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Port, cities and labour opportunities

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Abstract

During the past years several structural economic changes occurred in port operations. The shift of port organisation from labour based to capital based investments has created several unsolved problems for the local communities that are experiencing increasing – direct and indirect – costs and a reduction of the perceived benefits in hosting a port. In this scenario, labour in Italian port cities is becoming a major problem mainly because of the de-localization of major traditional port-related activities. The current paper focuses on the discussion of potential industrial sectors that may become strategic for the future of the port cities: the sea economy activities. These industries are not strictly related to the ports but harbours may be strategic in order to gain a competitive advantage to vie with the other provinces. Statistical data from national organisations (e.g. UnionCamere) and statistical institutions (e.g. ISTAT) are used in order to understand the trend of the port provinces in competing in these new markets. At the end of the paper policy and strategic ideas are proposed.

Key Words: Port Cities; Port Labour; Regional development; City Development

Resumen

Durante los últimos años se han producido diversos cambios económicos de carácter estructural en los puertos italianos. La transformación de la organización del puerto desde un sistema basado en el trabajo a un sistema basado en las inversiones en capital, ha creado una serie de problemas no resueltos para las comunidades locales que están soportando un incremento de los costes directos e indirectos así como una reducción de los beneficios anejos a la actividad portuaria. En este escenario, el empleo en las ciudades portuarias se está convirtiendo en un problema debido a la deslocalización de las principales actividades relacionadas con el puerto. El objetivo de este artículo es el análisis de los potenciales sectores industriales que pueden llegar a tener un carácter estratégico para el futuro de las ciudades portuarias: las actividades de la economía del mar. Estas industrias no están estrictamente relacionadas con los puertos pero los puertos pueden tener un papel estratégico para ganar competitividad en relación con otras provincias. Se utilizan datos estadísticos de organizaciones nacionales (por ejemplo UnionCamere) y organismos estadísticos (por ejemplo ISTAT) para discernir la tendencia de las provincias portuarias a la hora de competir en estos nuevos mercados. Finalmente, se proponen un conjunto de recomendaciones sobre la adopción de diversas políticas y estrategias.

Palabras Clave: Puerto; Trabajo; Evaluación de políticas

1. Introduction

The economic structure of port cities has deeply changed during the last century. At the beginning of the XX century, ports were major industrial locations able to attract main activities – such as steel factories – and to provide the needed accessibility for the inland regions (Musso et al., 2004). This scenario affected the demographic and economic growth of port cities thanks to the labour intensity characterising the first industrial ports. During this period ports were perceived as strategic players/elements for local wellness.

Starting from the introduction of the containerised cargoes (i.e. during the ‘60s) and the increasing worries on the environmental effects of the industrial activities, ports experienced two major trends: industries moved their production sites outside the cities, and ports turned to be capital intensive activities (e.g. Ducruet et al., 2012; Meersman et al., 2009; Musso et al., 2004). This structural modification mainly affected the perceived benefits of hosting a port within the city boundaries: on the one hand, main direct port-related employment decreased while indirect employment moved away from the port location – mainly in order to “follow” the industrial activities – while on the other hand, great infrastructural investments became strategic, greatly impacting the city landscape and increasing the perceived negative externalities (e.g. congestion). Moreover, some market tendencies, such as the economies of scale, pushed ports to increase their investments in new infrastructures and facilities while the increasing competition and market overcapacity (at both terminal and shipping side) negatively affected the demand of new labour force in the attempt to increase the productivity level.

The abovementioned scenario had some extreme consequences in several European countries, as described in Dempester (2009) for the UK or in Musso et al. (2004) for the Italian case, where the changing labour organisation caused several strikes. An example of this trend can be found in the historical statistics of several Port Authorities (PAs) such as the PA of Genoa (Italy) in which the direct employment has decreased of more than an half since the mid ‘80s. Together with the changing economic scenario, also the economic role of ports has changed. As briefly mentioned, before the containerised revolution and the globalisation, ports were the main industrial collectors. With the globalisation – and the associated de-localisation trend – ports also lost importance as industrial points in favour of other locations. As underlined by Tongzon (2009) and Ducruet et al., (2012) ports became strategic nodes within the international transport networks and key facilities within the supply chains. Main port competition is then studied in terms of service efficiency and in the ability of enlarging the port catching area.

Thus, in the modern economy ports act as major transit points embedded in the global network and their functions moved from being a strategic industrial location point into a “simple” functional transit point. The new role pushes several activities far away from the port cities while an increasing stress on the port efficiency and productivity is perceived as fundamental in order to compete in the global market (Meersman et al., 2009). In the last years, horizontal integrations have been underlined by several scholars (Caschili et al., 2014) mainly aiming at improving the interconnections among ports belonging to the same international network. Therefore, ports turned from being local strategic assets into global gateway for inland regions.

This new role strongly impacted the local costs and benefits balance of port regions as well as on the regional cost and benefit balance of the non-port regions. Academics widely studied the positive and negative effects of hosting a port (e.g. Radelet and Sachs, 1998; Wilsmeier et al., 2006) and then the potential advantages for the local economies (e.g. Gripaios and Gripaios, 1995) but only recently academic analyses compared the advantages for port and non-port regions together with the relative costs (Wilsmeier et al., 2006; Bottasso et al., 2014). Moreover, only in the recent years, policy makers started discussing the possibility to introduce policy tools aiming at compensating regions that host a transport infrastructure that share its benefits with other regions not currently paying the related external costs (Delft, 2008).

