

EVALUATION OF THE INFLUENCE OF MARITIME TRANSPORT ON ECONOMICS CHANGES AT THE EASTERN COAST OF THE BALTIC SEA

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Annotation. The maritime transport and the relation of maritime and hinterland services are important part of national economies from the viewpoint of globalization processes and integration into the world logistic chain. So the well developed transport infrastructure could ensure the economics growth. The main idea of research is to analyze the handling at seaports of East Baltic Sea, its relations with hinterland transport, and the impact on the economy of the country. The results of the investigation determine the relation between maritime sectors with hinterland transport through the impact on the national economics.

Keywords: maritime transport; hinterland transport; impact on economics.

INTRODUCTION

As the scientific researchers found out the transportation sector has a strong impact for the economic and regional development, and influence the national integration to the global world economy. The higher turnover of handled cargos and transported passengers need for more infrastructure, provisions and associated logistic services, which would create the higher degree of benefit to the national economy. Sea ports are also important for the support of economic activities in the region because they become as a crucial link between sea and land transport called as hinterland sector (Mickienė et al., 2016). Export of production and importation of raw material are targets of global modern industry and it is required for the cheap and effective transportation system. The combined way of cargo transportation through the seaports is one of the possible and attractive solutions for whole global industry. On the base of made researches the transport sector, including maritime transport, is big part of the country's economy, providing up to 80% of global trade turnover. Sea port operations increasing the cargo flows in the whole transport system, promote the growing of investments to infrastructure, encourage creation of new work places, and generate fees and charges which are limited to the national budget. Distribution services at the seaports influence the increasing of the seaport's and country's economy's competitiveness in region.

From the other viewpoint, the seaports and whole transport sector are dependent on the governmental transport strategies, tax policies and other changes in politics formation procedures (Filip & Popa, 2014). So it can be stated, that the strong relationship between maritime transport sector and national economy exist and the importance of the research could be justified by the importance of these relationships' analysis at the eastern Baltic sea region because the Lithuania, Latvia and Estonia maritime sectors have strong competitiveness relation geographically based on the realization of connections between the Western European and Asian countries as the transport corridor. Based on these assumptions **the object of research** is the maritime transport sector on the coast of the eastern Baltic Sea. **The aim of the research** is to determine the main factors of maritime transport activities which could make an impact on the national economies at the Eastern Baltic Sea region.

Objectives of the research are:

- to analyse the relationship between national economy and maritime transport;
- to describe transport sector and economic indicators applied for evaluation of intersectoral relations;
- to evaluate Estonian, Latvian and Lithuanian maritime cargo flows from the viewpoint of hinterland services;
- to assess the influence of Estonian, Latvian and Lithuanian maritime freight rates on the national economies of this region.

The methodology of the research. The empiric research is based on the quantitative methods such

as statistical analysis of official data, forecasting tendencies of growing dynamics, correlation analysis. The methodology is justified on the researches of maritime transport field, presented in international conferences, also an analysis of a wide range of scientific literature sources and researches were applied for the justification of research methodology.

IDENTIFICATION OF RELATIONSHIP BETWEEN NATIONAL ECONOMY AND MARITIME TRANSPORT

In the context of national economics the transportation is viewed as the basis for fast, convenient delivery to realize the economic links between the producer and the consumer, to facilitate the smooth flow of goods movement. It means, that transport is a very important sector in each economics, because without it the important international cargo flow can not move in the world logistic chain. Transport development is a key factor in the transport market with a high demand for transport of goods, as well as a sufficient supply of vehicles. Economically developed countries that have reached a high level of an industrial, transport is considered a priority developed branch of economics (Rodrigue & Notteboom, 2010). His seniority determined approach to transport as a vital economic sector, which is due to lack of development can become a major obstacle to the national economic (Notteboom et al., 2013). The globalization of world transport market have impact on each economics (national, regional, unional and etc.) because each national economics becomes an important part of global logistic chain and the growing dynamis could be established by the improving efficiency of transportation services and regulation (Mickiene et al., 2016).

For successful integration into the world logistic chain the national infrastructure is key requirement, because the development of infrastructure is able to ensure enough throughput for international cargo flow. The transportation sector increasing the intensiveness in the globalization and requires more resources such as infrastructure development, establishment of modern logistic centers and other recourses required for implementation of national and international cargo transportation. In the area of economics researches analyse that problem and the infrastructure in most cases is the object which belongs to the government, so it can be flexible used for the development not only transportation, but also to impact other sectors. On the base of it the transportation sector is an important element of national economics and it is important strategic tool which could be used for the economy regulation in the country (Notteboom et al., 2010). On the base of these assumptions, the national infrastructure is owned by government and the relation with business environment of transport sector could be analysed through the infrastructure development and exploitation viewpoint (Figure 1). The government should make investments to development of infrastructure, but from the viewpoint of economic balanse, the goverment should get incomes from the exploitation of infrastructure and at minimum the investments should be equal to the amount of incomes (Filip & Popa, 2014).

