ABSTRACT
This article analyses the Maritime Sector economic growth impact to Lithuania’s economy from a Cluster perspective. The potential competitive Maritime industry Cluster in Lithuania is of interest because Lithuanian Maritime Sector is expanding its connections to the whole European region, going beyond the boundaries of any industry sector, supported by EU Strategic documents, but the steps towards clustering are tentative and negligible. Assessing the Maritime sector impact on Lithuania’s economy, the total economic impact (direct and indirect) was calculated by using the following indicators: number of Employees, Turnover and Value Added at Production Cost (VAPC). The period for the evaluation of the statistical given trends has been chosen for 5 years, according to Official 2007 – 2011 period statistical given, provided by Department of Statistics. KEYWORDS: Competitiveness, Maritime Sector, Clustering, Lithuania.

JEL CODES: O18, O32, P25, R11
DOI: http://dx.doi.org/10.15181/rfds.v13i2.830

Introduction
The gradual integration of European countries within a single market also affects the maritime sectors. It creates opportunities within Europe itself, for example, for short sea shipping, but it also creates export opportunities and opportunities for joint research and innovation.

The notion of maritime sectors has increasingly been integrated into European economic and political thinking, and today it functions as a cornerstone in innovation and industrial planning policies (Vivero, 2007). Much has been done by maritime organizations to evaluate, further develop and exploit the potential of maritime sectors as enablers of competitiveness, often with the support of public authorities.

Many of researchers (Doloreux et al, 2009; Vanaale, 2012; Wihlborg, 2006; Wijnolst et al., 2008) have consistently emphasized the economic significance of maritime clusters, concluding, that the direct and indirect economic impacts in terms of employment and contribution to GDP make maritime sectors of vital importance to a society (Hansen & Clasen, 2010). The economic impact can be evaluated as factors, affecting both positive and negative influence on the level of the country’s economic activity. Assessment of a particular sector in the overall national economy is measured by the expenditure arising from the sector of economic activity and assesses the cumulative impact of these costs.

Although many of the research concerning Maritime sectors and clusters were conducted by the European Council organizations and consultant agencies, especially including Scandinavian ones, Lithuanian Maritime sector clustering economic impact on the parameters which are presented here, statistically were...
not followed by the different time periods. The permanent analysis of the Lithuanian Maritime clustering economic evaluation is important for the country’s Maritime enterprises strategic linkages forwards to the agglomerated and geographically concentrated alliances, called as clusters. Clustering process now is supported by main Maritime policy strategies, which are more linked to be adopted in Lithuanian industries strategic decisions and especially needed to be analysed in Maritime sector. Lithuania is presented as a seanation, but still Maritime sector is not defined as formal one and has many of the boundaries to be officially presented in many of the statistical reports.

The main research purpose of this paper is to evaluate Lithuanian Maritime sector clustering economic impact to the competitive economic grow abilities in Lithuania.

The research object – Lithuanian Maritime Sector clustering impact to the whole Lithuanian Economy.

In order to serve the above purpose, the definition of Clustering theory and its implementation within the competitive Maritime sector will be introduced at the beginning of this paper. Literature in relation to the Lithuania perspectives of Maritime clustering will be reviewed and discussed. The second part of this paper will discuss the Lithuanian approach in relation to the economic impact of Maritime sector clustering.

Research methodology: science literature analysis, synthesis, statistical givens research, qualitative, non-experimental research.

In this paper we will use the definition of clusters given by M. Porter: “Clusters are geographic concentrations of interconnected companies and institutions in a particular field. Clusters encompass an array of linked industries and other entities important to competition. They include, for example, suppliers of specialized inputs such as components, machinery and services, and providers of specialized infrastructure. Clusters also often extend downstream to channels and customers and laterally to manufacturers of complementary products and to companies in industries related by skills, technology, or common inputs. Finally, many clusters include governmental and other institutions – such as universities, standards-setting agencies, think tanks, vocational training providers, and trade associations – that provide specialized training, education, information, research, and technical support” (Porter, 1999: 14).

