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Contested port hinterlands: an empirical survey on Adriatic seaports

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Abstract

Ports compete not only on the sea-side (e.g. through terminal investments, increase in terminal efficiency, maritime service connectivity) but also on the land-side (e.g. through logistics chain, advanced IT services, door-to-door connectivity). On this issue, several studies (e.g. Meersman et al., 2009; Tongzon, 2009) recently pointed out the increasing importance of the connectivity – at both quality and quantity level – between the port and its own hinterland in order to be competitive in the modern maritime service structure.

The analysis concentrates on the study of the port hinterland contestability and on the definition of the catchment area focusing on a case study (i.e. the Adriatic ports aiming at attracting the Southern German freight flows) in order to better understand which elements affect the possibility to expand the current ports' hinterland.

The empirical research is based on public statistics (e.g. Eurostat, Amadeus database) and on data directly collected from the operators currently serving Southern German firms with the main

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commercial ports and with the potential port actors that may be interested in an enlargement of the port catchment area in the studied region (e.g. South European ports). Apart from the trade pattern analysis – based on the general statistics - and the logistics structure analysis – based on the information collected by transport and logistics operators –, a direct survey has been conducted on a sample of manufacturing companies located in Southern Germany and Western Austria in order to understand what actions should be taken in order to promote the use of Adriatic ports and then reshape the boundaries of the catchment areas of these ports. Statistical tools and a bottom-up approach have been developed in order to evaluate the results. Main findings are then related to potential strategies that may fill in the competitive gap between Northern and Southern European ports when they compete to serve the same hinterland. The original contribution of the research is an insight on the relative importance of the infrastructure endowment, the generalized transport cost and also of some non-monetary conditions – as cultural and behavioural aspects - that have an influence in determining the effective boundaries of ports' hinterland.

Keywords: Contestable hinterlands; North Adriatic ports; Port competition

1. Introduction

Ports play a central role for the collection and distribution of freight, arriving or departing from/to other ports. This principal function has always characterized maritime ports, although today ports need to take up also logistical and transportation functions, thus focusing their attention on their connections with the hinterland (Robinson, 2002).

When looking at European seaports it appears clear that port's business is not played only on the maritime traffic but an increasing part of port activities is looking at the land side, trying to extend the catchment area through an attractive port hinterland. Port competition therefore, takes place on both sides: maritime and inland. The best way to take advantage and increase the hinterland's potentiality is to have a clear idea of what the port hinterland is, which activities can be included in such area, which is the geographical delimitation of the hinterland and if, and to what extent, there is overlapping among different port's hinterlands.

The theoretical meaning of port hinterland is a fuzzy concept, since many definitions can be found in literature (e.g. Robinson, 1970) and also because the notion of hinterland can be adjusted with respect to different variables (as the type of cargo, for instance). Sargent (1938) defined hinterlands as “the area of which the greater part or a substantial part of the trade passes through a single port” while Weigend (1956) underlined that a hinterland is simply the area that a port serves. Eventually,

Robinson (1970) connected the concept of hinterland together with the foreland, highlighting a *continuum* that defines the possibility for a shipper to ship its cargo from origin to destination “albeit across segments of maritime and landward space”.

The definition of a specific port hinterland is even a more challenging task, since many elements are required: traffic flows, differentiation according to commodity’s type, knowledge on transport modes and transport services available in the port hinterland, other ports’ proximity and specification of their maritime activities and hinterlands. Taking these elements into consideration, it is important to rely on a specific definition of this concept and use it to later analyse which are the factors influencing it.

Similarly to the definition given by Sargent and Weigend, Ferrari et al. (2011) defined a port hinterland as “the inland area that produces the majority of the port businesses”. Each port could potentially have a different definition of its hinterland based on the transport connections, based on the type of considered commodities and also in respect to the time, namely: seasonal impact, economic cycle, technological changes (Blauwens and Van de Voorde, 1988; Notteboom, 2009).

A different concept is that of the catchment area of a seaport. In these notes we use this term to refer to the geographic area that should gravitate on a specific port on the basis of the infrastructure network serving that area (but ignoring the level and quality of the transport and logistics services).

Assuming the above-mentioned definitions, the catchment area for any specific port is usually larger than (at least, equal to) its hinterland. Moreover, as described below, either the catchment area and the hinterland of seaports may overlap with each other, determining regions that may be served by several ports (or by a few for a specific type of cargo). These regions may be considered as contestable markets.

