The Asian Journal of Shipping and Logistics 32(2) (2016) 119-125

Contents lists available at ScienceDirect

The Asian Journal of Shipping and Logistics

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

Competitiveness in a Multipolar Port System: Striving for Regional Gateway Status in Northeast Asia

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ARTICLE INFO

Article history:
Received 10 November 2015
Received in revised form 15 May 2016
Accepted 31 May 2016

Keywords:
Port Competitiveness
Regional Gateway port
Hub-and-Spoke Networks
Multipolar Port System
Factor Analysis
Northeast Asia

ABSTRACT

The structure of competitiveness between hub ports in the multipolar Northeast Asian system will determine which ports achieve regional gateway status. A survey instrument to assess 21 measurement items generated 203 responses from Shanghai, Hong Kong and Busan. Exploratory factor analysis revealed a valid and reliable competitiveness construct underpinning 19 measurement scales and a four-factor model incorporating availability, operational efficiency, port costs and service quality. Differences in factor importance revealed that success as a regional gateway port depends on a port area developing strategically into a multi-functional business centre. The model offers a management tool to guide future port improvement.

1. Introduction

Intense regional port competition in Northeast Asia (NEA) has focused interest on the concept of port competitiveness (Yeo et al., 2008) and the determinants of competitiveness (Yeo et al., 2011; Tongzon, 2009; Yeo et al., 2008; Yeo and Song, 2006). This interest arises because shipping lines' perceptions of the competitiveness and attractiveness of commercial port operations determine the operational sustainability of ports (Yeo et al., 2011; Cheon and Deakin, 2010).

To guide port operations research on port competitiveness has typically focused on identifying key factors that influence port competitiveness (Yeo et al., 2011, 2008; Tongzon; 2009; de Langen, 2007; Murphy et al., 1992, 1989), strategic development such as supply chain management, intermodal links, and hinterland development (van den Berg and de Langen, 2011; Wiegmans et al., 2008; de Langen, 2007; Haezendonck and Notteboom, 2002) and regional container port competition (Yeo et al. 2011; Wang and Cheng, 2010; Yap et al., 2006; Hsu and Hsieh 2005).

To date, prior work on port competitiveness has not identified which

http://dx.doi.org/10.1016/j.ajsl.2016.05.005

factors influence the competitive position of ports striving for regional gateway status amongst hub ports. Research in NEA has highlighted issues which influence either port competitiveness or regional gateway status but not both, overlooking differences in the structure of competition, reference points and meaning. This study proposes research to link these issues in NEA's multipolar port system (Figure 1), which investigates the structure of port competitiveness between hub ports vying for regional gateway status in NEA using an empirically-based instrument. After introducing the research background Section 2 reviews the competition structure in NEA, the determinants of general port competitiveness and regional gateway status. Section 3 presents the research design and data collection processes where targeting of the contenders for regional gateway port status enhanced the external validity of findings. The data analysis and results are presented in section 4 before considering their implications, both conceptual and substantive, with suggestions for future research.

2. Literature Review

2.1 *Competition between Hub Ports Seeking Regional Gateway Status in Northeast Asia*

The major container ports in NEA have experienced an unprecedented boom in container shipping along with ever-intensified port competition (Yeo et al., 2008; Wang and Cheng, 2010; Yap et al., 2006). As a consequence of deployment of mega container ships, regional gateway port status comprises a significant component of the local economy and economic cooperation with its surrounding areas (Imai et al., 2013; Gelareh et al., 2010; Low et al., 2009), which integrates the overall production and distribution systems (Yeo et al., 2011; Hall, 2007). The major ports in NEA, therefore, aspire to achieve regional gateway status, to broaden their sphere of influence from that of a sea-shore interface to a comprehensive port which boosts global or major regional trade and the local economy (Wang and Cheng, 2010; Low et al., 2009).