The underlying tenet of this theory is that national competitiveness has been determined by the strength of key concentrations of specific industries within a nation.

1. Clustering theory and Maritime Sector industry

The message comes out, consistently, in a large number of studies about the competitiveness of various nations (e.g. Porter, 1990, 1998; Solvell et al., 1991), industries (e.g. Clancy et al., 2001), and locations (e.g. Isaksen, 1997; Saxenian, 1994). Competitive advantages are created in the interplay between company rivalry, factor conditions, demanding customers, and the quality of related and supporting sectors (Porter, 1990). Industrial sectors are described by favorable conditions in these definitions constitute a self-reinforcing system, which may be called as Clustering and which may lead to the development of, or alternatively attract and retain, effective organizations with strong competitive abilities.

The economic benefits may in turn and stimulate the development of cluster theory. There are three reasons for developing clusters. Firstly, firms or institutions can operate with a higher level of efficiency. This means that firms or institutions in clusters react quicker than they could in isolation. Secondly, firms or institutions in clusters working closely with customers and other firms create more new ideas and provide intense pressure to innovate. Since the cluster environment lowest he cost of experimenting, firms or institutions can, therefore, achieve higher levels of innovation. Thirdly, the level of business formation tends to be higher in clusters and relies more on external suppliers and partners. The above circumstances will reduce the risk of failure, as entrepreneurs can rely on local employment opportunities in other firms in the same field (Porter, 1999).

Based on the above, “maritime clusters” can be defined as a network of firm, research, development and innovation units and training organizations, sometimes supported by national or local authorities, which
cooperate with the aim of technology innovation and of increasing maritime industry’s performance. It is noteworthy that although originally ports were built to simply load and unload ships, they have now grown to provide access to inland areas, as well as crucial industries for transport and distribution and other service hubs. The European Commission, national governments, as well as institutions and organizations have examined competitive maritime clusters as a basis for guiding economic and sector policies to facilitate the growth and prosperity of maritime activities in regional concentrations. The development of maritime cluster needs to be based on existing manufacturing industries. For example, the unique position of ports within coastal areas and their role with in the logistics chain of shipping and transport service have attracted special attention (Notteboom and Rodrigue, 2005). Clusters already provide a framework for local economic development and local export growth. They strengthen the ability of firms to compete and to attract new business (Martinez, 1997). It is a useful way to extend the region’s strengths around core firms. In addition, clustering brings flexibility to the organizations involved, creating an environment enabling faster responses to the demands of the market. The success of business networks can be linked to dynamic technological and organizational innovation, together with the network characteristics of the local actors and their “milieu” (Bergman et al., 1993). In turn, port cities have changed dramatically depends on where and at what time.

The definitions of the sectors considered as part of the maritime clusters differ from study to study. While some of the differences relate mostly to labeling, a few relate to more fundamental choices, i.e. whether to include fishing or Navy in the core of the cluster. Other potential issues in delineating the cluster are that only maritime-related activities should be included. For instance, companies under Marine Equipment may well produce parts used in other types of industrial machinery. Re-searchers use significant resources to control for non-maritime activities in cluster firms in their data assembly processes. The table below serves to exemplify the sector contents of the clusters and the sub-categories used in the research considered.

According to valuation principles discussed above the Lithuanian Maritime Sector interaction scheme can be shown in the Figure 1. The following figure specifies all the most important organizations and areas of activity/ subsectors, included in the Lithuanian Maritime Sector.

Figure 1. Lithuanian Maritime Sector’s institutions interaction scheme
Source: Feasibility study for Lithuanian Maritime sector development, 2011
As it is shown in Figure 1, Lithuanian Maritime Sector consists of enterprises from those Economic sub sectors: Shipbuilding and repair, Recreation and tourism, Energy, Fishing, aquaculture and recycling, Shipping and ports. Those sub sectors, forming Maritime Sector core activities, entirely are interrelated with Science institutions (Universities, Institutes and Research centers), Study institutions (Universities, colleges, professional learning agencies, learning and training centers), Government institutions (Ministries: Education and Science, Environment and Economy; Municipalities of Klaipėda City and Klaipėda District) and other collaborating institutions (MITA – Science, Innovations and Technology Agency; LVPA – Lithuanian Business Support Agency; INVEGA – Investments and business guarantees, Ltd.; public enterprise “Exporting Lithuania”; Association “Baltic Valley”; KMTP – Klaipėda Science and Technology Park, Lithuanian innovation Center; Invest in Lithuania Agency).