For this reason it might be interesting to study the land-side competition of ports serving contested catchment areas (e.g. Van den Berg and De Langen, 2011). In this context, academic literature often focuses on sea-side port competition (e.g. Meersman et al., 2009) or evaluates land-side competitive factors (e.g. Tongzon, 2009; De Langen, 2007). Moreover while Roso et al. (2009) and Lam and Gu (2013) try to elaborate optimal models to connect ports with their respective hinterlands, Rodrigue and Notteboom (2009) re-define ports as part of supply chains in which the hinterland connectivity appears as a key competitive factor. Since the organization of the hinterland logistics might differ from region to region (e.g. Rodrigue and Notteboom 2010) this element should be carefully analysed. Eventually, problems of coordination among actors involved in the supply chains might arise, as underlined in Van der Horst and De Langen (2008) together with a better discussion on the role of aggregation nodes within the network (e.g. Ambrosino et al., 2016; Roso et al., 2013).

Some studies focused on on-field analyses able to understand the perceived value added of different ports in a contested region, assuming that perceived competitive factors are quite important for the port choice (e.g. Brooks and Schellinck, 2013). The current paper contributes with an on-field research aiming at better understanding port choices of manufacturing firms (i.e. the ultimate users of inward maritime cargo flows and the owners of outward maritime cargo flows, respectively) that are currently located in a particular contestable market: the South of Germany.

As pointed out in several studies conducted in Italy (e.g. SRM, 2015; Ferrari et al., 2011) there is a potential catching area of seaports located in the Northern Italian regions that is extensively competed by the Hanseatic ports and by the main German seaports in particular. This area is made up of Switzerland, Austria and Southern Germany. This region is part of the potential hinterland for many Adriatic ports, and this is also underlined by several EU projects and research. For instance the NEA (2011) report that defines the boundaries of hinterland for several port ranges highlights that for the Adriatic seaports, their ideal hinterland (based on road transport distances exclusively) extends to the Bayern region as the upper limit. Moreover, some recent studies (e.g. Twrdy and Batista, 2016) forecast that North Adriatic ports will still be competitive in the near future, potentially increasing their presence in the South Germany market.

A recent report (Paradigma GmbH, 2014), based on import-export data, points out that the abovementioned region gravitates mainly on the Hanseatic ports; the remaining freight flows using the Mediterranean ports, mostly pass through the Adriatic ports of Rijeka and Koper (as shown in Figure 1). Therefore this region is relevant to understand why in most of the cases the Italian ports are by-passed by the freight flows directed to or originating from that area.

Figure 1 – Origin of freight flows from catching area to candidates port ranges

Source: Our elaboration on Paradigma (2014)

Moreover, while many firms of the region are served by North European ports (e.g. Hamburg, Bremerhaven, Rotterdam, Antwerp), from a geographical point of view, this regions is closer to many South European ports (e.g. North Italian ports). The reasons for this apparently illogical choice are generally related to a recognised better level of transport and logistics services and lower delivery costs among Southern Germany firms and Northern range ports (in comparison to the Italian ones). Despite this issue, many Southern European ports (e.g. North Adriatic ones) are heavily investing in order to enlarge their competitive position in the Southern German markets.

The research will then focus on understanding the several elements that are currently weakening the competitive position of Adriatic ports and to better address the perceptions that are currently driving firms' logistics choices. In order to achieve this goal, a group of 130 manufacturing firms belonging to the South of Germany (and partially to Austria and Switzerland) has been contacted, organizing direct interviews and asking to fill in a semi-structured survey aiming at understanding the reasons behind their logistics choices. About 25% of the contacts replied to all questions while other several surveys have been only partially filled in. The data were useful to develop a specific research framework able to identify the main critical issues that might award a group of ports instead of another.

The paper is organised as follows. After this short introduction, Section 2 will provide a literature review related to the port hinterland problems and the catchment area definition, while Section 3

provides a description of the analysis. Section 4 focuses on the discussion of the results and Section 5 addresses the conclusions, underlining possible insights for future port strategies.

2. Literature Review

The academic interest on the concept of port's hinterland and the related issues has inspired several studies and involved numerous authors that during the years have tackled the problem from different perspectives. The port's hinterland analysis is strictly related to port's competitiveness, therefore growing interest has been shown in respect to this topic (Fleming and Baird, 1999; Notteboom and Rodrigue, 2008). The increasing relevance that containerized transport is gathering on the maritime traffics and the development of intermodal transport are two of the main factors that contribute to investigate the hinterland dynamics and characteristics (Ferrari et al., 2011).

