

Port-centric cities: The role of freight distribution in defining the port-city relationship



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ABSTRACT

The goal of this paper is to explore the intersection between two streams of literature: port cities and port-centric logistics. While many ports have moved out of city locations, partly facilitated by intermodal corridors, some ports remain in city locations, many retaining a large share of distribution activity in or near the port. This paper will consider distribution challenges arising from the port-city dynamic in relation to the port-inland distribution axis, in particular the role of port and city planners and decision makers in managing this process. The case analysis is based on the Port of Gothenburg, the largest port in Scandinavia.

Findings suggest that the majority of influencing factors are marginally in favour of siting distribution facilities inland rather than near the port, yet city planning and national sentiment continue to incentivise development near the port. There are two conclusions for the port-centric city. First, it needs to coordinate its logistics from a regional perspective, determine what activities belong near the port and not compete with inland locations for what is better located there. Second, port-centric logistics needs to be better aligned with an urban freight transport and city logistics perspective.

1. Introduction

The goal of this paper is to explore the overlap between two streams of literature: port cities and port-centric logistics. Certain key issues are already known from the rather large literature on the port-city relationship, one of the main discussions considering ports located in or near cities compared to those established in new purpose-built sites away from urban conurbations. Ports still located in city locations face challenges from congestion and pollution and city planners try to find solutions to these problems while retaining the port's economic contribution to the city. There is also a growing literature on port-based distribution or “port-centric logistics”. This research considers the current reality of what used to be the port's traditional role as the site of warehouse and distribution activities. Just as many ports have moved out of city locations, much distribution activity has moved inland, seeking cheaper land, more space, less congestion and increased proximity to origins and destinations. Increased quality of transport infrastructure, particularly high volume intermodal corridors, has facilitated this trend. Nevertheless, many ports still retain a large share of distribution activity in or near the port. By means of case study analysis, this paper will consider distribution challenges arising from the port-city dynamic in relation to the port-inland distribution axis, in

particular the role of port and city planners and decision makers in managing this process.

The case analysis is based on the port of Gothenburg, the largest port in Scandinavia. With recently privatised terminals, the port authority is seeking to redefine its role with its Swedish hinterland by growing the area of port land devoted to logistics activities. This could be considered a contrast to the last decade which has seen a large focus on the rail network and inland terminals for transporting goods to the hinterland. A conceptual framework on the relative attractiveness of ports and inland locations for the siting of distribution activities will be used to explore the relationship between the port, its immediate locality and city environs and the larger hinterland. A supplementary goal of the paper is thus to test the framework and make any revisions arising as a result of this empirical application.

Section 2 reviews the literature on port cities to establish the key issues, while Section 3 identifies the major influences on decisions to locate distribution activities at the port or inland. The methodology is described in Section 4, followed by the empirical application to the port city of Gothenburg in Section 5. The case study is followed by discussion and synthesis of the framework factors to identify the key influences on distribution strategies in the port-centric city in Section 6. Section 7 concludes with two clear recommendations for the port-

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centric city.

2. Port cities

Some of the earliest transport geography publications considered the port city relationship (Bird, 1963; Hoyle, 1968). At that time most world ports were still located in the same natural harbour and estuary locations where they were first established hundreds or even thousands of years previously. Even from such early days of the container revolution resulting from the first container ship trials in 1956, Bird's (1963) work already identified the expansion of some ports away from the original town port site towards large purpose-built berths with deeper water in tandem with the move towards specialised handling facilities, such as specialised container terminals. Later literature continued to chart the increasingly common trend of ports migrating to new locations due to congestion in the port city area and the decline of traditional break bulk and general cargo handling activities (Hayuth, 1982; Hoyle, 1989). While this decline was in some cases offset by the rise in container handling as containerisation took hold in the latter decades of the twentieth century, container ports generally focus on economies of scale, preferring a smaller number of large deep berths rather than the more traditional estuary or harbour with many small terminals and quays with finger piers, and the resulting hinterland transport requirements turned port cities into bottlenecks.

These challenges led ports to focus inland, with a higher focus on intermodal corridors and inland terminals not simply for transporting containers inland but for processing and administration activities also (Notteboom and Rodrigue, 2005; Roso et al., 2009; Monios and Wilmsmeier, 2013). Witte et al. (2014) considered the port-city relation on behalf of inland port cities, as large inland ports with high capacity connections to sea ports also face many of the same issues as large sea ports. Congestion and emissions are transferred to the inland location as a result of the economic development ambitions of the inland cities vying for the location of these connected inland terminals (see also Debrie and Raimbault, 2016; Monios, 2016). Thus the port-centric city concept elaborated in this paper could also be applied to an inland city attempting to balance these sometimes conflicting perspectives.