Maritime activities are inherently international, and a vital link to the outside for any regional, national, or international economy. However, this internationality has often led observers to doubt the ability of maritime industries to contribute in economic terms locally. Two findings should allay these concerns: firstly, studies have found that the vast majority of generated value in maritime clusters does not leave the region considered – for instance, the European Commission study of 2008 found that only 17 % of value left the EU, and more than 90 % of the remaining value was spent domestically in the same country, it was generated in (The Economic Significance of Maritime Clusters, 2010). Secondly, the widespread use of the cluster concept in maritime industries came with the realization that the largest economic contribution does not arise from the maritime activities at sea, but rather from the derived activities on land. Thus, a significant implication of the cluster studies is that a maritime cluster contains highly inter-national activities, whose greatest economic contribution occurs at a regional level.

That is why this potential Maritime industry cluster in Lithuania is of interest because Maritime sector is expanding its connections to the whole region, going beyond the boundaries of anyone industry sector.

2. Economic significance of clustering

Any economic activity should measure its fundamental parameters (Cluster Maritimo Espanol, 2006; Benito et al., 2003):

- How much employment does it generate?
- How much does it produce?
- How much added value is obtained from its activity?

But as this is a sector that covers a very wide range of activities, the National Statistics department in Lithuania does not provide statistical information about it in systematic approach. Although it is possible to work with the statistical information provided officially – match those enterprises statistics, which belong to Maritime subsectors, such as: Shipping and Ports, Shipbuilding and Repair, Fishing and Aquaculture, Energy, Marine Recreation and Tourism. Therefore, one of the most important tasks being carried out by this sector involves studying – by conducting surveys and preparing statistics based on the statistical public information and other sources – these important values for the Maritime Sector clustering economic impact evaluation.

It can be assumed that the clustering process ensures a more sustainable sector development, the new quality of the activities, combining the ability to compete on lower prices or innovation. Sectorial clustering process should consider the following factors: competitive opportunities for sustainable development of the region and others (Grubliene, 2009).

In evaluating economic impacts of sectors or clusters, one commonly distinguishes between direct and indirect impacts of activities. Direct impacts occur from the employment and activity, i.e. investments and other spending, in the cluster companies themselves. In general terms, the indirect impacts consist of the derived employment and activity in surrounding industries, arising from the cluster enterprises’ purchasing of goods and services in the Supply Chain, as well as the induced spending and consumption of those employed
in the cluster and the Supply Chain. Figure 1 shows Policy Research Corporation’s definition in their Study (conducted on 2008) of direct and indirect economic impacts, while also demonstrating the breakdown of the key variables, production value and direct / indirect added value.

Obviously, the Lithuanian Maritime Sector does not appear in the official tables because it is not a statistically derived sector, but one of our challengeable aims is to include this sector in Lithuania’s statistics report tables or at the Economics Input-Output reports / studies.

This is crucial for discovering the sector’s most important figures:

a) Significance in the VAPC (Value Added in Production Cost);

b) Its multipliers.

The values obtained (known as multipliers) indicate that one Litas spent in the maritime sector is distributed throughout the economy through the customer and supplier sectors and multiplies; giving rise to a result that exceeds the Litas originally spent.

c) Its importance in other sectors and the importance of other sectors in the maritime sector

Methodologies are unable to determine the extent of the maritime sector’s links with other sectors and valuate these relations in Litas, as well as classify the sector according to whether it is very important because it drags the other sectors or less important because it has less dragging power. This drag effect is also analysed through the relations between the maritime sector and its suppliers and customers (Baird, 2003).

d) Its effects:

• Direct: value added and employment contributed directly to the economy.

