FUNCTIONING PROSPECTS OF THE NETWORK OF CROSS-BORDER MARITIME CLUSTERS IN THE BLACK SEA REGION

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Summary

In the article it is suggested to set up a network of cross-border maritime clusters within the Black Sea Euroregion, with the aim to promote economic coordination between maritime regions of participants. The link between the cluster effects and factors of cumulative growth of the Gross Regional Product, that is an indicator of the increase of the region’s competitiveness, has been determined. The methodic approach to estimation of economical effects that are created within a cluster and gives a complex estimation of the cluster’s functioning effectiveness in a region has been worked out. 

Keywords: Black Sea Region, maritime cluster, cross-border cooperation, methodic approach, effect, competitiveness.

One of the main tendencies of the development of national economics at the beginning of the XXI century is intensification of the regional economic integration. The Black Sea Region is at the center of increased attention, which is due to extension of such organizations as the NATO, the European Union; and due to increase of Russian, Turkish and China influence in the region. It became as a basis of setting up the concept of the Wider Black Sea Region.

In 2007 the Commission of the European Communities provided the new concept of regional cooperation – “Black Sea Synergy”. The aim of this concept is intensification of cooperation between the Black Sea countries and the European Union countries. One of the main aspects of this concept is harmonization of the maritime policy of countries of the Black Sea Region. It also includes a setting up of a network of clusters of maritime cross-sectoral co-operation between services, industries and scientific institutions. The “Black Sea Synergy” support already-existing projects between Ukraine and the EU: European Union’s Neighborhood and Partnership Instrument, Euroregion “Lower Danube”, Black Sea Euroregion.

The world crisis phenomenon of the last years caused the increased interest to the clusters as to the sustainable economic modules with prompt and effective reaction on changes in local and global economies. In the modern terms of globalization of the world economy a competition increases between separate companies, regions and countries. However, as the world practice demonstrates, independent and isolated use of regional competitive advantages by a separate enterprise for taking its place on
commodities and capitals markets is impossible. Therefore market participants tend to co-operate with each other and to collaborate with the state, science and public. Such associations are different according to their functions and subordinate structures, allow to obtain a high level competitiveness on the basis of joint introduction of innovations, the increase of labour productivity and a synergy effect. Thus, cluster – is a symbiosis of the business, science, public and authorities.

So, it is reasonable to complement the integration model of macro-regions, such as the Black Sea Region, that includes macro-level and meso-level, also by a micro-level which is realized within cross-border clusters [1, p. 47-52]:
1) macro-level integration: international regional organizations such as the Organization of the Black Sea Economic Cooperation;
2) meso-level integration: euroregion as a form of international cooperation at the local authorities level;
3) micro-level integration: cluster as a form of international cooperation at the local business level.

A cluster must have undeniable economic advantages for the personal interest of participants. Therefore the important pre-condition of entry of a company in this voluntary association is a profit or its increase. Cooperation between cluster participants allows to achieve such results by the decline of transaction costs, common informative base and introduction of technology of «just in time» that, in its turn, increases the added value of products. Thus, the activity of companies, which take part in economic clusters, becomes economically effective and profitable. Creation of additional structures, that take the decisions on strictly specialized questions, increases the professional level of a certain specialization and allows enterprises to concentrate their efforts on priority directions of activity. The mechanisms of such co-operations are based on concepts of outsourcing and subcontracting. Joint activity of cluster participants and credit and financial establishments provides the appearance of the united, mutually beneficial financial field. The participants of a cluster get favourable financial support, in particular credit lines with the reduced interest rates, and bank institutes – stable, big, wholesale client – cluster.

Clusters’ functioning in a region needs an estimation of their influence on the economical development of a region. As researches have shown, the majority of the existent scientific and methodical approaches of the analysis of cluster’s effectiveness are oriented on the estimation of the dynamic of cluster’s development in a region. At the same time, it is important for the complex estimation of the cluster’s functioning in a region to determine interconnections between the economic results of cluster functioning and factors, which these results have stipulated.