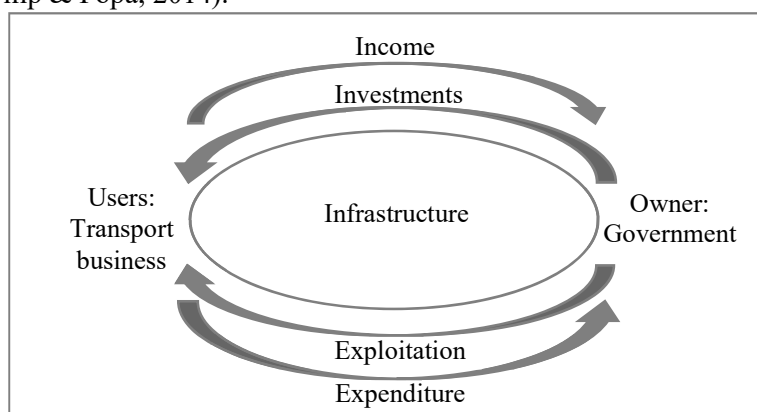


Figure 1. **Relation between the owner and user of national infrastructure** (Filip & Popa, 2014)

Main user of infrastructure is transport sector and private companies which can not to implement their business activities without the well developed infrastructure. In this way, the private business have expectations of enough infrastructure development, but they expect to minimize the exploitation costs. So the problem of integrated development is the expectation of maximum incomes from government viewpoint and minimizing the costs of exploitation from the business viewpoint. The globalization of the market created new conditions to analyse possible infrastructure management models and involve private business to the

infrastructure development by their warranty of enough amount of cargoes which could be measured by the expected positive return of investments (Notteboom et al., 2013). This model in scientific literature is described as public and private partnership and in the context of globalization could be key model of infrastructure development for successful regional integration to the regional and global logistic chain. It can be assumed that the transport sector is extremely important for the economics, since the property owned infrastructure is state-owned, so through investments in infrastructure promotion, a positive impact on the economics can be achieved, including the reduction of unemployment, sectoral areas (Mickiene et al., 2016). So it can be stated, that transportation sector and national economics are strongly both dependant and the relationship and influence can be calculated by the using of transported cargo amounts and indicators of national macro economics such as GDP, import and export. But the analysis of transportation services impact on the national economics can not be described only on the base of infrastructure development. Transport sector development can be seen in the global freight flows in the country, imports and exports, as well as the flow of transit cargo (Rodrigue & Notteboom, 2010). So the analysis of different transportation sectors should be done, because the efficiency of whole transport sectors can be analysed through the comparison of efficiency in different sectorial groups: roads, railways, maritime, air and pipelines. On the base of research topic the research topic is evaluation of maritime sector, but it is the part of whole transportation system and ensure continuity of transport operations in the logistic chain (Filip & Popa, 2014).

The seaport is the part of national infrastructure, of national economics, so its influence on economics is significant too. The development of required infrastructure is dependent on the seaport government models. There are five main port management models based upon the responsibility of the public and private sectors. In Lithuania there is a public service port and it means that port authority performs the whole range of port related services, in addition of owning all the infrastructure and some services can be left to private companies. In contrast to Lithuania, in Latvia there is a municipal port and they are trying to expand the area and attract more investors. In Estonia the sea port depends on both the public and private management (Notteboom et al., 2013). The estimation of economic impacts of port investments is an inexact field, which focus on the effectiveness of transport infrastructure as a catalyst of indirect and induced benefits (Filip & Popa, 2014).

Another actual problem of seaports influence to national economics and their efficiency is the transformation of the seaport concept during the processes of globalization. The seaport now is understandable not only as the transport system point where maritime and land transport are connected, as the cargo loading and unloading centre, but now the seaport concept transforms into another concept that is very similar to the description of modern logistics center (Mickiene et al., 2016). It highlighted the great need that sea ports infrastructure and national transport infrastructure should be integrate on national level, also it should have flexible inclusive interface, which allows to assume that the existence of any governance model, government regulation of business policy (visible through taxes) and private and public investment must be mutually balanced and should to ensure an adequate return (Belova et al., 2016). From the other viewpoint the changing of seaport conception is precondition for analysis of maritime and land transportations sectors, called as hinterland transportation, integration in the context of cargo flows globalization in the world logistic chain.

In summary it can be stated that maritime sector is the part of whole national transport system and the maritime and hinterland transport integration has strong impact on national and regional economics, influence the economics growth, creates the preconditions to successful integration into the global logistic chain, requires well developed infrastructure. In the context of globalization it should be stated that development of maritime and hinterland transport integration should influence the national competitiveness.