Among these works, at the best of the authors' knowledge, only few of them underline the evolution of the sea-related economic activities, comparing the effects of specific industries on port and non-port regions. Thus, the current contribution discusses the changing economic structure of the Italian provinces hosting one of the major national ports, analysing the evolution of the main sea-related industries and their potential transfer to close non-port regions. Together with some general findings, the final goal of the paper is to provide some policy indications in order to underline the potential competitive value – in terms of labour creation – of hosting a port. In order to achieve our goal on the current Italian situation, a statistical analysis has been developed using several statistics directly collected from PAs and the Italian Statistical Institute (ISTAT, 2014). The statistical analyses compare some local indicators (such as the location quotient indicator - LQ) from a panel of Italian provinces, comparing the 2001 and 2011 industrial census results.

The paper is organised as follows, after this brief introduction Section 2 provides a literature review aiming at discussing the port local impact and the current researches on this topic in Italy. Section 3 shows the methodology used for this analysis while Section 4 focuses on the main research outputs. Section 5 addresses main policy indications and provides some interesting conclusions.

2. Literature review

Recently, several articles have highlighted the socio-economic role of ports on the local economies. Many studies provide important proofs on the positive effects of ports on the regional competitiveness: such as Radelet and Sachs (1998) that underline how landlocked regions may suffer from a GDP gap in comparison with seaport served regions. Moreover, the strategic role of seaports in the economy is also testified by the increasing weight of maritime trade on the overall figure: in 2009 it accounts for almost 80% of the world trade value with a growing forecast, despite the 2008 economic and financial crisis (UNCTAD, 2009).

In the modern academic research field, the majority of the authors – that have studied the impact of the transport sector on the local economy – focused their attention in economic benefits given by a certain transport infrastructure, mainly defining the benefits as the increase in terms of competitiveness and accessibility to (/for) a certain region. Several authors in last few decades – see for example Aschauer (1989) and Condeco-Melhorado et al. (2011)– often studied the main contributions of a given transport investment to the

local community as an improvement in local connectivity. On this regard, an increasing stress in the importance of improving the regional interconnections was also given by the New Economic Geography framework (e.g. Krugman, 1991) that includes the effects of the “space” dimension in the traditional economic studies. Adding the “space” to the classical economic variables, transport infrastructures became essential to understand the economic dynamics and to improve the regional performance.

Focusing on the port related-studies, the growing importance of foreign trade in the economic development and the role of ports as gateway for both port and non-port regions make harbours strategic for the regional economies. Wilsmeier et al. (2006) underline the importance of an effective port system to reduce trade costs while Ferrari et al. (2010) and Bottasso et al. (2013) estimate the positive effects of the port activity on the local employment at Italian and EU level, respectively. According to the latter paper, an “increase of 1 million tons of port net throughput would determine an immediate increase of about 400–600 jobs” in the European port industry considering both direct and indirect employment. Some authors (e.g. Grobar, 2008) have also underlined how ports generate more benefits than other transport infrastructures. Despite these evidences, as underlined in Ferrari et al. (2010), some researches also showed some threats for the local industries due to the increasing competition of foreign companies in the local market.

Ports are then often studied as positive elements belonging to the public economic endowment of a certain region. As mentioned in the introduction, even if the positive benefits continued to spread within the region, the majority of these benefits move away from the port region and began spreading to a wider area from the 70’s spreading . The so-called de-maritimisation (Musso et al., 2000) is phenomenon that has reduced the perceived positive effects of hosting a port, moving the benefits to other places in the port hinterland. The same process didn’t happen for the negative externalities, provoking several contrasts between the regional (or national) government and the local port communities. For instance, Bottasso et al. (2014) estimated that the spillover effects in EU regions – in terms of impact on local GDP – of the port activities on non-port regions account for almost 5 times more than direct (positive) effects on the port regions. Similar results have been reached by Monios and Wilsmeier (2012) and Ducruet (2009). These trends have been generally linked to the containerisation and globalisation processes and also to the possibility to achieve agglomeration advantages concentrating some activities (e.g. advanced services) in specific places even outside the port areas (e.g. Ducruet et al., 2012).

It is then strategic to find out main industrial sectors that have currently achieved a key role for the port regions in order to bind them within the local context. At the best of the authors’ knowledge, there are only few studies aiming at providing general national – or international – analyses on the strategic industrial sectors for the port regions, while there are several case studies and local reports aiming at providing this framework. Danielis et al. (2013) elaborated an Input-Output matrix in order to estimate the industrial interconnections of the port of Trieste (Italy) and its economic impact, while the OECD promoted a series of case studies that discuss the effects on different local communities. Similar estimations – but using different methodologies – have been carried out in Italy by Censis (1998) and Musso et al. (2004), both aiming at studying the sea economy and its impact on the local communities. The former study focuses

on the sea-related markets and analyses their performance over the years underlining the importance of ports for the Italian economy; while the latter estimates the trend of the port direct and indirect employment, showing a negative trend in the jobs created by the port sector starting from the '90s. Musso and Ghiara (2008) underlined what are the current critical problems in showing port benefits to the local communities, highlighting the existing trade-offs between the national strategic role of ports and the low positive perception of hosting a port. The latter contribution focused its attention on the increasing importance of international logistics chains in the current trade patterns and the corresponding transfer of the logistic centres – and related employment – in the hinterland regions.