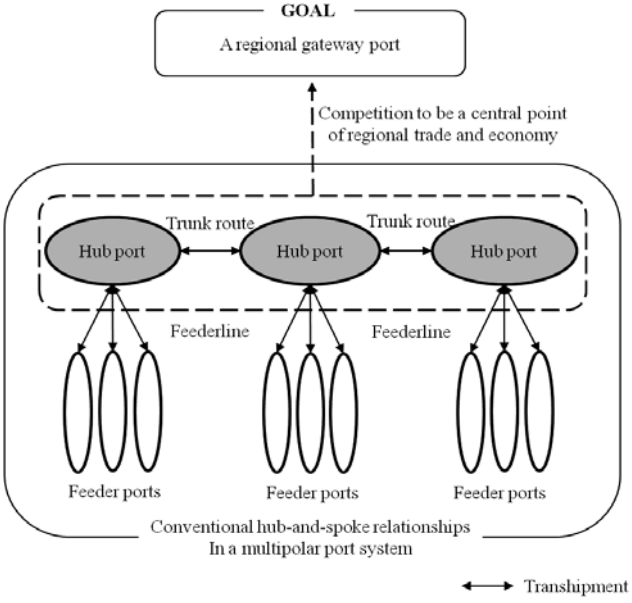

Fig. 1. Port competition structure featured in Northeast Asia

Source: Author

Figure 1 presents port competition between hub ports vying for regional gateway status as the central point of regional trade and the economy, which feature in NEA. In terms of the calling patterns in NEA in recent past years, shipping lines showed typical calling patterns on the main trunk route to transhipment ports in NEA: Hong-Kong, Kaohsiung, Busan, Yokohama, Tokyo and Seattle sequentially (Yap et al., 2006). At that time, transhipment cargo on mainline and feeder services was a crucial issue for the major ports seeking to revitalise their economy and to avoid underutilisation of port facilities (Midoro et al., 2005), featuring port competition to be a regional gateway focused on a transhipment market (Yeo et al., 2011; Wang and Cheng, 2010; Low et al., 2009). However, the deployment of mega container ships and the proliferation of direct calls by mother ships, has transformed calling patterns, creating new direct shipping networks. For example, reducing costs and enormous local container volumes induced direct calls to Chinese ports, the so-called 'China effect' (Yap et al., 2006).

Hsu and Hsieh (2005) explained these phenomena in Northeast Asia by constructing two-objective modes between hub-and-spoke and direct shipping, revealing that when cargo volumes increase with the growth of global trade, direct shipping has an advantage over container shipping involving transhipment by feedering. This arises because in a traditional hub-and-spoke system, inventory costs comprised of waiting time and shipping time costs, exceed shipping costs comprised of capital, operating and fuel costs and port charges (Stopford, 2009). In a direct call system the opposite attains (Hsu and Hsieh, 2005).

The changes in the calling patterns resulted in the emergence of a multipolar port system with conventional hub-and-spoke networks in NEA (Wang and Cheng, 2010). Haralambides (2011) pointed out that an emerging multipolar port system reflects global port development, growing intra-regional trade, amplification of inland transport and logistics infrastructure, and intensified competition in shipping markets. In such systems, the needs increase for a regional port-centric logistics hub that functions as a regional transport hub and distribution centre for global and regional trade. Moreover, differing from other economic regions such as EU and North America, the high dependence on intra-regional trade of this economic region was reported by UNCTAD (2013). Due to growth of intra-industry trade in this region, intra-regional trade has increased from 23.6 % in 2002 to 32.8 % in 2009 recording approximately 44,050,000 TEU, indicating the high dependence on intra-regional trade in seaborne trade, compared to other regions including Europe (5.2%) and North America (1.0%). These phenomena highlighted requirements to develop ports into multi-functional business centres as a central point of global and regional trade and the local economy (Wang and Cheng 2010; Low et al., 2009), and stimulated more sophisticated port competition featuring new types of regional port competition between hub ports vying for regional gateway status in NEA (Figure 1). Accordingly this paper aims to develop the construct of port competitiveness to be a regional gateway port that functions as a central point of a regional economy.

Research into potential regional gateway port status (Low et al., 2009) highlighted Shanghai, Hong Kong and Busan as the main contenders within which to analyse the construct of port competitiveness in port competition between hub ports vying for regional gateway status in the multipolar port system featured in NEA. The following sub-section reviews some relevant determinants of port competitiveness.