JUSTIFICATION OF THE RESEARCH METHODOLOGY FOR THE EVALUATION OF MARITIME TRANSPORT IMPACT ON NATIONAL ECONOMICS

On the base of research topic the methodology was applied and it was divided into different stages:

1) the comparison of national infrastructure development on the base on competitiveness index is important for establishment of government investments to the infrastructure development and infrastructure readiness to ensure required throughput for cargo flows (Schwab, 2015);

2) an evaluation of cargo flows in whole transport sector and in maritime and hinterland sectors separately with the aim to compare exploitation of infrastructure and establish importance of each sector in the country level on the base of main macroeconomic indicators (Filip & Popa, 2014);

3) an assessment of cargo and GDP ratio is important because creates conditions to evaluate the

transport sector impact on national economic (Mickiene et al., 2016);

4) an evaluation of relationship between transport sector and national economy was made on the basis of correlation analysis with the aim to identify the strongest influence of each transport sector to national economy indicators such as BDP, import and export (Belova et al., 2015).

The research methodology is based on analytical expression of indicators and on the graphical analysis with additional dynamic tendencies identification, and on the correlation analysis between transport indicators and the indicators of national economic such as GDP, import and export.

The importance of infrastructure development is evaluate as the part of national competitiveness rate calculated and presented in the reports of World economic forum The competitiveness index (see Figure 2) attempts to quantify the impact of a number of key factors which contribute to create the conditions for competitiveness, with particular focus on the macroeconomic environment, the quality of the country's institutions, and the state of the country's technology and supporting infrastructure (Schwab, 2015).

In the whole competitiveness scheme, the transportation sector indicators belong to the group of basic competitiveness requirements (see Figure 2) in the pill of infrastructure. On the base of identification of transport infrastructure evaluation possibilities the graphical analysis method was applied for the comparison of the quality of infrastructure in each country.

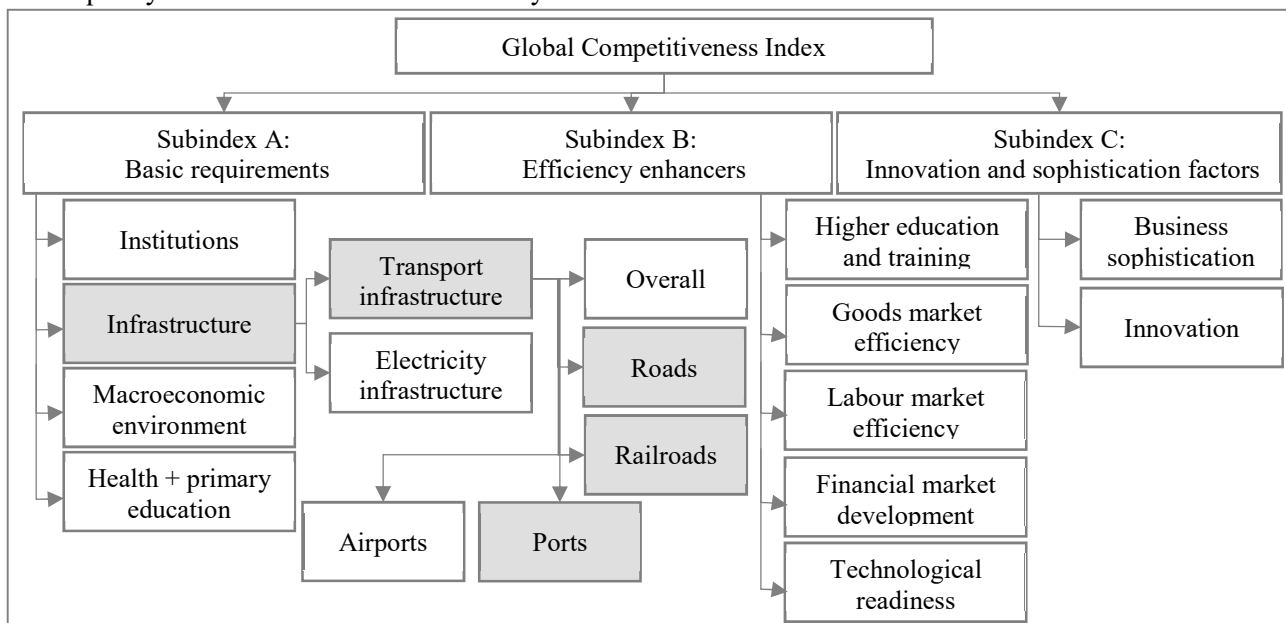


Figure 2. **Transport infrastructure in the scheme of the index of national competitiveness** (Schwab, 2015)

Such type of analysis creates a precondition to evaluate development of infrastructure and to compare the importance of maritime and hinterland transport from the viewpoint of possible incomes of government on the base of cargo flow transportation. On the base of assumptions about the relation of transportation sector and national economy through the exploitation and development national infrastructure the whole cargo and GDP ratio indicator could be used:

$$Q_{\text{country's GDP}} = \frac{Q_{\text{country}}}{GDP_{\text{country}}}$$

In the case that infrastructure's exploitation is described by the real of transported cargos the analysis of cargo flows is required, but the aim of research creates possibilities for more detail graphical analysis of maritime and hinterland cargo flows including the comparison of growing tendencies in each sector. This way of research methodology is oriented to evaluation of each sector's impact on the total cargo flow to establish the importance indicator:

$$K_{\text{country cargo}}^{\text{sector}} = \frac{Q_{\text{country}}^{\text{sector}}}{Q_{\text{country}}^{\text{whole}}}$$

