developed counties and that in developing countries.

Many articles have investigated factors that cause the high transportation cost in Chinese logistics industry from various aspects (Appendix 2). Mark and Kawahara (1995) said: "According to the economy situation and government regulations in China, the increasing of fuel price impose heavey pressure in transportant sector in logsitics industry and also, toll fees and taxation take

much portion in transportation cost for logistics firms compare with US. and Japan. The results of high transportant cost lead the slowly expansion of China logistics industry." Jiang and Prater (2002) provided a breakdown of transportation cost in China logistics industry. They report that the damage rate of goods and products during the transportation process is high in China which caused a lot of extra expenditures to logistics organizations. Based on the appointment between logistics service providers and customers, any damaged goods and products ordered by customers should be compensated by logistics companies before they are reached to customers; so, in this situation, logistics firms who have the higher level of damage rate should pay more for the damaged products; thus, there are extra fees take up in transportation cost for the logistics companies. The higher cost in transportation sector will cause low profit for logistics entrepreneur which will slow low the development of logistics industry. Hong et al. (2007) have pointed that the fees of educating new drivers can not be neglected in China logistics industry. China has huge geography area and some destination required by customer is even out of the way, so it is not easy to delivery the goods to appointed place in efficiency way. Time delay will be converted to the additional cost to logistics firm because the more time the driver consuming, company should pay more that including driver's salary, fees in food and drinks and so on. In other words, the level of educated driver can increase the transportation cost. Thus, it is very important to train a good driver who may reduce the delivery time and cost for the logistics company. Beside this, the educated driver can affect another cost – cost of vehicle maintenance. Goh and Ling (2003) also said: "The maintenance cost is necessary cost to logistics companies, but a poor educated driver could increase the maintenance cost that is extra expenditure for logistics firm." A good driver will maintain the vehicle frequently and safety driving which ensure the maximum life period of vehicle, so in this way, the maintenance cost will lower compare with the driver who seldom maintain the vehicle. Hence, logistics providers will spend more on educating new drivers since a well-educated drivers will bring benefits to company.

Hypothesis 1:

Toll fees and road taxation impact the profit of logistics company.

Hypothesis 2:

The increasing of fuel fees affects profit of logistics company.

Hypothesis 3:

The damage rate of goods and products during transporting has a relationship with the profit of logistics company.

Hypothesis 4:

Educated new driver and vehicle maintenance influence the profit of logistics company.

## **2.5.2 Government policies and regulation**

There are many arguments to the policy of China logistics industry (Appendix 3). Jiang and Prater (2002) believe the accession to WTO brings lots of benefits to China logistics industry; the domestic logistics firms will obtain developed information technology and experiences in strategic management from foreign logistics companies which will facilitate the development of China logistics industry. But others think there is also a threat that opening the gate to outsider because China logistics industry is not mature yet, multinational organizations will strike the local industry and disrupt the market order. Beside these, Luk (1996); cited by Zhang and Andres (2006) have argued that although China government has reduced the national level of barrier for foreign organizations to entry the logistics industry since it joined WTO, there are still existing hinders that Chinese government continues to protect the local logistics industry by setting up bureaucratic, political restrictions and complicated licensing system for multinational logistics organizations. Although this protectionism temporarily defends the native logistics industry, it is a restriction for the development of China logistics industry in the long run. Hong et al. (2007) have reviewed a series of reform activities in logistics industry in China and found that: "the