Along the years the concept of hinterland has changed in relation to the evolution that has taken place in port dynamics and logistics chains. Increasing volumes of containerized freight cargo and intermodal connections brought the inland area to become more and more important, and as a consequence, the definition of hinterland changed from being a captive region strictly connected to a particular port, to a wider and contestable area of interest for many other ports. This last concept can be applied for extended hinterlands, while for the immediate proximity of the port, a captive hinterland can still be identified (De Langen, 2007).

The boundaries of a port hinterland necessarily rely on the traffic flows linking maritime routes to the port inland and also to the development that such hinterland witnessed during its evolution, the definition of hinterland provided by Notteboom (2008) is linking a transport system to a limited number of transport nodes.

A part of the literature, looking at the spatial evolution of ports, focuses on the role of maritime traffic and hinterland networks, in accordance with the seminal model of Taaffe et al. (1963) describing the development of port concentration and hinterland as strictly linked to the role played by urban centres.

A similar concept has been carried out by Barke (1986) and Hayuth (1981) that analyse the hinterland development through the port system de-concentration process. As a consequence of such process, the shape of port's hinterland differs from port to port as presented in Kuby and Reid (1992), and Lago et al. (2001), where it was demonstrated that different ports could have a more concentrated port system than others. Such differentiation could also be the result of local and global forces that

influence the port's development, but also by the relations of a port with its foreland (Notteboom, 1997).

The literature on port's hinterland and the related characteristics have been analysed also from an operator's point of view, considering which are the actors that are interested in maritime traffic, in the distribution and collection of freight, in intermodal transport and the involvement in the logistics transport chain.

The principal operators that are primarily concerned with hinterland dynamics are undoubtedly shippers, forwarders, inland operators, such as rail and inland navigation carriers, that are involved in the transport and logistics activities, trying to gather as much as possible from the hinterland development (Franc and Van der Horst, 2010; Notteboom and Rodrigue, 2008; Slack, 1999).

Nonetheless, Port Authorities are strictly linked with the economic activities operating in their hinterland yet, less has been produced about the relation between the two in literature. Some authors refer to the role of Port Authorities in relation to the hinterland, such as in the work of Slack and Fremont (2005) and Verhoeven (2010), stating that the power that port authorities have in the logistics chain is residual compared to the key function of shipping lines, terminal operators and logistics companies.

It appears then that Port Authorities are not yet sufficiently active within the inland transport chain and the hinterland's development. For this reason, some recommendations came out of previous works on the topic, namely the suggestion of Van Klink and Van der Berg (1998) on the need to focus the attention on the land side; also the advises of Notteboom and Rodrigue (2008) and Verhoeven (2010) that are in line with the first statement and encourage Port Authorities to take actions aiming at integrating the port region with its hinterland, having a more active role in developing closer relationships with the other transport actors involved in the logistics chain.

3. The analysis

In order to achieve the research goals the analysis has been structured in three different phases:

- a) Identification of the target market;
- b) Identification of the logistics choices;
- c) Identification of the main determinants of the logistics choices.

The first phase focuses on the analysis of both the port and the industry structure in order to better understand which kind of cargoes might be more contestable by the competing ports located in Southern Italian.

The second phase consisted in contacting the representative of the main companies of each strategic industry in the region, in order to understand the reasons behind current (and possibly future) logistics choices. In order to exploit this phase, a fieldwork is necessary to collect different opinions.

The last phase corresponds to a collection of ancillary information concerning the main drivers that might affect the logistics choices and then the possibilities for different ports to compete.

3.1 Identification of the target market

In order to identify the target market, two different general analyses have been carried out. At first, the traffic structure of all the port of the target area (i.e. North Adriatic) was drawn in order to identify possible specialization. For instance, Koper in 2013 registered almost one third of the overall container traffic of the region. On the other hand, Trieste results as the regional leader for the liquid bulk activity (and also for the total throughput).

An interesting case study is the port of Ravenna: it is the second largest dry bulk and general cargo port in Italy (and the first in the Adriatic Sea), even if it appears smaller – in general terms – in comparison with the other main Adriatic ports (i.e. Trieste, Koper and Venice). Moreover, the specialization in the general cargo and in the dry bulk may directly link specific traffic categories to peculiar industries, making the identification of potential interesting port users easier. On the other hand, while container traffic has been always strategic for the recent port development, North Adriatic ports seem quite disadvantaged in comparison with the Northern range competitors because only few intercontinental routes currently serve them and their competitive position might be even worse in the next future due to infrastructural lack and a tendency of shipping liners to concentrate traffic to major regional hubs (as discussed, for instance, in Ferrari et al., 2015). Concerning this issue, Figure 2 shows this disadvantage comparing deep-sea deployed capacity in some of the main EU port ranges for the Far East-Europe trade routes.