Sectorial importance of each sector create possibility to identify changes of transportation activities in the transport system and the role of each sector in national transportation system. It is important, because the results of analysis could be use for the planning of national policy of transportation and investments. Also this indicator show, which transportation sector in each economics on the eastern coast of Baltic Sea is

strongest, so the results could be apply in the formation of the seaport regional development policy or in the formation competitiveness increasing toolkit locally and nationally. It is important for whole economics in the economics dynamics perspectives. Summarized data for the research are detail described in the Table 1.

Table 1

Indicators for evaluation of relationship between transport sector and national economic

<i>Indicators</i>	<i>Lithuania</i>	<i>Latvia</i>	<i>Estonia</i>
Whole country's cargo flow	Q_{LT}	Q_{LV}	Q_{EST}
Maritime cargo flow	$Q_{LT}^{maritime}$	$Q_{LV}^{maritime}$	$Q_{EST}^{maritime}$
Hinterland cargo flow	$Q_{LT}^{hinterland}$	$Q_{LV}^{hinterland}$	$Q_{EST}^{hinterland}$
Importance of maritime transport from the hinterland perspective	$K_{LT}^{maritime} = \frac{Q_{LT}^{maritime}}{Q_{LT}^{hinterland}}$	$K_{LV}^{maritime} = \frac{Q_{LV}^{maritime}}{Q_{LV}^{hinterland}}$	$K_{EST}^{maritime} = \frac{Q_{EST}^{maritime}}{Q_{EST}^{hinterland}}$
Cargo and GDP ratio	$Q_{LT\ GDP} = \frac{Q_{LT}}{GDP_{LT}}$	$Q_{LV\ GDP} = \frac{Q_{LV}}{GDP_{LV}}$	$Q_{EST\ GDP} = \frac{Q_{EST}}{GDP_{EST}}$

For the establishment of measurable relationships between maritime transportation, hinterland transportation and national economics the correlation analysis was made with the assumption of statistical significance $p < 0.05$ because the used tool Microsoft Excel Data Analysis Tool Pak was applied and the correlation matrix is presented in Table 2.

Table 2

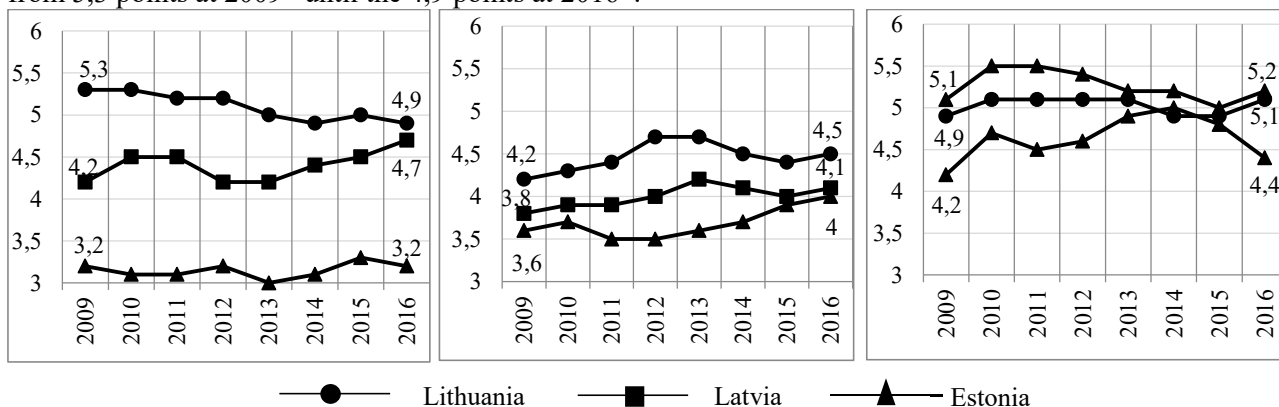
Model of correlation analysis for each country

		<i>GDP</i>	<i>Import</i>	<i>Export</i>
$Q_{country}^{maritime}$		r_{11}	r_{12}	r_{13}
$Q_{country}^{hinterland}$	$Q_{country}^{roads}$	r_{21}	r_{22}	r_{23}
	$Q_{country}^{rails}$	r_{31}	r_{32}	r_{33}

In summary it can be stated, that the influence of maritime sector impact on national economics could be expressed in quantitative measurable indicators, which could be compared. Also on the base of analytical statistical calculations the importance of integration of maritime and hinterland transportation could be explained in the context of its impact on economics.