According to the regional export specialization theory (Armstrong H. and Taylor J., 1980s) [2], a regional growth rate directly proportional depends on export dynamic. Due to this theory the external demand on regional export products is a function of a price on export goods, profit rate and price on goods-substitutes on the world markets, and also of a products’ quality and after-sale service. Moreover, factors that determine the level of production costs, among which are salary, raw materials, amortization costs, the level of the technological development, operational costs, also influence on the region place on world markets. If these factors influence on regional export growth,
the level of the Gross Regional Product increase gradually, and, accordingly, the local people’s well-being increase.

The cyclical theory of cumulative competitiveness of a region (McCombie J. and Setterfield M. A., 2002) also assign a key role to export in competitiveness of a region [3, 4]. Due to this theory the cycle of the region's competitiveness growth is the following: growth of Gross Regional Product (GRP) – activization of innovation activities – increase of labour productivity level – decrease of relative salary costs – decrease of production cost on export goods – increase of the demand on export goods (Chart 1).

**Chart 1. The cyclical theory of cumulative competitiveness of a region**

These theories are proved by the empirical research of competitiveness factors of the NUTS-2 level regions of the EU countries, which was conducted by the European Commission Directorate-General Regional Policy [5].

Thus, the indicator of the level of competitiveness of a region is an extent of realization of its export potential.

The additional economical effect that strengthens competitive advantages of a region is developed within a cluster. Enterprises-participants of the cluster receive an additional synergetic effect owing to joint resource exploitation (the strategy of technologies and costs), market infrastructure (joint merchandising) and fields of activities (synergy of planning and management). The sense of the synergy strategy is a possibility to receive higher production profitability due to interrelations between enterprises within the cluster than in the situation when they function separately [6, p. 52-53]. An additional social and economical effects are received due to the cluster-type siting of production and service enterprises according to their transport and geographic allocation; sustainability
of cross-sectoral linkages, that is especially important in terms of unsteadiness on world markets; reduction of transport costs; complex usage of all resources [7, p. 160-161].

There are following economical effects that receive enterprises due to their participation in the cluster:

1) Effect of joint adaptation of innovations: technological exchange increases significantly the cluster’s competitiveness, because new ideas, business processes, technologies become accessible for all enterprises within the cluster;

2) Effect of outsourcing: an enterprise deliver supporting business processes and production functions to a specialized company that helps to concentrate free organizational, financial, human resources in top-priority fields;

3) Effect of risk spread between the cluster participants: enterprises provide joint risk management to decrease a size of possible losses;

4) Effect of joint usage of an infrastructure: deepening of a production technologic specialization and cooperation, setting up of service and support enterprises and infrastructural objects;

5) Effect of transaction costs decrease: a joint knowledge and information data base is formed within the cluster that eliminate a peculiarity of resources;

6) Effect of forming of a joint goods-distributing base on each kind of cargo flow: this base helps to decrease costs on immobilization of circulating assets when they are in a process of delivery.

The methodic approach to estimation of economical effects that receive enterprises due to their participation in the cluster (Table 1) is based on the following methods: method of determination of social and economical effect of forming of maritime complex (Dergachev, V. O., Damaskina O. P., Motsarenko V. I., Tarakanov, M. L., 1991) [7, p. 160-167]; innovation activity (Hariv, P. S., 2003) [8, p. 119-141]; usage of joint goods-distributing base (Kugaevskiy, O. O., 1989) [9].

Table 1

<table>
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<th>Index</th>
<th>Formulas</th>
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<tr>
<td>1. Effect of joint adaptation of innovations</td>
<td>$E_i = \left( C_0 \frac{P_1}{P_0} - C_1 \right) \times P_v$</td>
</tr>
</tbody>
</table>

where $E_i$ – effect of joint adaptation of innovations within a cluster, currency unit (c.u.);
$C_0$ – costs on production unit before adaptation of innovations, c.u.;
$C_1$ – costs on production unit after adaptation of innovations, c.u.;
$P_0$ – annual capacity before adaptation of innovations, tons;
$P_1$ – annual capacity after adaptation of innovations, tons.
This methodic approach was approbated by the example of maritime cluster Mersey Maritime (Great Britain). One of the logistic enterprises of the cluster – Peel Holdings was chosen as a target of research, analyzed years – 2003 as a year before the forming of the cluster (the year of its setting up) and 2004 as a year after the forming of the cluster. The information base of the research was annual reports of the cluster and analytical research of maritime clusters in the world that are provided by the consulting company „Fisher Associates“ [10, 11].
The analysis has shown that the most significant economical effect was provided by joint adaptation of innovations within a cluster, and also by joint usage of an infrastructure and risk spread between the cluster participants (Table 2).