Figure 2: Deployed capacity in main EU port ranges

Source: MDS transmodal, 2015

Moreover, Figure 3 shows main statistics of the ports of the region. The market shares of Ravenna are underlined by light-grey squares, while the regional leaders are represented by a circle on the main quota.

Figure 3: Adriatic ports – Port activity structure

Source: Own elaboration on Port Authorities data

On the market side, Southern German regions are characterised by an intriguing industrial structure: in fact Bayern and Baden-Wurttemberg, according to OECD statistics, represent one third of the total German GDP. Moreover some specific industries occupy leading positions in the internal economy of both regions: the automotive and machinery cluster, according to Amadeus database, generate more than one fifth of the total regional employment, while food and related agricultural products register more than 15% of the employment (about 12% relates to the solely processed food industries). The statistics generated by the European Cluster Observatory (2014), show two other industries of specialization for the considered region: the instruments and technological products and the chemicals one (including pharmaceuticals). In order to develop a consistent analysis, only the latter has been added to the two main sectors (automotive and processed food). This choice has been mainly related to the fact that instruments and technological products are mainly containerised cargoes and main

literature does not see this type of cargo as competitive as for North European ports. Moreover, as shown in Figure 4, the three targeted markets present different concentration degrees, as well as different average firm size, providing an interesting mix of type of companies.

Figure 4: Firms characteristics of the targeted area.

Source: Own elaboration on Amadeus data, 2014.

Moreover, several of the targeted markets are also strategic for neighbouring regions – such as Austria for the food and automotive clusters and Switzerland for both chemical and food industries – making potential flow aggregations along the logistics corridors possible.

3.2 Determination of the logistics choices

Once the potential port and the contestable markets have been targeted, all the firms belonging to the industries – and located in the studied catchment area – have been contacted. Using the Amadeus database, more than 130 firms have been selected in order to answer to a survey with a rate of reply of more than 25% (considering operators that answered to all the questions while the rate of response can be considered even higher for partial answers). All the contacted operators have their main operational activity in the studied region. Thus, about 30 companies have replied to the questionnaire while the biggest ones have also been interviewed. In total the firms interviewed represent a quota of over 20% of the revenues of some sector (e.g. automobile) and when this quota has not been achieved, interviews with production cluster associations have been performed in order to guarantee a representation of the general market (e.g. food cluster). Together with this part of the analysis, as underlined below, main logistics providers have been also interviewed: those providers covered more than 80% of the total market, assuring a good answer representation.

Firms gave us information about their logistics and transport decision-making processes, the possibility to outsource transport and logistics decisions and key factors influencing this decision. The questionnaire was composed by 20 questions, aiming at identifying some information category: a) the current logistics choices (e.g. used ports, used logistics corridors, internationalization or outsourcing of the main logistics choices); b) main transport and logistics cost drivers (e.g. cost quota of the different transport segments); c) drivers of current transport and logistics choices (e.g. reasons behind the current patterns); d) factors that might change the current transport and logistics choices. While the category a) and b) were organised as open answers, c) and d) have been given listing drivers and factors and then ranking them through a Likert Scale. While a) and b) differed quite a lot from different firm categories, c) and d) generated similar answers (e.g. with low degree of variance).

The collected information mainly addresses transport and logistics critical issues distinguishing two different categories of firms: large companies have their own internal department that plans the transport and logistics choices with a direct and strict control on all the decisions made by the related operators. On the other hand, small-medium sized companies usually outsource the transport and logistics choices to the main logistics providers and in many cases they don't have a good knowledge of the driver behind the choice of a specific transport corridor.

In order to validate the collected information, interviews with regional cluster associations and main national and international transport and logistics operators have been organised. Concerning cluster associations, all of them have been contacted but only two of them fully replied (i.e. Automotive Clusters of Baden-Württemberg and Bayern and Chemical and Food clusters of Bayern). Regarding the logistics operators the main four international logistics providers (i.e. Kuehne Nagel, Panalpina,

DHL, Schenker) have replied and some other local operators (e.g. rail transport companies and inland ports operating freight flows between North and South Europe) have also been contacted and replied. Validation interviews confirmed the main outputs collected by the previous contacts. Interviewed experts underlined a distinction between of efficiency related drivers – that affect the low use of North Adriatic ports in favour of Northern European ones – from other ones, mainly “behavioural”, that affect the choice beyond simply cost related factors.