THE EVALUATION OF ESTONIAN, LATVIAN AND LITHUANIAN MARITIME CARGO FLOWS IMPACT ON NATIONAL ECONOMICS

As the research results found out, the best development of road and rail infrastructure were fixed in Lithuania (see Figure 3), but the dynamics of rate of road infrastructure is negative and indicator decreased from 5,3 points at 2009th until the 4,9 points at 2016th.



a) road infrastructure; b) railroad infrastructure; c) maritime infrastructure

The level of rail infrastructure is lower than road infrastructure in Lithuania. It means that the hinterland infrastructure in Lithuania is well developed for cargo transportation. Smaller development level, but with positive dynamics was seen in the Latvian hinterland (see Figure 3): also the development of road infrastructure is better than railway infrastructure, but it has more intensive positive dynamics and during 8 years 0.5 points. The lowest level of infrastructure development was fixed in Estonia and especially in the road infrastructure (see Figure 3). Analysis of hinterland infrastructure competitiveness rate showed that infrastructure of rails infrastructure has almost the same development dynamics and it depends on the united European railway development projects in this region (see Figure 3). The infrastructure of maritime sector in Latvia and Lithuania has similar development situation: higher indicator belongs to infrastructure of Latvian maritime sector. But as the result of research it can be assumed, that infrastructure of maritime sector is better developed and more competitive than the infrastructure of hinterland and it possible means, that more intensive development of infrastructure of hinterland transport is required by the viewpoint of the expectation of the successful integration of maritime and hinterland sectors for more significant impact on national economics.

At the next step of research the cargo flows and GDP relation were analysed and it was found out that the lower level of hinterland infrastructure development doesn't have strong negative impact on the hinterland services dynamics (see Figure 4): the cargo flows in Lithuanian hinterland sector is growing averagely by 2.49 mln. tonne-kilometres annually and in Latvia growing is less intensive, but averagely annual growing seeks 1.31 mln. tonne-kilometres. The negative tendency of hinterland cargo flows was fixed in Estonian hinterland sector, where cargo flows annually decrease averagely by 4.82 mln. tonne-kilometres. Such situation illustrates the competitiveness of transport sector in region, where Lithuanian maritime and hinterland transportation sectors have the highest competitiveness because cargo flows additionally to growing tendency also has the enough stability indicator (the variance is less than 30%). In summarize it can be stated that the strategical development of most important transport such as maritime transport by the development of infrastructure and integration with hinterland sector with less developed infrastructure but with established required international connections create possibilities to increase cargo flows.

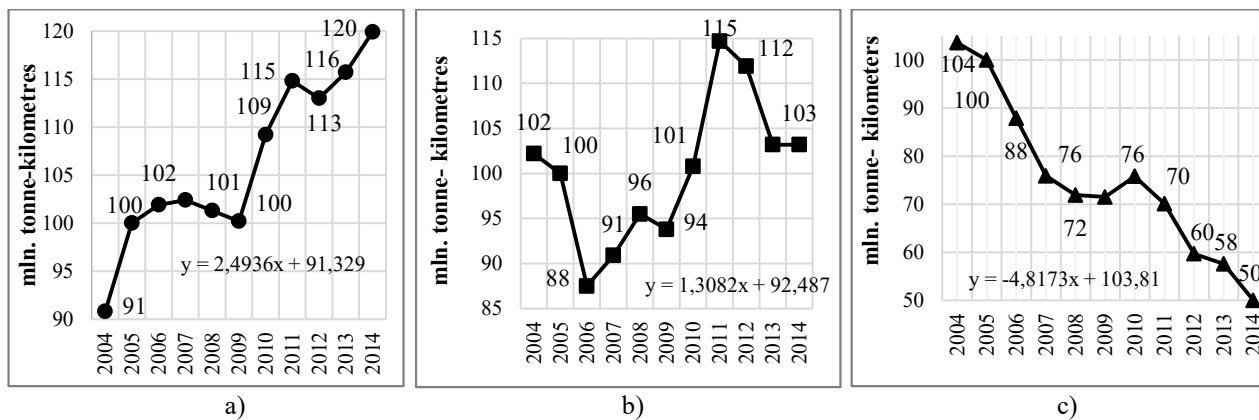


Figure 4. Dynamics of ratio between tonne-kilometres and GDP in: a) Lithuania; b) Latvia; c) Estonia

The maritime transport sector is directly related to the loading of maritime ports, in order to analyse the interaction between the research sector and the dependence on the country's economic situation, analysing process flow of goods in ports. The analysis of cargo handling indicators at the seaports of the Baltic States found out that the biggest part of handling were fixed in Latvia maritime sector and the annual growing seeks 1.35 mln. t averagely (see Figure 5); but the most growing maritime sector were fixed in Lithuania where the average of annual growing was bigger than Latvian by 0.38 mln. t. Only Estonian maritime sector has the declining trend and the annual decreasing reached 0.59 mln. t averagely (see Figure 5). Such type of situation could have some preconditions which are dependent not only on the national transport policy, transport environment and development of infrastructure, but also on the geopolitical situation in region especially on intensive expansion of Russian Federation maritime transport activities in the region. Such type situation could be presented by the analysis of total cargo flow of all analysed countries (see Figure 5).