3. The analysis

In order to also show the strategic role of ports for the local communities, it becomes important to highlight the sea-related sectors and their weight on port and non-port regions' economies. The analysis will then use some statistics derived from the UnionCamere Report on the national sea economy (UnionCamere, 2014) that shows all main sectors characterising the Italian coastal provinces. The report has been written by the national association of the Chamber of Commerce and it focuses on the employment created by the main sea-related sectors. An important methodological issue is then defining the sea-related activities as all those linked to the presence of a coastal area. For this reason, they can be generated even without a port but the presence of a port should foster those sectors more than its lack. Moreover, several companies can be even located quite far from a coastal province, such as in the Lombardy region, and this issue is yet connected to the de-maritimisation effect, briefly described above. Despite these specifications, port provinces should attract sea-related industries more than other provinces, yet the development of complex industrial chains may move part of these activities outside the coastal provinces.

In the report, Unioncamere underlines the presence of seven main industrial chains, related to the sea economy:

- **Fishing**, and the connected manufacturing products and services (e.g. the so-called “cold logistics” services).
- **Marine extraction Industry**¹, and all the services related to the off-shore activities.
- **Shipyards**, considering also the instrument and furniture's providers, together with all the induced activities.
- **Freight and Passenger transport**, considered as the main activity of each port city.
- **Hospitality**¹, and then the services related to the touristic and passenger flows generated by the provinces and connected to the sea economic activities. Moreover are here considered also the services related to the ship provision.

¹ Due to the difficulty in counting the real number of employees durably working in a same region or really connected to the sea-related activities, the values related to these industries are estimations.

- **Research and Environment**, research and development activities linked to the marine studies and to the sea and coastal environment.
- **Sport and Recreational Activities**, services, production and induced employment due to outdoor activities related to the presence of the sea (e.g. festivals, parks and aquariums).

All of these industrial chains may not be directly related to the port industry but they are considered linked to it and then fostered by the presence of a port nearby. In fact, among the underlined industrial chains, some of them (Shipyards, Fishing and “Transport”) are directly linked to the port activities while others are indirectly connected to them, such as Hospitality (e.g. cruise flows and passenger flows foster this sector), “Extraction”, “Sport & Recreation” (e.g. for the nautical services) and “Research”. For these linkages between sea-related industries and port endowment: port provinces should have – at least in principle – a competitive advantage in comparison with other Italian regions.

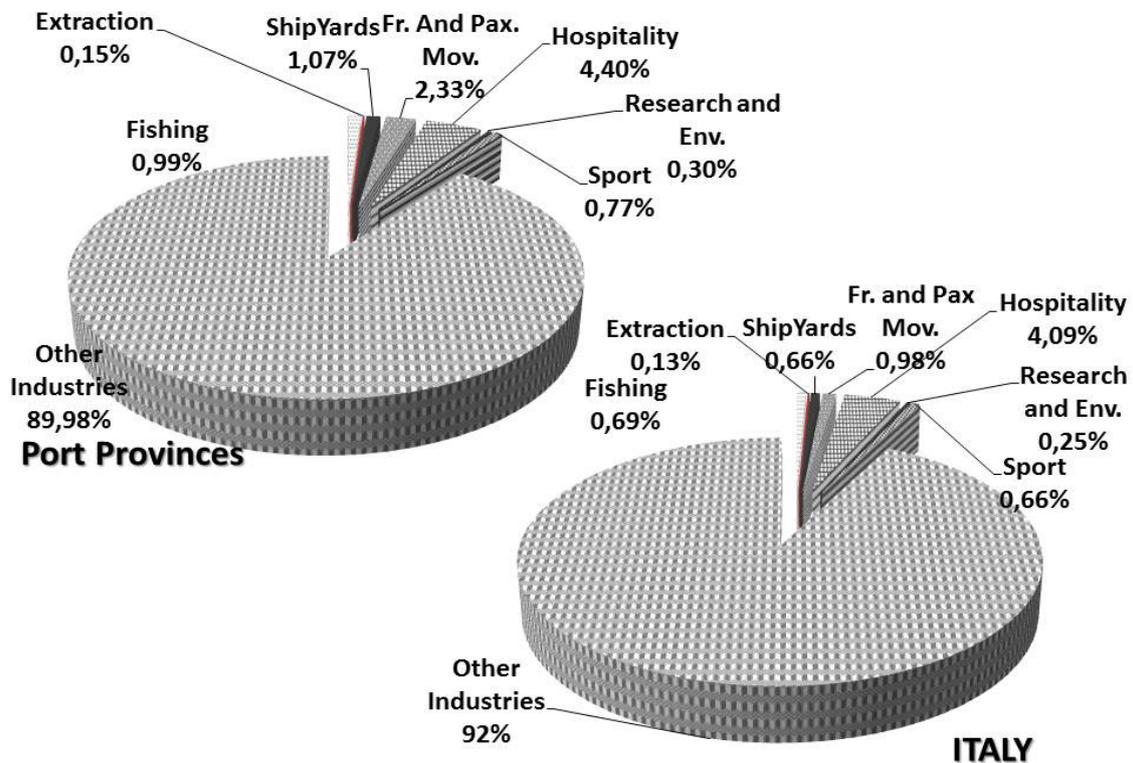
Using the data of the 2011 national industry census, different enterprises have been grouped into a certain industry using the Italian Statistics Institute (ISTAT, 2009) classification code for the economic activities – the so-called ATECO 2007 –. Moreover, for each of these industries only the part of production directly, or indirectly, linked to the sea economy has been assigned (in terms of number of employees) to a certain sea-related industrial chain. Not sea-related activities are not then included in the statistics shown in the report. The methodological part of the report highlights the impossibility to extract exact values for all of the industries due to some peculiarities of some specific activities (e.g. off-shore facilities are not easy to include in an official province). Thus, 69 different economic activities within the seven industrial chains define the perimeter of the so-called sea-economy: some of them are fully related to the sea and some of them are only partially linked to the maritime environment.