New container ports were built in purpose-built locations away from the city, often seeking deeper water for the new generations of larger vessels and larger areas for container stacking as much as less congested and higher capacity inland transport networks. Moreover, inland penetration of container networks meant that any port in a range could serve an inland location and liner networks developed towards serving smaller numbers of larger ports, so many local city ports lost their traffic entirely and focused more on leisure use. Nevertheless, while many container ports have moved out of the city centre, Hall and Jacobs (2012) point out that most of the world's top ports by tonnage (both container and/or general cargo ports) remain located in cities, at least in the wider urban agglomeration if not in the city centre. Indeed as it will be seen in the case of Gothenburg, relocation of the container terminal west of the city centre but still within the metropolitan area exacerbates the challenges facing port-centric development today. This ties in with the finding of Hall and Jacobs (2012: 203) that “reverses the assumption that ports are able to free themselves from urban space. Instead, it seems that ports and other urban uses will continue to share and compete for the same physical space”.

The departure of goods handling activities in many cities resulted in large areas of available brownfield land, often followed by a period of urban renewal and waterfront regeneration with policy-led developments of new apartments, restaurants and offices (e.g. McCalla, 1983; Hoyle, 1989; Hall, 2003; Wang, 2014). In some cases, however, this was followed by new developments in the port (as in the Gothenburg case discussed in this paper), as port authorities sought to attract business back to the port area (Ducruet and Lee, 2006), leading in some cases to port-centric logistics strategies (discussed in the next section). However, renewed port expansion can cause new conflicts with city policies

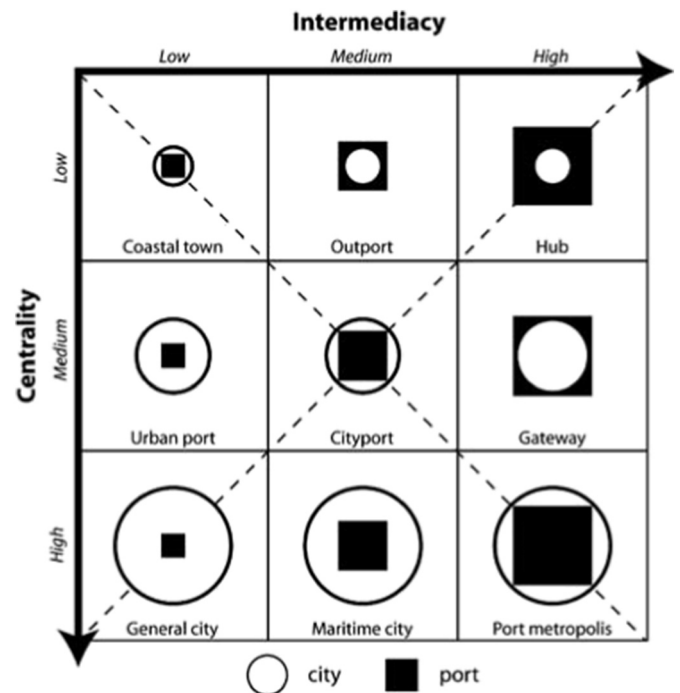


Fig. 1. Matrix of port-city relations. Source: Ducruet and Lee (2006).

to redevelop brownfield land for other uses (Wiegmans and Louw, 2011; Daamen and Vries, 2013). The five-stage typology developed by Hoyle (1989) illustrates a clear trend from original port towns and cities (natural estuary and harbour locations) to expanding industrial ports, then the retreat of industrial activity from the waterfront (either to the inland or to new purpose-built locations outside the city) and finally redevelopment of the waterfront. In a more dynamic formulation, Ducruet and Lee (2006) developed a 3 × 3 matrix of port-city relations with centrality on one axis and intermediacy on the other, aiming to determine the intersection between the size of the city and the port, respectively (Fig. 1). The matrix demonstrates the range of models found today, from “global port cities” that retain their large port within the large city (e.g. Hamburg) to “hub ports” distanced from cities (e.g. Marsaxlokk, Malta), “coastal metropolises” which are world cities whose ports have mostly departed the city environs (e.g. London) and, for the purposes of this paper, a “gateway port” like Gothenburg which has a large port still in the medium-sized city that is nonetheless less dominant than in the past.

Ducruet and Lee (2006: 110) make a point that is highly relevant for the current study: “On the one side, in the urban hierarchy, it can be argued that only global cities are competing at a global scale, and secondary cities are only concerned by their regional and national urban system. For cities, therefore, the global scale is relevant only for those which are capable of competing for international finance, major companies' headquarters and tourism more appropriately reflected by air transport flows. On the other hand, for the port hierarchy, even the so-called global ports are in fact competing with their neighbouring competitors within a regional area. Ports compete locally as well as regionally against other ports because they serve the same hinterland inland areas”.

Gothenburg is the second largest city in Sweden, after the capital Stockholm. Due both to being the country's industrial centre and its location on the west coast, the port of Gothenburg is by far the country's major port. From a macro-regional perspective, it is the largest port in Scandinavia, so, drawing on the literature just mentioned, the port perspective in this case may be characterised as quite different from the city perspective. Yet, despite the port's regional dominance thus far, it

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