



Contents lists available at ScienceDirect

The Asian Journal of Shipping and Logistics

Journal homepage: www.elsevier.com/locate/ajsl



The Efficiency and Productivity Analysis of Large Logistics Providers Services in Korea

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ARTICLE INFO

Article history:

Received 20 July 2015

Received in revised form 30 November 2015

Accepted 1 December 2015

Keywords:

DEA

Certified Logistics Providers

Efficiency

Productivity

ABSTRACT

In the fierce competition at the global logistics markets, Korean logistics providers were deemed more vulnerable than global logistics providers in terms of the quality and price competitiveness. To strengthen their competitiveness, logistics providers in Korea have focused on delivering integrated logistics services. In this regard, the Korean government has enacted the “Integrated Logistics Industry Certification Act” in 2006 to assist integrated logistics providers to offer logistics services based on their specialization and differentiation. It has been several years since the system was implemented, and the evaluation of the system implementation was necessary. Hence, in our study, we attempt to examine the efficiency and productivity of fourteen certified Korean logistics providers employing the DEA (Data Envelopment Analysis) method with a five-year panel data since the inception of the Act. Through our static and dynamic analyses, We found that Pantos Logistics and HYUNDAI Glovis are running their businesses at the highest level of efficiency and Hanjin Transportation was the most stable company in their logistics operation.

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1. Introduction

The scale of the global logistics market is estimated to reach \$8 trillion in 2020. Many countries have recognized the importance of value generated by global logistics providers and have implemented a wide range of policies to support their activities to spur their economic growth. To dominate the market, logistics providers attempt to establish diverse logistics strategies such as information orientation, scale expansion, and simplification. To adapt to environmental changes, logistics providers have pursued the economy of scale through activities such as M&A deals

and strategic alliances. They also generated enormous profits by providing integrated logistics services based on global logistics networks.

In providing international transportation services Korean logistics providers were deemed more vulnerable than global logistics providers in terms of the quality and price competitiveness. Therefore, to strengthen their competitiveness, logistics providers in Korea have focused on delivering integrated logistics services. In this regard, the Korean government enacted the “Integrated Logistics Industry Certification Act”

in 2006 to assist integrated logistics providers to offer logistics services based on their specialization and differentiation. Eight years have passed since the enactment of the Act, and this allows for an analysis of its efficiency and productivity.

This study measures the changes in the efficiency of Korean logistics providers and verifies their reliability using the DEA/window method through dynamic analysis and examines the productivity growth that they contributed to through Malmquist analysis. The rest of this paper is organized as follows: After the introduction in Section I, Section II discusses and analyzes the productivity of integrated logistics providers. Section III provides an empirical analysis of the efficiency and productivity of integrated logistics providers, and Section IV concludes.

2. An Analysis of the Productivity of Integrated Logistics Providers

2.1. Environmental Changes in the Productivity of Integrated Logistics Providers

The competitiveness of the logistics industry is generally assessed based on the level of integrated-service performance in terms of the effective freight management of goods for the owner (Seo, Gim and Kim, 2004). In Korea, China, and Japan, however, an increase in trade has intensified competition to dominate the logistics network and secure long-term logistics market competitiveness.

In 2006, the Korean government introduced the "integrated logistics industry certification" system to establish a global logistics network and foster global logistics providers that can integrate logistics services. The integrated logistics industry envisioned by the Korean government aims at creating global logistics providers, and the business model pursues "diversity of services" in the long-term perspective. Therefore, Korean logistics providers (e.g., global logistics, forwarding, shipping, and trucking firms) have been providing integrated logistics services beyond simple logistic services, and their business scope has been expanded to cover overseas markets.

The Korean government's active support is expected to continue from the current promotional stage to the year 2015 to facilitate the entry of at least two or three logistics providers to the global top 20 providers and then to the year 2020 to facilitate the entry of at least one or two providers to the global top 10 providers (Jeon and Kim, 2012). The government's goal for the certification of integrated logistics providers is to foster large providers with an annual revenue exceeding KRW 3 trillion.