The data provided by the report are exclusively related to the year 2011; in order to analyse the development of the industrial chains, a similar scheme using the output of the previous industry census (i.e. 2001) and applying the same grouping rules has been elaborated. In order to better understand the results of our analysis, it is important to underline that some of the classification rules made by ISTAT have changed during the last decade and as a consequence not all the economic activities can be easily included into one of the seven industrial chains. As a matter of fact, several estimations have been made for the quantification of the sea-related quota of the partially connected firms. Moreover, in the analysis all the provinces hosting one of the main national ports except for Civitavecchia – that belongs to Rome province and then its values may be representative of the capital activities and not of the port – and the island provinces, due to their peculiar dependence from the port performance have been considered as port cities. The port provinces grouped in our sample are then 13² out of the more than 100 Italian provinces and 24 Port Authorities. Within the sample there are both touristic oriented provinces (e.g. Venice) and heavily industrialized locations (e.g. Taranto).

Given these methodological warnings, figure 1 shows the weight of the seven industries within the port provinces and national economies for the year 2011.

² The studied ports are Ancona, Bari, Brindisi, Genoa, La Spezia, Leghorn, Naples, Ravenna, Salerno, Savona, Taranto, Trieste and Venice.

Figure 1: Comparison among different industrial chains (% of employment, 2011).



Source: Own elaboration on Istat and UnionCamere data, 2014.

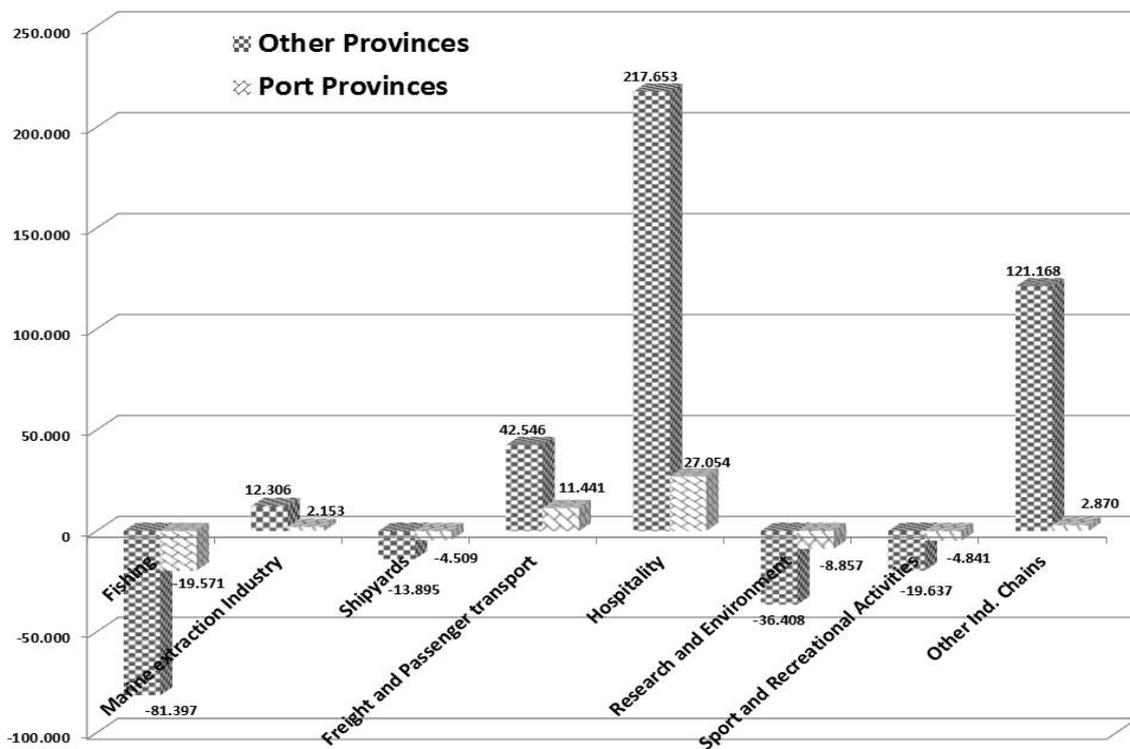
Figure 1 underlines a higher specialization of all the port cities in the sea-related markets, obviously Shipyards and Freight and passengers transport register the greatest difference in comparison to the Italian framework (+60% and +130%, respectively). All the industrial chains represent about 10% of the employment in the port provinces while that amount decreases at about 8% at national level. Hospitality accounts for most of the value (around 4.1% for Italy and 4.4% for port cities).

