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The economic features, internal structure and strategy of the emerging Portuguese maritime cluster

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ABSTRACT

The article analyses the emerging Portuguese maritime cluster and the best strategy and policy-mix for its successful development. Despite its large maritime resources, the country has turned its back to the sea during the last 40 years and only recently has started to return to it. But the gigantic shift in the marine activities and policies during this period call for researchers to provide information regarding the new role of the maritime economy.

The paper assesses the Portuguese maritime cluster through three different methodologies: the input-output (I-O) analysis; an inquiry to the seventy firms who integrate the "Forum for Entrepreneurship in Maritime Economy"; and a two-round Delphi panel near fifteen experts. Quantitative and qualitative methodologies were as such put together in order to confirm one another and to get a concise snapshot of the present situation in order to confirm the best political approach to follow.

The basic results are: (i) intermediate linkages between maritime sectors are weak, especially when compared with other EU maritime clusters, while intra sectoral relations (inside each sector) are more important; (ii) the sectors with higher Keynesian multipliers' values (both type 1 and 2) are "maritime transports", "ports" and "recreational boating and marinas"; (iii) these same sectors present the best results in what other indicators are concerned (Hirschman-Rasmussen indexes; fields of influence; scattering indexes); (iv) the weight of maritime activities in GDP and total employment is important and above EU average; (v) the inquiries and the Delphi panel results show that it's not clear to stakeholders which is the best political strategy to follow; (vi) the authors propose that priority should be given to the three sectors referred above, mainly "ports" and "recreational boating and marinas", where large firms with sound financial situation and good business perspectives can be found.

1. Introduction

With a coast line of 1187 km in its mainland and two Atlantic archipelagos, Portugal has the 11th biggest surface of jurisdictional waters (including Territorial Sea, Exclusive Economic Zone and internal waters), which corresponds to 19 times its territory – 91,763 sq. km. Portugal is the EU member state with the largest area of jurisdictional waters located in the European Continent (and ahead of nations such as India or China), which includes the sub-areas 1 (Portugal Mainland), 2 (Madeira Islands) and 3 (Azores Islands).

It adds that when the current UN Commission on the Limits of the *Continental Shelf* (CLCS) comes to a closure, Portugal will have a huge enlargement of the maritime spaces under its jurisdiction, that will roughly double its present Exclusive Economic Zone. As such, the future maritime area under national jurisdiction will: (i) be bigger than India's land surface; (ii) cover 40 times more territory than Portugal's land space; and (iii) represent more than 80% of the EU 28 member states terrestrial area.

Cooperation with the Atlantic Portuguese-speaking countries (Angola, Brazil, Cap Vert, Guinea-Bissau and São Tomé and Principe) – also significant beneficiaries of the Continental shelf enlargement, according to theirs national authorities declarations – is also under way. This leads to an increase of the potential economic gains for the Portuguese maritime activities.

All these are major reasons that justify a thorough research on

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the features of the Portuguese maritime sectors and its internal structure in order to define a global strategical planning.

2. The cluster concept

2.1. The cluster concept in the maritime sectors

The EU Integrated Maritime Policy Action Plan' chapter 4.1.endorses the creation and development of maritime multi-sectorial clusters and excellence centres: "*the development of an integrated maritime policy that creates the framework of correct conditions for integrated maritime clusters may help clusters to become value creation prosperity engines*".

In fact, all European maritime cluster organisations capture more than one maritime sector. Maritime cluster organisations represent almost every traditional maritime sector – although in practice this does not (yet) always seems the case – except for the sectors that only answer a broader definition of maritime sectors, such as Navy and coastguard, inland navigation or maritime works. The fisheries, costal tourism and recreation are sometimes represented by national cluster organisations, although less frequently than the traditional maritime sectors.

The concept of maritime cluster has been incorporated by stakeholders at all levels and the European Commission stresses the importance and interconnection of sea-related activities. So, it is important to evaluate, develop and exploit the potential of maritime clusters as enablers of competitiveness and resilience, often with the support of public authorities.

Michael Porter, the author of the "cluster" concept, defined it as a "geographically proximate group of interconnected companies and associated institutions in a particular field, including product producers, service providers, suppliers, universities, and trade associations, from where linkages or externalities among industries result" (Porter, 1998, p.197). Porter also describes how industries can create competitive advantage by complementing (vertical linkages) and co-operating (horizontal linkages) with each other within a common value chain.