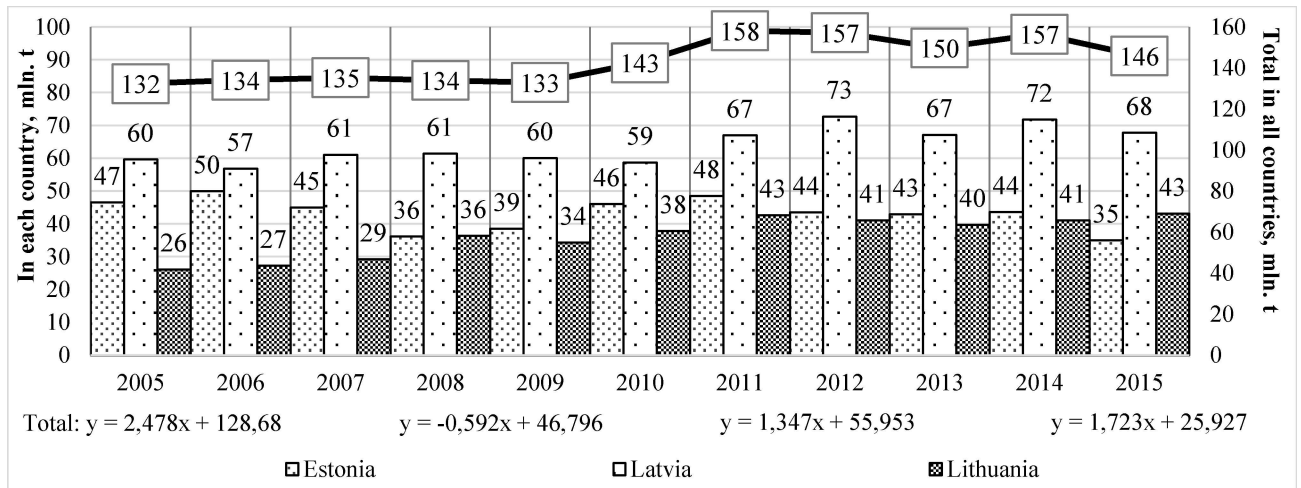


Figure 5. Maritime cargo flows in the seaports of eastern Baltic Sea

As the results showed, the total cargo flows in the region had positive dynamic, but it isn't very intensive: annual growing seeks only 2.48 mln. t averagely. It means, that during 11 years, the total cargo flows dynamic was almost stable and the cargo flows distribution between seaports existed. This assumption creates the possibility to make partial conclusion that regional compete has high level and the ensuring the cargo flow with the benefit of exploitation of the infrastructure is serious and complex task for each economy.

THE INFLUENCE OF ESTONIAN, LATVIAN AND LITHUANIAN MARITIME FREIGHT RATES ON THE NATIONAL ECONOMIES OF THIS REGION

The evaluation of maritime and hinterland sector activities impact on the national economy found out, that the situation in all three countries is quietly different. Analysis of Estonian transportation sector relation with the national economics showe that the cargo flow is oriented to the national needs. It could be explained by the correlation diagrams on 6 figure. Estonian rail sector has strong negative impact on the import and export indicators, but strong relation with GDP was established. Such type situation was fixed in the road sector. It means, that Estonian hinterland is oriented to the inside transportation.

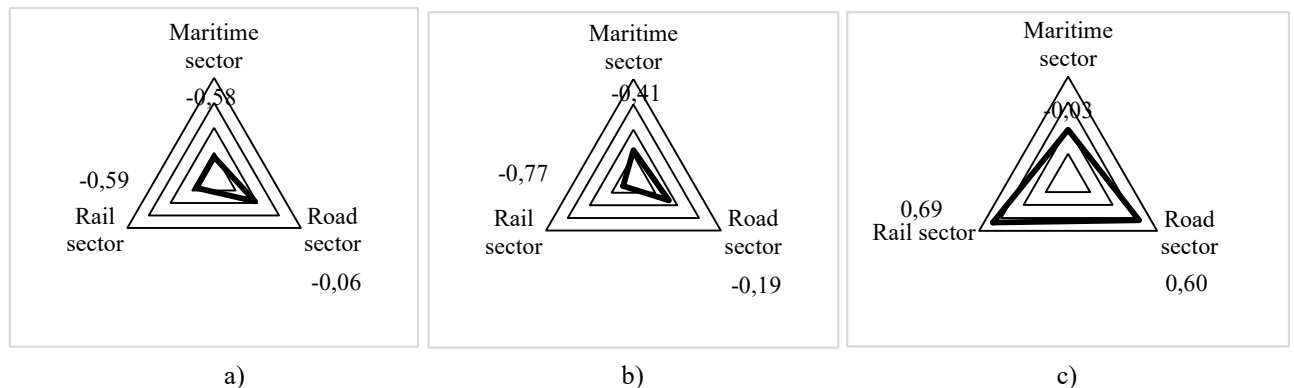


Figure 6. Maritime and hinterland sectors impact on Estonia economics: a) on import; b) on export; c) on GDP

Analysis of the Latvian situation found out that the hinterland and maritime integration exists, because the maritime sector has strongest impact on the import and export, but the hinterland has strongest impact on GDP: such type of situation explain the well developed distribution function in the maritime sector (see Figure 7). But the balance of these sectors are not balanced because the maritime sector impact on GDP is not significant.