Apart from the weight of the industrial chains on the overall employment, the definition of strategic sectors is characterised by the growing rate of the industrial sector. Figure 2 and 3 compare the absolute values and the growing rate of employment in the main port provinces and the national figure per industrial chain. In general, sea-related industrial chains perform more than other industrial chains – as indicated in the UnionCamere report – the growing rate of the employment is about +11.2%, while the total growing rate is about 4.5%. Nevertheless, port cities register an underperformance for both values: the growing rate of the sea-related activities is +1.3%, almost ten times less than for the other Italian provinces, while the general growing rate of the employment is at 3.1%. This picture underlines a general critical situation of the main port provinces – in terms of employment – that appears even worse in the traditional strategic sectors, as defined by UnionCamere.

As shown in figure 2, absolute variations underline that in the sectors in which a positive trend has been registered port cities perform worse than the other national

provinces while in the industries in which a negative result has been registered (in terms of a reduction of employment), port provinces decrease less than other Italian regions. These opposite trends maybe linked both to a re-positioning of many Italian provinces' activities (e.g. specialisation in tourism and cruise related markets of many coastal areas) and to the strong expertise of many port cities in traditional activities (e.g. fishing and research) that assure better performance in case of a market crisis. Specific considerations should be given for shipyards: the decrease is greater in Italy than in port cities because the induced activities (e.g. ship furniture) are the ones mainly affected by the 2008 economic crisis effects and also the activities less protected by the current legislation.

Figure 2: Absolute variation of employees in the sea-related sectors during the decade 2001-2011.



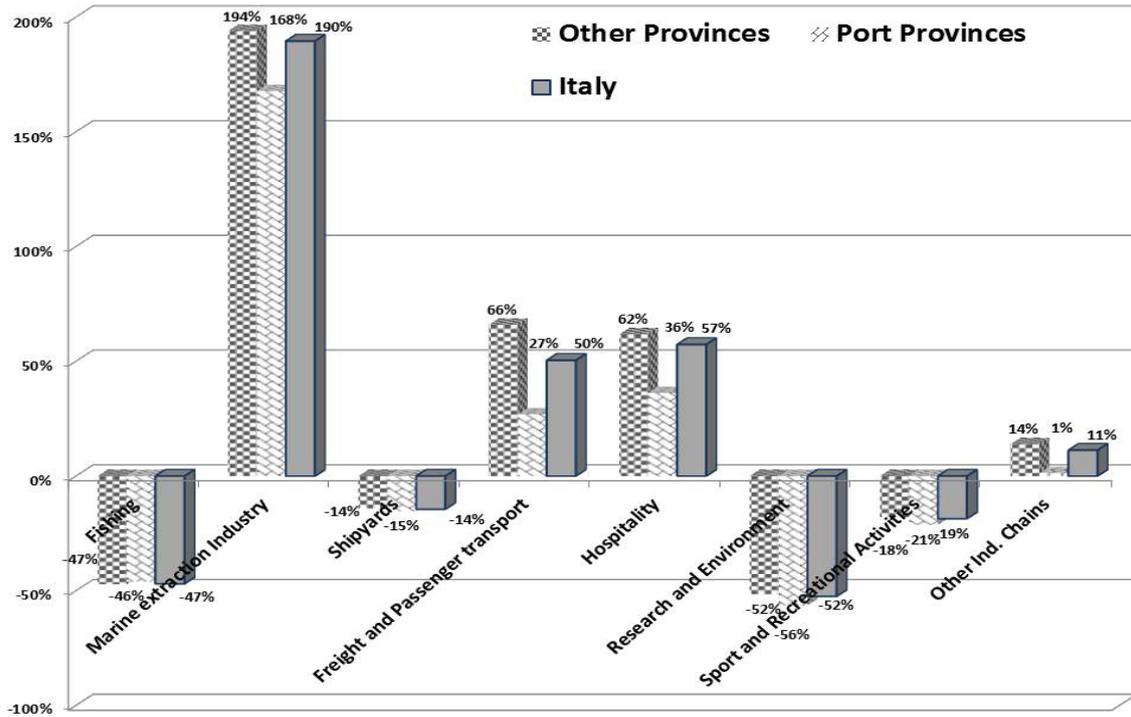
Source: Own elaboration on Istat and UnionCamere data, 2014.

In order to have a better picture of the patterns occurred in the last decade, previous considerations must be linked to the industry average size. Percentage values can then help to better understand the trends previously underlined.

Figure 3 shows a great performance of the extraction sector, mainly concentrated in Genoa, Venice and Taranto, of the pure Transport activity and of the Hospitality sector, grown in all the port cities. Observing the picture is easy to see that in relative terms, port cities always perform less than the other Italian provinces: the strategic position of the studied provinces appears then quite weak and the sea-related sectors seem to be characterised by an underperformance of the port cities (now also in comparison with the decreasing trends) in respect to the others. The only exception seems to be the fishing

industry in which negative values are almost even. This situation means that the previous figure was simply linked to the different industry sizes in the two regional groups and not due to a better performance of some industrial chains.

Figure 3: Percentage variation of employees in the sea-related sectors during the decade 2001-2011.