Some cases of integrated logistics providers in other counties are now discussed. Singapore has implemented a VAT (value-added tax) exemption policy for third-party value-added logistics occurring in Singapore based on its certification system of "Approved Third-Party Logistics Company Scheme." The purpose of this government-assisted system is to enforce Singapore's role as an Asian hub. Japan has implemented a project to promote third-party logistics providers.

The Industrial Structure Council subcommittee highlighted in 1996 the third-party logistics industry among 15 new growth areas in "the program for the reform and creation of economic structure." This emphasis is in conjunction with measures for promoting large enterprises and strengthening the competitiveness of small to medium-sized enterprises. In the U.S., the keyword in the integrated logistics industry is M&A (mergers and acquisitions) activity, particularly in the last few years (Seo and Han, 2004).

Korea's Integrated Logistics Industry Act defines integrated logistics providers as firms with more than one type of logistics operation and substantial sales. Among transportation (roads, airways, and maritime routes), logistics facilities (warehouses and terminals), forwarding, and logistics services, more than one type of business type is required displayed in Fig. 1.

In addition, each firm's sales must exceed 3% of total sales of logistics business or KRW 3 billion, and sales of third-party logistics providers must exceed 40% of total sales or KRW 400 billion.

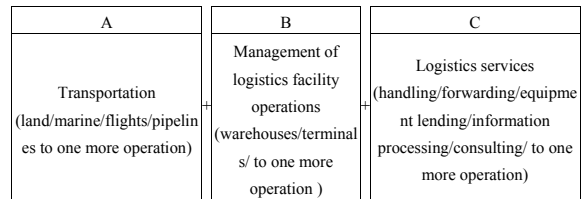


Fig. 1. Impact of different end-haulage operations on cost competitiveness

Those firms not satisfying the requirements under the Act can obtain entry into the integrated logistics industry by establishing strategic alliances with other firms. The operational requirements for such strategic alliances include five or fewer partners, the use of co-brands, and the joint operation of information systems and logistics networks. In a partnership configuration, the exchange of both contracts and shares is allowed, and the partnership is valid for more than three years.

Korean integrated logistics providers handle mainly their affiliates' supply and thus are generally associated with their parent firms (Lee, 2013). In this regard, they try to enter global logistics networks but are limited in terms of their market entry because of their dependence on their parent firms, which makes them vulnerable in terms of their management. As of 2011, Hyundai Glovis operated a total of 20 overseas subsidiaries mainly from overseas subsidiaries of Hyundai and Kia. As of 2011, 60% of the total volume handled by Pantos Logistics Co., Ltd. was from LG Group's logistics volume. As of 2013, Pantos had a total of 29 overseas subsidiaries indicated in Table 1.

Table 1
The global status of major logistics providers in Korea

| Provider | Global region |
|-----------------------|--|
| Pantos Logistics | Overseas: 5 continents, 29 countries (e.g., India, Brazil, Australia, the U.S., and Germany) |
| CJ GLS | Overseas: 3 continents, 11 countries (e.g., China, Mexico, the U.S., and the Netherlands) |
| Sinokor | Overseas: 3 continents, 10 countries (e.g., China, Brazil, and South Africa) |
| Hanjin Transportation | Overseas: 2 continents, 5 countries (the U.S., China, and Vietnam) |
| HYUNDAI Glovis | Overseas: 5 continents, 12 countries (the U.S., Germany, Russia, Australia, and Brazil) |
| HYUNDAI LOGISTICS | Overseas: 3 continents, 6 countries (China, Germany, and the U.S.) |

Data: The Ministry of Land, Transport, and Maritime Affairs report (June, 17, 2012)

Since the global financial crisis in 2008, leading integrated logistics providers in Korea, including Glovis, CJ Korea Express, Pantos, and Dongbu Express, generated significantly lower revenues than DHL and UPS, and their operating profit rates are lower than that of UPS.

Table 2
A comparison of revenues, operating profits, and operating profit rates between Korean and global logistics providers (2011)

| Major Provider | Revenue | Operating profit | Operating profit rate |
|----------------|-------------------|------------------|-----------------------|
| DP DHL | KRW 75.7 trillion | KRW 3 trillion | 4.6% |
| UPS | KRW 59.2 | KRW 6 trillion | 11.4% |

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