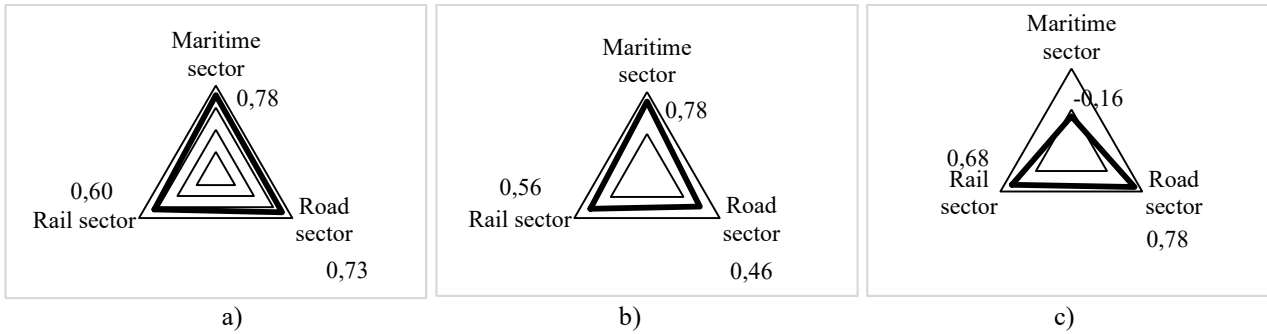


Figure 7. Maritime and hinterland sectors impact on Latvia economics: a) on import; b) on export; c) on GDP

The analysis of the situation in Lithuania found out, that maritime transport sector ensure import and export in the country and the integration of maritime and hinterland sectors is quietly in a high level. This sector has significant impact on export and much lower influence on GDP, but distributed cargo flows to the hinterland has middle strengthen impact on national GDP (see Figure 8).

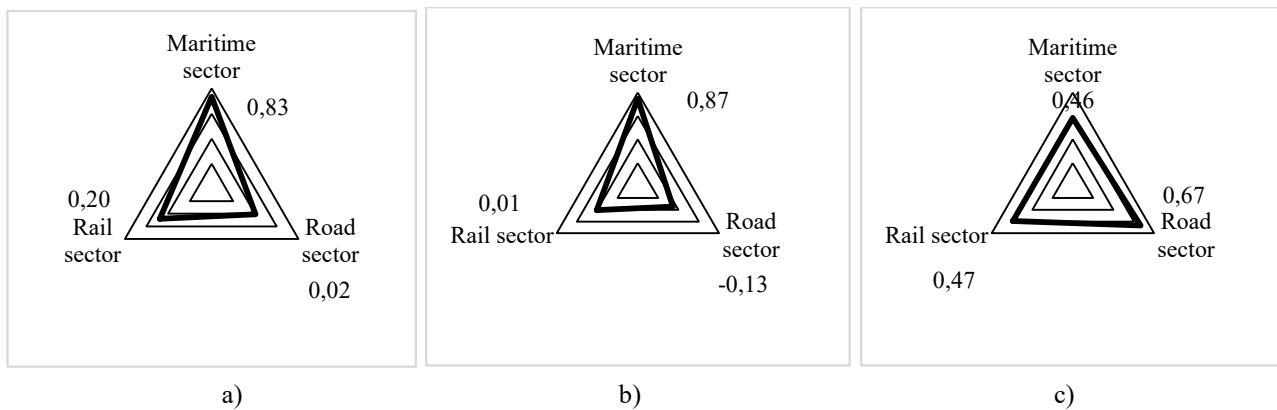


Figure 8. Maritime and hinterland sectors impact on Lithuania economics: a) on import; b) on export; c) on GDP

In summary it can be said that the highest value of import and export has the maritime sector in Lithuania and Latvia, all Estonian sectors have not enough impact on the national economics and should be developed in the context of globalization results.

CONCLUSIONS

Analysis of the relationship between national economy and maritime transport found out that that maritime sector is the part of whole national transport system and the maritime and hinterland transport integration has strong impact on national and regional economics, influence the economics growth, creates the preconditions to successful integration into the global logistic chain, requires well developed infrastructure. In the context of globalization it should be stated that development of maritime and hinterland transport integration should influence the national competitiveness

The description of transport sector and economic indicators and evaluation of their capabilities to be applied for assessment of intersectional relations found out that the indicator of infrastructure development as the part of national competitiveness index could be used for infrastructure comparison between maritime and hinterland sectors, the annual cargo flow and GDP relative index could explain the dynamics of cargo flows in the country, and the correlation index could be used for establishment of relationship between transport sector and national economics with identification of importance of maritime and hinterland sectors integration.