Source: Own elaboration on Istat and UnionCamere data, 2014.

4. Results

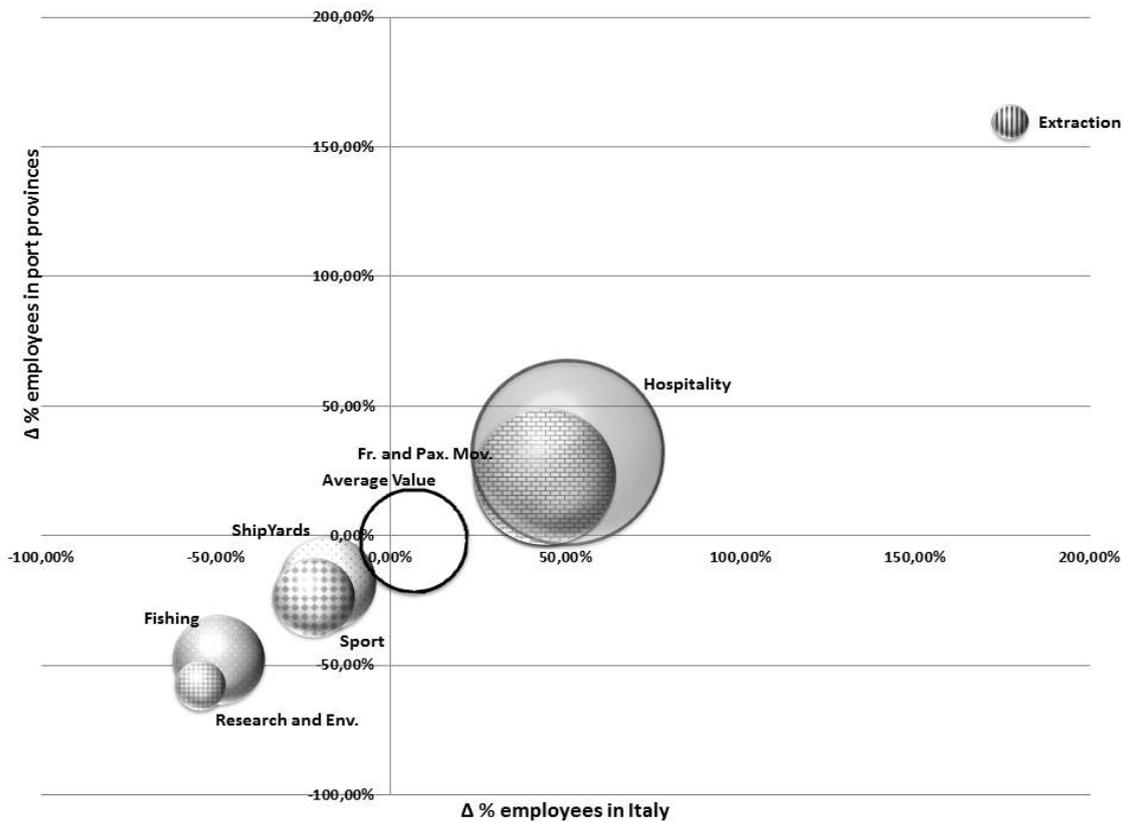
Given the above-described scenario, the analysis focuses in understanding the port province specialization and then the main trends in the sea-related sectors.

The comparison among the growing rates and the sizes of each of the sea-related industrial chains at national level and at port provinces' level can give an idea of the potential impact of a certain sector on the local economy. The specialization has been studied using the LQ indicators that represent the ratio between the employment quota in a region for a certain sector and the relative quote at national level, as introduced by Hildebrand and Mace (1950). The LQ identifies a specialization if the value is greater than 1 – because it means that the local quota of employment is greater than the national figure – while a growing difference between the LQs elaborated for two different periods means there is a tendency towards specialisation in that specific sector.

Figure 4 and 5 describe the first issue: the trend – in terms of employment – in the two geographical dimensions – port provinces and national level – in comparison with the sector size.

Figure 4 shows a hierarchy among the sectors and their dynamics over the last decade. The “Marine Extraction” sector registers the best performance even if the size of the sector reduces its impact on the general economy. On the other hand, both the “Transport” and the “Hospitality” industries register good performances at both national and port level and within greater seized sectors. Despite these values, the majority of the sectors register a negative growth and only the great importance – in terms of employment – of “Transport” and “Hospitality” influence the average values, as shown in figure 4.