In general, logistics service providers (LSP) tend to prefer Northern range ports instead of South European ones because it is possible for them to gain more value from the final price. This issue is mainly related to the possibility to easily aggregate traffic, to use both rail and inland waterways and a reduced bureaucracy that speed up the overall transport operations. On this extent all the main operators also provided the Logistics Performance Index as benchmark of the existing gap among the South and the North logistics corridors.

Figure 5: Comparison of LPI index components of Belgium, Germany, Italy and the Netherlands, 2014.

Source: World Bank, LPI.

The geographical proximity, even when substantial, is not sufficient to compensate for the higher logistics costs that LSP would incur by moving cargo through the North Atlantic ports (Ruijgrok and Tavasszy, 2007). From the examination of Figure 5, the very low scores related to customs operation, logistics competences and timeliness of delivery are particularly significant. The importance of these factors should not be underestimated as moving cargo to another country within the European Union makes customs procedures, logistics competence and shipment timeliness important competitiveness determinants (World Bank, 2014). While the logistics performance of Italy has been improving (fig. 6) this is not enough to allow Italian ports to gain market share and extend their hinterland. Worryingly, customs operation efficiency and logistics competences have not shown improvement in the last three monitoring periods. This seems to call for particular attention at the governmental level on those issues.

This lower performance is against German logistics industry that has consistently scored extremely high in terms of efficiency and infrastructure quality and is expected to thrive in the coming years (e.g. GTAI, 2010).

Figure 6: Evolution of the World Bank LPI, for Italy.

Source: Elaboration of the author on World Bank Data.

Apart from the logistics providers, other global players perceive North Adriatic ports as less strategic than North European harbours: shipping liners for instance, prefer to push clients (e.g. big firms that decide without the influence of logistics providers) to use Northern range ports in which they can use bigger vessels and that are characterised by more frequent services in comparison with North Mediterranean ports. Exemptions can be found, generally related to Koper and partially Trieste: the only two ports efficiently connected by rail to Southern Germany even if with only few main shipping services calling at them. As underlined in Robinson (1970) – among others - port hinterland is strictly related to its foreland and this is confirmed also by the outcomes of the present research.

Despite efficiency and service performance challenges, North Adriatic ports seem to be neglected from the port choices also for “behavioural” reasons. All the firms and the logistics providers interviewed, state that among the main weaknesses of many North Adriatic ports lie a cultural gap that makes the solving of any given operational problem complex. In fact, many companies underline how simple elements, such as the spoken language (i.e. not German) and the perceived frequency of strikes, slow down the interest of many operators for the Adriatic ports. The interesting fact is that many North European ports are not in German speaking countries (e.g. Antwerp and Rotterdam) but do serve the South German regions, while the last big strike of Italian ports took place in the ‘90s and the last hauliers’ strike was registered almost 10 years ago. Nevertheless, perceptions and behavioural elements are still strong and despite effective infrastructural lacks, they appear as the most perceived and commonly underlined by the contacted companies. For this reasons, Koper is the only port often used also by German companies: this is explained by not just a better efficiency level than other Adriatic ports but also a traditional link to the German economic “environment” (e.g. many operators in Koper can actually speak German). This interesting finding cannot delete the efficiency gap but the cultural barrier increases the difficulties in expanding current North Adriatic port hinterlands.

Concerning the studied industrial clusters, it is interesting to underline that many companies have expressed a general interests for the Adriatic ports, mainly to serve fast growing markets (e.g. Turkey) or diversify the ports they use (e.g. automotive companies for their trades with Asia). On the other hand, while some ports – mainly Ravenna – have a strong competitive position in serving similar traffic segments, only Koper promotes itself among the industries through structured and systematic promotional campaigns, being the only well known Adriatic port among the other competitors.

Eventually, it is interesting to underline how many of the firms, simply do not quest the traditional transport and logistics choice but prefer to follow a “business as usual” strategy in order to limit the risk that might be related to new logistics and transport patterns.

3.3 Identification of the main drivers

Together with the general data collection, a synthetic analysis has been developed collecting some specific pre-determined drivers identified by the literature as those that normally affect the logistics choices of a certain player. Figures 7a and 7b summarize main results of the data collected.

