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The port of Antwerp and the Northern-European future maritime economic development

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Introduction

The northern range ports are among the most studied ports in the world. Their development over the years has offered industry and academia a wide range of important opportunities for analysis and innovation, and their success has contributed to shaping port governance and operation models globally (Pallis *et al.* 2010). One of the most interesting areas of investigation lies in the relationship between port services and regional-economic development. Already in the 1960's, it had emerged clearly that a necessary condition for economic development was the efficiency of port operations, and the strategic importance of ports was well understood. The role of deregulation and the contribution of the private sector in increasing the productivity if port operations, also as a consequence of the introduction of containerised transportation, cannot be overstated in explaining the growth in productivity that has characterised the global port industry in the last decades. European ports have been in the forefront of these developments, being among the first to develop containerised trades and deregulate.

A particularly important issue associated with the growth of ports globally is related to how to maximise the potential benefits of port activities at a local, national and regional level. The issue has always been particularly relevant for European ports, concerned with their accountability as (semi-)public entities and requires to justify their weight on local or national budgets, especially when large port infrastructure development projects are needed. Most European countries and port authorities require the development of impact studies for any large piece of infrastructure and it is not unusual to run port assessment impact studies on a regular basis to investigate the economic impact of ports, but also to guide policy makers on strategic decisions.

The analysis of the regional-economic impact of a port is today seen as a complementary part of the understanding of their competitive dimension. As ports are required to acquire their *license to operate*, understanding the impact of the port on economic development is essential. Ports that are well embedded in the economy of the region or the country where they operate obtain greater political and social support and are therefore able to grow and maintain their competitiveness, as often funding and expansion possibilities depend on the policy agenda that is at least in part politically defined.

The maritime and port sector is undergoing constant change, as is particularly apparent in the shift in competition that has unfolded in recent years. Whereas in the past, shipowners and ports used to compete with one another, the competitive struggle is now increasingly unfolding at the level of logistics chains (Meersman *et al.*, 2013).

Today, market players are selected not so much for their stand-alone competitiveness, but on the basis of whether or not they belong to a successful maritime logistics chain.

This explains why certain market players are continuously trying to gain greater control over these chains, including through vertical and horizontal alliances, mergers and acquisitions (Meersman *et al.*, 2011).

Successful maritime logistics chains are like well-oiled machines in which every nut and bolt is perfectly attuned. Consider the case of seaports. Modern seaports are crucially important nodes in international logistics chains and their associated networks.

The success of the logistics chain as a whole depends on the competitive strength of the seaports belonging to that chain and vice versa (Meersman *et al.*, 2010). A similar reasoning applies to the other maritime transport players, including shipowners, port undertakings and hinterland transport providers.

The role that ports play in the supply chain is one of the ways in which ports and their hinterland are related. Another important relation builds on the employment impact, that for many decades has been seen as a major driver behind port developments. Since the 1970's, European governments have attempted to trigger regional development by expanding ports and their infrastructure (Yochum & Agarwa, 1988; De Salvo, 1994). The objective of generating new employment has been often associated with the increasing value added, as a main measure of port economic impact and port-related labour productivity (e.g. Barton & Turnbull, 2002; Gripaios & Gripaios 1995).

The assessment of port impacts, through what is often referred to as port impact studies (see Waters, 1977), is a rather challenging task not only in terms of method selection and application but also as it often requires collecting and analysing a wide range of data that are often not available for ports, difficult to obtain, or not available at a sufficient level of detail. At a microeconomic level, the type of information required is not only the port throughput, with a certain commodity detail, but a certain estimation of port input and in general of the value added generated by port activities. Even for port direct impacts, this requires a wide level of approximation, as, even for port authorities, some of the information is not available or inaccurately collected. Moving from the micro-level to the macro-level requires quantifying and analysing the impact of port-related and port-induced activities. This can be done by using a variety of methods. One of the most commonly applied approaches, that makes use of national or regional input-output tables, is illustrated for the case of Antwerp in the next section. In a similar vein, there is the MARAD impact assessment tool employed in the United States (see Chang *et al.* 2014, for details on the method).

Other methods, focusing on employment, value added or connectivity, have been developed over the years, but in most ports a more descriptive approach, based on empirical multipliers, somewhat empirically estimated has been preferred (Acciaro, 2008). More recent studies are presented for example in Chang *et al.* (2014) for Africa, and Shan *et al.* (2014) for China, Merk & Notteboom (2013) for Rotterdam, Danielis & Gregori (2013)

for Italy, and Dooms *et al.* (2015) among others.

An increasingly important area of research has been the investigation of port environmental impacts (see Acciaro, 2015 for a review), either on their own right or in combination with cost benefit analyses, often for the assessment of the societal desirability of port expansion projects or to measure the external costs of port activities.

In a recent comparative study of 33 port socio-economic impacts, Dooms *et al.* (2015) highlight the multiplicity of methodologies adopted for port impact assessment and recognise the instrumental purpose that some of these studies appear to aim at.

Sys *et al.* (2016) analysed the field of emissions legislation and its relationship with the deep-sea container liner shipping. With respect to the economic impact, two important conclusions can be drawn on the competition between the north-European ports and its Mediterranean counterparts. The northern ports are more mature and successful in their (environmental) projects than the southern ports. Furthermore, the southern ports fail in offering optimal hinterland transport connections. In the light of the entire supply chain (and the port as the only part of the chain), this is far from insignificant. The geographical location and obstacles, combined with their infrastructure backlog, strengthens these tendencies. This does not mean that the southern ports can be no potential growers. Their location and future ambitious strategic view are strong characteristics.

van Hassel *et al.* (2016) confirms that internalising the external cost will only have a relatively minor effect on the hinterland distribution between the ports in the Hamburg – Le Havre range and the Mediterranean ports. However, it can be concluded that, by making a total chain analysis and by analysing two different chains, the ECA zone has a different impact on Asia - Europe loops as for the Southern America - Europe loops. All in all, one can say that the main hinterland region, where most of the hinterland containers will go to starting from the Hamburg – Le Havre range ports (North-Western-Europe), will not be affected by internalising the external cost or by installing an ECA zone. The ports in Europe with a good connection to the inland waterway network (Antwerp and Rotterdam) can even benefit from internalising the external costs.

In this report, section 2 applies the input-output methodology to show the importance of the port of Antwerp to the Belgian economy, and the role that various chain actors play in value added generation. Section 3 illustrates the economic impact of the ports of Rotterdam and Hamburg, and makes a comparison with the port of Antwerp. Section 4 focuses on one of the most recent developments that could challenge Northern-European ports, more in particular the widening and deepening of the Panama Canal. Finally, section 5 draws conclusions.

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