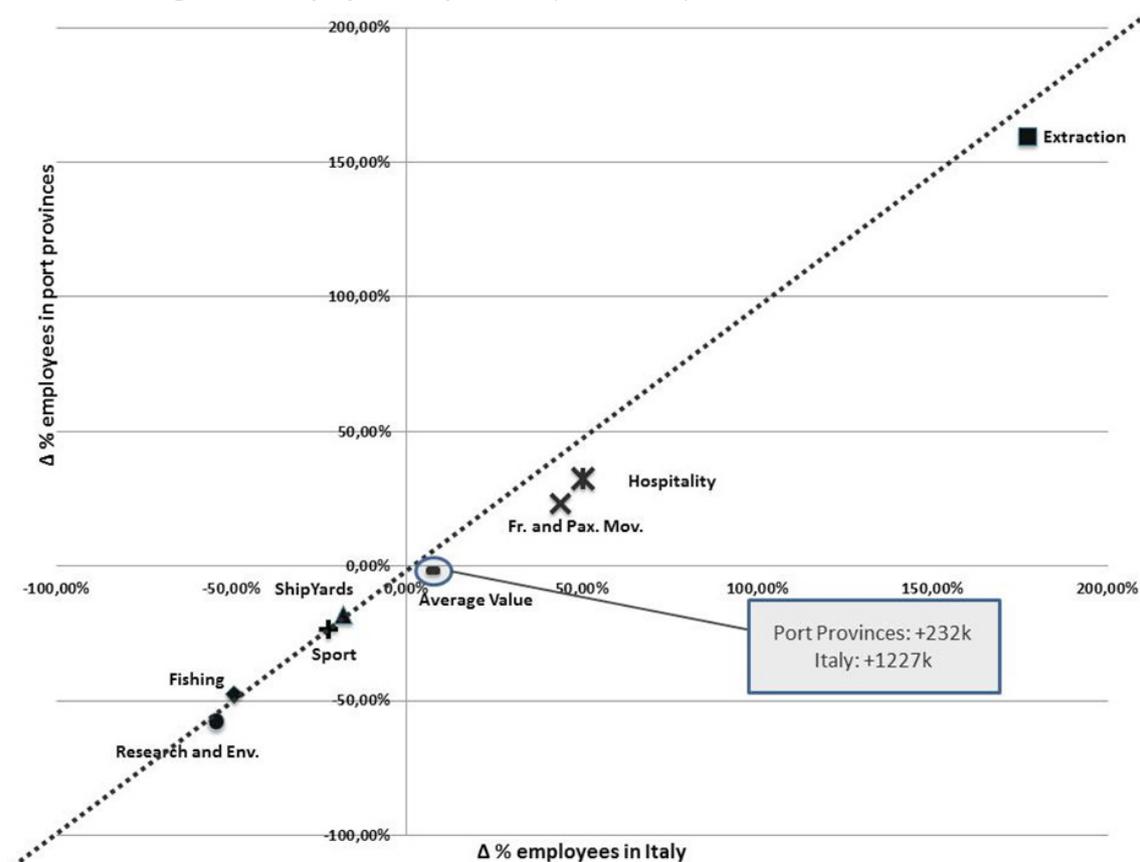
Figure 4: Employment dynamics (2001-2011) in the sea-related sectors .



Source: Own elaboration on Istat and UnionCamere data, 2014.

Apart from the general performance of a sector or its weight in terms of overall employment, it is interesting to attempt to better understand if port provinces perform better than Italy in industries in which they should have a competitive advantage. In order to estimate the difference in the performance, Figure 5 shows a bisector that has been drawn to study the port provinces’ underperforming – or over performing - industrial chains in comparison with the national values. Figure 5 shows that the values for all the industrial chains – in which port provinces should have an advantage in comparison with other national areas are below the bisector line and then the port province performance is worse than the other areas. These values mean that when the sector is growing, the port provinces are not currently competitive enough to register at least the same amount of growth than the other regions, while they are more affected than the others when an economic turndown occurs. Moreover, the presence of all the sectors in the first or in the third quadrant highlights a great correlation among the performance at national and local level, even if at two different rates.

Figure 5: Employment dynamics (2001-2011) in the sea-related sectors.