• Indirect: output of other sectors that meets the maritime sector’s demand for goods and services, and the output generated considerably to its supply of goods and services.

As mentioned previously, one of the major limitations to sector analysis is the non-existence of a Maritime sector as a statistical entity. Without a uniformly defined sector, it requires considerable judgment on the part of the researcher to draw the sector’s boundaries (Hansen & Clasen, 2010), which in turn influences the outcome from the input / output analysis of the national statistics.

3. Lithuanian Maritime Sector clustering effects

The Maritime sector comprises a set of companies whose activity is directly related to the sea. All companies whose activity is fishing constitute a part of the Maritime sector, and the same goes for companies that build or repair ships or form part of the associated auxiliary industry (Meersman & Voorde, 1997). However, there are also companies in the services sector that are included in this sector due to their close links with the Maritime area.

Thus, companies that provide Maritime transport services and port services also form part of the Maritime sector, as of course do the companies that distribute Maritime products (Voorde, 2005). Finally, other service companies which provide education, financial services and support services for maritime companies also belong to this sector (Cluster Maritimo Espanol, 2006).

Department of Statistics in Lithuania distribute the data according to the classification of economic activities, so this article presents an analysis of sub-sectors as the economic activities of the group consisting of 4-digit level classes (according to EVRK, 2 edition), which may belong to Maritime Sector generally.

Assessing the marine sector of Lithuania on Lithuania’s economy, the total economic impact (direct and indirect) was calculated using the following indicators: number of Employees, Turnover and Value Added at Production Cost (VAPC). The period for the evaluation of the statistical gives trends is chosen – 5 years, according to the last 2007–2011 period statistical gives, provided officially as the most new ones. Official data of the 2012 is still under the preparation and will be available in 2014 midsummer.

Total for the Maritime Sector jobs created in 2011 was nearly 49 thousand, which accounted for 5.7 percent all jobs created in Lithuania. This sector have directly created almost 30 thousand jobs, buying raw materials, products and services due to an additional 11 thousand job creation / maintenance supplier companies. It has also been created (preserved), over 8 thousand jobs in other sectors of the direct and indirect sector employees and revenues resulting from the administration. Maritime Sector employees proportion trend is shown in Figure 2.
Maritime Sector enterprises in 2011 generated about 13.4 billion LTL turnover, which accounted for 6.1 percent of all Lithuanian economy turnover. Though the recent years, the Maritime sector’s enterprises turnover proportion was permanently increased in the context of the whole Lithuanian economic turnover. The Turnover proportion trend is shown in Figure 3.

Value added trend at the end of 2009 was insignificantly decreased (by 0.16 %) concerning the economic crisis influence. The VAPC trend of the period 2007 – 2011 is shown in Figure 4.
The total VAPC developed for the Maritime Sector, by direct, indirect and induced operating in the Lithuanian economy in 2011 was 3.2 billion LTL or 8.6 percent Lithuanian companies’ value added at Production cost.

Conclusions

This paper explores evaluation of the Lithuanian Maritime Sector on the economy of Lithuania, presenting the Maritime sectors clustering economic impact to whole Lithuanian economy, by using the following indicators: number of Employees, Turnover and Value Added at Product Cost.

The main competitive core sectors concerning the Lithuanian maritime clustering are: Shipping companies, Ports and Support industries, though the relative weight of sectors vary between regions. The surrounding sub-sectors depend upon the core for activity, as the core facilitates the demand and investments necessary for growth in Maritime clustering activity. Also, related economic activity is more likely to develop if businesses in the core are strong, and thus able to create demand and attract suppliers and related businesses.

Total for the Maritime Sector jobs created in 2011 was nearly 49 thousand, which accounted for 5.7 percent all jobs created in Lithuania. Maritime Sector enterprises Turnover in 2011 was about 13.4 billion LTL. The total VAPC developed in the Maritime Sector (by direct and indirect effects) in 2011 was reached 3.2 billion LTL or 8.6 percent Lithuanian companies’ Value Added at Production Cost.