Figure 7a: Main drivers of the logistics choices

Figure 7b: Main factors that might change current logistics choices

Source: Own elaboration.

Results shown in Figure 7 are determined using a Likert scale (1 to 5) to the main elements that are affecting – or might change – the current logistics choices made by the interviewed firms. In order to develop a specific and realistic response, only industries belonging to the case study port (i.e. Ravenna) and clusters (i.e. Automotive, Chemical and Food) have been used.

As underlined in Figure 7, current logistics choices are dependent from a multitude of factors but some of them score more than others even among those that collect higher values: it seems that the main choices can be strictly linked to the delivering time even if only dramatic changes in the costs structure could be able to modifying current transport patterns.

4. The results

The above-described phases underline two interesting issues: a potential match of interests between Adriatic ports and some Southern German industries and a plurality of factors that are currently affecting the possibility to compete in the potential catchment area for the main Adriatic ports.

Figure 8 proposes a SWOT scheme for the case study (i.e. Ravenna) that might be easily extended to many North Adriatic ports.

Figure 8: SWOT

Source: Own Elaboration

While several elements can be hardly changed in the short run (e.g. infrastructure, logistics performance), it is interesting to underline how many factors are related to a limited knowledge of the real possibility of the Adriatic ports (e.g. strikes, transport reliability) or to some low-cost business modifications that might improve port strengths (e.g. language skills, promotion activities, etc.). Moreover, some of the main operational weaknesses may be easily overcome by a stronger cooperation among the actors that might create added value services (e.g. aggregating different freight flows directed to Germany from Italy and *vice versa*): this may attract logistics providers that are currently choosing other transport corridors due to a reduced value given by the transport corridor connecting Adriatic ports with the South of Germany. Moreover, the declared interest of many firms and the match between their productive structure and the port handling capacity might assure future

strategic collaborations, creating the minimum volume of freight that might decrease the overall transport costs, and contribute to attract specific maritime services. Thus, while infrastructural and organizational issues that are currently increasing logistics costs are difficult to be solved shortly (and this represents the main gap between North European and North Adriatic ports in order to serve the targeted regions), other simpler interventions might positively impact on some of the reasons that are currently slowing down trades between North Adriatic ports and Southern German regions.

5. Conclusion

The current research aims at evaluating tangible and intangible factors impacting on the shape of port catchment areas and foster changes in the current logistics and transport patterns. The presented case underlines how current decision-making processes only partially depend on (generalized) cost driven factors but also cultural and “behavioural” elements affect the choice of the ports to call at made by manufacturing firms. In fact, it seems that in order to be competitive within international logistics corridors, ports should first be able to “convince” international operators to increase their own connectivity level to the specific port (i.e. shipping company, logistics providers) and potential users that they are as good as the other competitors. Only in a second stage the actual cost-driven factors seem fundamental in the port choice decision process.

In the studied region, main potential port users show an interesting location because they can be – in principle – efficiently served either by the North European ports and the North Italian ones (both the Tyrrhenian and the Adriatic seaports systems). Despite this issue, some inefficiencies in the infrastructure endowment and in the quality of transport services - together with cultural and behavioural reasons - have induced Southern German firms to use the North European ports almost exclusively. Thus, the studied contestable hinterland shows how a mix of factors is influencing logistics choices and port competition: while usually policy makers focus on infrastructure policies and port authorities are engaged in enhancing the port connectivity, logistics providers strategies, cultural and behavioural aspects seem to be as important as infrastructure endowment.

Nevertheless, the analysis shows a (relative) high potential for North Adriatic ports to serve this region (as confirmed by different other researches, for instance NEA [2011]). Despite current competitive disadvantages, the fact that some of the main barriers come from cultural and low-knowledge reasons make it possible to face them with “low-budget” interventions (e.g. promotion, marketing policies) in respect to infrastructural interventions (some of them already in progress) that

are normally linked to high investment and long term plans. For this reasons, the example made by the Ravenna's SWOT scheme, duly specified and improved, may help the port to better address challenges related to the contestable German markets. This preliminary result contributes in understanding the competitive factors determining the shape of ports hinterlands: the research shows how the hinterland and foreland connectivity is still a high competitive factor (as underlined also by Meersman et al., 2009) but at the same time users perceptions (irrespective of their correctness) and cultural factors plays an important role and ultimately affect the possibility of ports to serve distance hinterland.

Authors are aware of the (many) limitations of the current study but the proposed approach might help to trace the role that not-monetary factors in the determination of transport choices, and as in this case study the scale of the port hinterland.

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