International organisations (World Bank, OECD), national governments, regional development agencies – among many other institutions – have used Porter's cluster model as a tool to foster competitiveness, innovation and growth.

As such, one is talking of an interactive and synergistic aggregation of interdependent economic sectors, as Pyke et al. (1990) or Saxenian (1995) have stressed regarding the strong competitiveness gains resulting from companies' networks, referring the examples of the Third Italy or Silicon Valley.

Collaboration between firms, universities and other institutions increase innovative industrial performance and strengthen productivity (Baba et al., 2009; Tomlinson, 2010). Cooperation seems more important for small firms, as they overcome limitations by different use of external knowledge and benefit more from alliances than large organisations (Stuart, 2000; Barge-Gil, 2010).

R&D in particular is a crucial factor in the clusters' performance, productivity and growth. Calantone et al. (2002) and Feeny and Rogers (2003) demonstrate that innovation is positively related to productivity, performance and market position. However, Kasabov (2008) shows that sometimes there is no direct and causal connection.

Martin and Sunley (2003) call the attention to the usual contradictions between national and regional authorities due to the different geographic scales main concerns in both cases.

Enright (2003) categorised clusters by policy driven and industry level, while Atherton and Johnston (2008) distinguish between potential, emerging and established clusters, where ideas and political institutions (changing actors, relations of power) are at the forefront of a cluster evolution. In contrast, Malmberg and Power (2006) argue for a less categorical understanding of clusters, acknowledging the gap between theoretical concepts and practice.

Michael Porter's model can be applied to the maritime sector, as Benito et al. (2003) shows, with the Norwegian maritime cluster presenting the majority of characteristics that one can find in large industrial groups, including strong inter sectorial linkages, economic diversity and competitive rivalry.

Because the relevance of the geographical element can present some difficulties, Wijnolst et al. (2003) argue that Europe should organise itself has a "*vast continental maritime cluster*". They present a maritime sector benchmarking – the "*Global Maritime Benchmarking*" – and to allow evaluating the maritime clusters evolution and strength they adopted nine indicators: structural indicators; economic indicators; internationalisation; critical mass and leader firms; level playing-field; innovation; institutional framework and business networks; labour market and education; and image and communication. The same authors also suggest public strategies that would support clusters development – or "*cluster enablers*" – that include, among others, the definition of an industrial policy, strengthening of demand pull sectors or the promotion of innovation, R&D and leader firms.

Wijnolst (2006) adds that although the EU has many dynamic clusters, they tend to be smaller and less integrated than in the US. As such, research and innovation suffer from fragmentation in the same way as the internal market. Clusters can especially help SME's and research institutes. In order to ensure cooperation with EU partners it is important for regional clusters to establish contacts with other regional clusters. Networking with and across complementary clusters is an important factor for their successful development.

Shinohara (2010) based on the Japanese maritime cluster experience defines as the essential key requirements for success in a maritime cluster: (1) strong government support – for incubating each industry at the initial stage of cluster formation; (2) business networking, especially long-term relations between firms and financial institutions; and (3) human resources management following a long-term co-working spirit.

In the same line, Doloreux and Sheamur (2009) – that studied three maritime regional clusters in Canada (St. John's, Newfoundland; Victoria, Vancouver; and St. Lawrence) – concluded that there was little sign of spontaneous innovation or networking before cluster' policies were implemented.

Fløysand et al. (2012) based on two clusters within the Norwegian Centre of Expertise (the Møre maritime cluster and the Hordaland subsea cluster) focus on the type of development paths followed and conclude that there are two contradictory types of clusters: material or discursive constructions, whether they are triggered by ideas or by policy and industry practice. The Møre maritime cluster is characterized by bottom-up clustering processes and illustrates how the material practices of firms can trigger clustering processes such as the establishment of a cluster and the identification of a prototype of best cluster practice. On the other hand, the Hordaland subsea cluster expresses a top-down process and how the ideal world of academics and policy-making can encourage processes of clustering among co-located firms. Based on these observations of material and discursive interweaved clustering processes and how they affect both those who are practicing and those who are promoting them, the authors argue for a stronger awareness of such feedback loops in cluster studies.

2.2. Typology of maritime clusters

There is a clear dependency between the commitment to