Influence of a cluster on the region’s competitiveness we have proved on the basis of the cyclical theory of cumulative competitiveness of a region. As it can be seen on Chart 2, the additional economic effects within the cluster strengthen the increase factors of the region’s competitiveness. The effect of joint adaptation of innovations within the cluster influence on activization of innovation activities in the region that in its turn causes an increase of labour productivity level in the region. The effect of outsourcing within the cluster helps to decrease salary costs in supporting production processes and functions of the enterprise. The effects of risk spread between the cluster participants, joint usage of an infrastructure, transaction costs decrease influence on the production cost. An effective satisfaction of demand on the region’s export is provided by the forming of a joint goods-distributing base on each kind of cargo flow within the cluster that speeds up deliveries of cargo.

Thus, the proposed methodic approach of complex estimation of the cluster’s functioning effectiveness in a region give an opportunity to investigate the sources of synergetic effect of the cluster for enterprises-participants of the cluster and also for the region where this cluster functions. This methodic approach is universal, takes into account the additional synergetic effect, is easy to use, decreases the time for a cluster analysis that is especially important in conditions of changeable external environment [12].

On the basis of the world experience it is reasonable to set up a network of cross-border maritime clusters within the Black Sea Euroregion, with the aim to promote economic coordination between maritime regions of participants. Possible results of creation of the network of cross-border maritime clusters are the following:
- setting up a modern logistics network between the countries of the Black Sea Region, that is more important due to wider implementation of the „just-in-time“ concept;
- transforming of the Ukrainian sea ports from the transfer point to specialized activities as a logistics center;
- optimization of transport costs;
- minimization of delivery terms;
- elimination of infrastructural and organizational barriers in the Black Sea ports;
- promotion of economic cooperation between the enterprises of maritime regions of the Black Sea countries;
- setting up of a joint data and research in maritime industry [13].

The network of cross-border maritime clusters in the Black Sea region will provide an increase in competitiveness of maritime industries of the Black Sea countries and promote the European integration process in this region.
**Table 2**

Economical effects that the logistic enterprises Peel Holdings has received due to its participation in the maritime cluster Mersey Maritime (Great Britain)

<table>
<thead>
<tr>
<th>Index</th>
<th>Values, million USD</th>
<th>% to the total profit</th>
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<tbody>
<tr>
<td>1. Effect of joint adaptation of innovations</td>
<td>9,571</td>
<td>9,7</td>
</tr>
<tr>
<td>2. Effect of outsourcing</td>
<td>0,081</td>
<td>0,1</td>
</tr>
<tr>
<td>3. Effect of risk spread between the cluster participants</td>
<td>2,313</td>
<td>2,3</td>
</tr>
<tr>
<td>4. Effect of joint usage of an infrastructure</td>
<td>3,129</td>
<td>3,2</td>
</tr>
<tr>
<td>5. Effect of transaction costs decrease</td>
<td>1,772</td>
<td>1,8</td>
</tr>
<tr>
<td>6. Effect of forming of a joint goods-distributing base on each kind of cargo flow</td>
<td>0,962</td>
<td>1,0</td>
</tr>
<tr>
<td>Total cluster effect</td>
<td>17,828</td>
<td>18,1</td>
</tr>
<tr>
<td>Total profit of the enterprise</td>
<td>98,447</td>
<td>100</td>
</tr>
</tbody>
</table>

**Chart 2. The influence of cluster effects on the factors of the region’s competitiveness increase**
Bibliography

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