Enterprises could be agglomerated to a Lithuanian Maritime Cluster because at this case cluster environment holds advantages such as the proximity to customers and suppliers, existence of positive externalities from investments by cluster actors, which facilitates the development and sharing of specialized labour pools, knowledge, and information. These aspects of a cluster enhance dynamics such as cooperative rivalry, innovation pressures, and the establishment of trust relations between cluster actors.

Acknowledgements

This paper is prepared by following the research on the grant of the EU Structural funds project “Lithuanian Maritime sectors’ technologies and environment research development”.

References


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**Lietuvos jūrinio sektoriaus klasterizacijos ekonominės reikšmės vertinimas**

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**Santrauka**

Šiame moksliniame straipsnyje nagrinėjamas Lietuvos jūrinio sektoriaus poveikis Lietuvos ekonomikai, remiantis šiais pagrindiniais ekonominiais rodikliais: darbuotojų skaičius, apyvarta ir pridėtinė vertė gamybinėmis kainomis. Nors daugelis tyrimų, susijusių su jūriniais sektoriais ir jūriniais klasteriais, atlikti Europos Komisijos organizacijų ir konsultacinių agentūrų, Lietuvos jūrinio sektoriaus klasterių ekonominio poveikio parametrai, susistemintai pateikti šioje publikacijoje, statistiškai apimant tam tikrą laikotarpį, iki
šiol sistemiškai nerinkti ir nevertinti. Lietuvos jūrinio sektoriaus sisteminė analizė atliekama nuolat ir leidžia palyginti duomenis atskirais laiko periodais. Ekonomiškai vertinant klasterius tai labai reikšminga, nes vis daugiau šalies įmonių yra linkusios jungtis ir geografiškai telkstis į aljansų struktūras, vadinamuosius klasterius.

Per daugelį metų jūriniai sektoriai sukerta ir plėtojama verslumą skatinanti infrastruktūra (tai yra logistikos sistema ir centrai, laisvoji ekonominė zona), išugdyta nemažai jūrinės srities aukštos kvalifikacijos specialistų, įgyta patirties, diegiamos šiuolaikiškos kokybės valdymo priemonės. Kaip rodo praktika, jūriniai sektoriai veikiantys verslo subjektai savarankiškai iniciuoją asociacijas arba kitus grupinius sivistenijimus, taip siekiant bendrų ir individualių interesų, įgyvendinti išsiškelius tikslus. Todėl galima teigti, kad klasterizacijos proceso užuomazgos jūriniai sektoriai veikiantys vyksta ir turi prieišyti vystytis įšiaiškinti ir formaliai įkurto klasterio, integruojuan naus. Ekonomiškai procesas šiuo metu akcentuojama ir palaikoma pagrindiniose jūrų politikos strateginiose dokumentuose, kurie vis labiau orientuojami į regionų konkurencingumo skatinimą, ilgalaikiai Lietuvos pramonės strateginius sprendimus, ypač jūrinio sektoriaus organizacijų grupėse. Lietuva strategiškai pristatoma kaip jūrinė valstybė, tačiau jūrės sektorius vis dar oficialiai statistiškai neapibrėžtas ir neanalizuojamas, yra nemažai apribojimų ir neaiškumų, kaip jis turėtų būti pristatomas oficialiose šalies įkio statistinėse ataskaitose.

Pagrindinis tyrimo tikslas – įvertinti Lietuvos jūrinio sektoriaus klasterizacijos ekonominį poveikį konkurencingumo ekonomių augimo galimybėms Lietuvoje.


Tyrimo metodika: mokslinės literatūros analizė ir sintezė, statistinių duomenų rinkimas, sisteminimas ir surinktų duomenų analizė.


PAGRINDINIAI ŽODŽIAI: konkurencingumas, jūrinis sektorius, klasterizacija, Lietuva.

JEL KLASIFIKACIJA: O18, O32, P25, R11