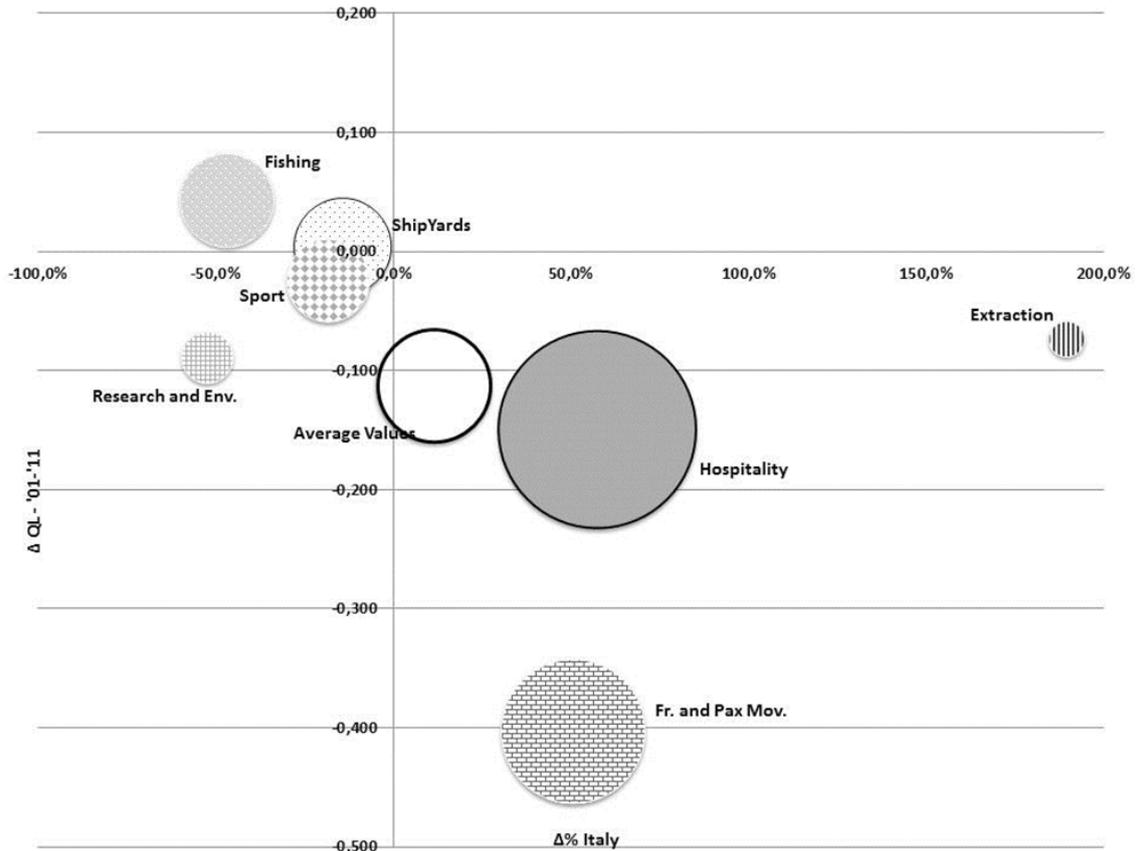


Source: Own elaboration on Istat and UnionCamere data, 2014.

Figure 6 compares the trends in the LQ indicators comparing the results with the trends in the national employment for each specific sector: the relation should help to understand if the growing specialization of the port provinces may have positively or negatively affected the performance in the specific sector. For instance, the presence of a sector in the first quadrant would link a growing specialization with a growing employment rate while the third quadrant represents the opposite situation. The second and the fourth quadrant represent the most intriguing outputs: a growing specialisation in sectors that are not growing in terms of national employment (II) and de-specialisation trends in sector that are growing at national level. As shown in figure 6, the majority of sea-related industrial chains are included in the latter cases while no sector is included in the first quadrant. These results mean that port provinces are not specialising themselves in sea-related industries characterised by a general positive trend – in terms of employment – while often strategic sectors register a reduced importance (such as for the “Hospitality” industry) despite their weight in the overall port provinces’ employment statistics. An interesting fact is that the only two sectors registering a specialisation trend – but a negative performance in terms of employment – are two out of three industries directly connected to port activities – Fishing and Shipyards – and this specialisation occurred even if they registered a reduction in the employment during the analysed period (Figure 3). On the other hand, the fastest growing sectors – such as, “Extraction”, “Transport” and “Hospitality” – are those registering the fastest de-specialisation trends. On this

regard, while for the former two sectors an explanation is hard to find, the relatively negative “hospitality” performance can be linked to the growth of other coastal regions that are not currently hosting a major port but that are widely investing in promotion of their coastal heritage (e.g. islands, south of Italy).

Figure 6: Variation in LQ.



Source: Own elaboration on Istat and UnionCamere data, 2014.

5. Conclusion

The analysis focused on the critical situation that port provinces are registering in terms of attracting investments and creating new employment for the local communities. In fact, recent researches and literature highlight a trend showing the displacement of sea-related activities– in particular the port activities – outside the port provinces, reducing the positive effects of hosting a port and increasing the negative impact. Thus the current study focuses on trend and specialisation patterns registered by the sea-related industrial chains as defined by the National Chamber of Commerce (UnionCamere) report to evaluate how port provinces have performed in the last decade in the sea economy’s sectors. The study compared the 2001 and 2011 figures in all the 7 main sea-related industrial sectors at both port provinces and national level, to understand main pattern in terms of employment and specialization.

Sea-related industrial chains seem to be a strategic regional asset for the local communities, registering a growing rate – in terms of employment – greater than other economic sectors. Despite this importance, port cities seem unable to take advantage of their potential benefits, growing less than other regions and registering a de-specialisation trend in the growing sea-economic sectors. The results of this research underline the need of proper policies at national and local level in order to maintain the natural competitive advantage that port provinces should have in many of these sectors. In fact, while some of the studied industrial chains are only partially linked to the port activities, some of them are directly bound to the ports themselves. Thus, our results may also be considered as a negative indicator for many port-related activities (such as the ship-yards).

The research output suggests a need for incentive that may bind sea-related industries to the sea-side provinces. As underlined in Bologna (2010) often ports have experienced a de-maritimisation and a “de-materialisation” of the traditional port activities with the heavy substitution of labour with capital that strongly affected the location advantage of many ports. Capital intensity activities in port regions left high costs to the local communities and only few direct benefits, such as for the employment. Two possible solutions can be then followed by the local communities: firstly, dedicated incentives aiming at binding sea-related activities to the port provinces – for example for the induced activities and added value services of the traditional port operations – and secondly, a diversification strategy aiming at attracting new sectors of the sea-related industrial chains. Interesting examples of this latter solution may be the attraction generated by *edutainment* activities – such as the aquarium in Genoa or the Ciudad de las Ciencias in Valencia – that may have direct and strong impacts on more than one single industrial chains (for instance on both the hospitality and research sectors).

Main lacks of the current research are linked to the impossibility to split the direct employment statistics on ports and on coastal areas and to the statistical absence of data related to the different kind of jobs and qualifications (e.g. income, specialisation) generated by the different industrial chains. Further researches will focus on filling these lacks to underline the priorities for port provinces in terms of concentrating on the most strategic sectors.

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