The evaluation of Estonian, Latvian and Lithuanian maritime and hinterland services based on comparison with the competitiveness index of infrastructure development showed that better development of infrastructure in maritime sector could ensure enough cargo flows in hinterland sector where infrastructure development is not very high.

On the base of research results it could be assumed that Estonian hinterland sector is oriented to the inside transportation and maritime sector hasn't any impact on the national economics. Latvian maritime

sector integration with hinterland transportation is well developed and has distribution function, but it is not stable from the viewpoint of impact on the national economics. Lithuanian maritime and hinterland integration is on the highest level of development, but the strongest role is given to the maritime sector which ensure import and export indicators growing on the base of distribution, and it is could be assumed that Lithuanian hinterland sector requires the development from the viewpoint of regional competitiveness.

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Summary

Evaluation of the influence of maritime transport on economics changes at the eastern coast of the Baltic Sea

As the scientific researchers found out the transportation sector has a strong impact for the economic and regional development, and influence the national integration to the global world economy. The higher turnover of handled cargos and transported passengers need for more infrastructure, provisions and associated logistic services, which would create the higher degree of benefit to the national economy. Sea ports are also important for the support of economic activities in the region because they become as a crucial link between sea and land transport. Exportation of production and importation of raw material are targets of global modern industry and it is required for the cheap and effective transportation system. The combined way of cargo transportation through the seaports is one of the possible and attractive solutions for whole global industry. On the base of made researches the transport sector, including maritime transport, is big part of the country's economy, providing up to 80% of global trade turnover. Sea port operations increasing the cargo flows in the whole transport system, promote the growing of investments to infrastructure, encourage creation of new work places, and generate fees and charges which are limited to the national budget. Distribution services at the seaports influence the increasing of the seaport's and country's economy's competitiveness in region. Therefore, the seaports and whole transport sector are dependent on the governmental transport strategies, tax policies and other changes in politics formation procedures. So, the strong relationship between maritime transport sector and national economy exist and the importance of the research could be justified by the importance of these relationships' analysis at the eastern Baltic sea region because the Lithuania, Latvia and Estonia maritime sectors have strong competitiveness relation geographically based on the realization of connections between the Western European and Asian countries as the transport corridor.

Based on these assumptions the object of research is the maritime transport sector on the coast of the eastern Baltic sea. The aim of the research is to determine the main factors of maritime transport activities which could make an impact on the national economies at the Eastern Baltic Sea region. Objectives of the research are: to describe the main indicators characterizing the situation of national economies; to describe Estonian, Latvian and Lithuanian maritime cargo flows from the viewpoint of hinterland services; to assess the influence of Estonian, Latvian and Lithuanian maritime freight rates on the national economies of this region. The empiric research is based on the quantitative methods such as statistical analysis of official data, forecasting tendencies of changes, correlation analysis, analysis of possible situations and scenarios. The methodology is justified on the researches of maritime transport field, presented

in international conferences and seminars, also an analysis of a wide range of scientific literature sources and researches were applied for the justification of research methodology.

The main research scientific directions were performed by assumptions, that during last 10 years period, total cargo flow at the seaports of the eastern Baltic sea were almost stable and main changes were fixed only in freight rates of different seaports. It means that in the region intensive competition exists and each maritime sector has potentially prevent the negative changes in freight rates by increasing the complexity of associated logistical services. As cargo flows' dynamics showed, the most intensive maritime cargo throughput was fixed at Lithuanian maritime business, where cargo freight indicators averagely annual increased by 1.82 million tons per year. Latvian maritime freight rates grew averagely annually by 1.56 million tons, Estonian freight rates decreasing averagely by 0,21million tons. But it is important to note, that the summarized freight rates in Lithuanian maritime sector is smaller than it is in Latvian maritime transport segment, but freight rates here have most intensive growing tendency. The results of interrelations between maritime sectors and national economy found out that Estonian maritime cargo flows and national economy are almost, but Latvian maritime cargo flows are sensitive for each change in expenditures related with export and import prices. Lithuanian freight rates are dependent on increasing of taxes; Latvian and Lithuanian maritime sectors are more dependent on imported cargo flows, but Lithuanian maritime business sector is more stable because works with geographically established and optimized cargo flows. From the other side, the optimal business conditions is required from the law regulation and transport policy implementation. On the base of these results the assumption was made that these results could be dependent on the geographical location and weather conditions, investments to infrastructure, accessibility of international railways and truck ways, also the operational effectiveness of stevedoring operations. And the assumption were formulated, that effective investments to infrastructure is possible tool to increase the planned positive impact on national economy and should create preconditions for special symbiotic cycle related with the effective investments to infrastructure and economic benefits.