Human resources management at Bulgarian sea ports – problems and perspectives for development

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Human resources management at Bulgarian sea ports – problems and perspectives for development

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Abstract: *The organization and management of human resources in maritime transport have their characteristics as they are an integral part both of the transportation process and the efficient and productive carrying out of the main and secondary services at ports. In this regard the main objective of the current paper is to examine the human resources management at Bulgarian sea ports Varna and Burgas in order their specifics to be revealed, the main problems to be outlined and measures to be proposed. The proposed model for analysis could be successfully applied in studying the human resources management system in the other transport modes or in other countries with transition economies.*

Key words*: human resources; sea ports; effective management.*

JEL codes: J 21; R 49

Introduction

Human resources management is a key element of the management process of maritime transport, as personnel, engaged with transshipment activities and those, working on board are responsible for safe and secure navigation and regular and strict control of the transshipment operations.

Till now, there are many publications in the field of human resources management in transport conducted by Bulgarian and foreign authors. E.g. Vassilev, E. (2008) determines human resources management as a sub-process of the management of organizations without distinguishing the specifics of personnel in different transport modes. In her monograph book, Tzvetkova, Sv. (2016) analyzes human resources management in parallel with the development of transport sector again without putting the accent on the specific characteristics of personnel in each transport mode. In their research, Paulica & Mednikarov (2013, pp. 27-32) have studied personnel in maritime industry, but they put the focus on the enhancement of its qualification. Other publications (Aronsson & Barkloef, 1982); (Tichon, M., 2005);

are also identified, but they examine human resources management mainly in road transport.

However, the aforementioned publications do not cover the main objective and hypothesis of the current research.

The main objective that the author poses is to outline the specific characteristics of human resources management at Bulgarian sea ports Varna and Burgas. The hypothesis the author proves is that analyzing the process of human resources management through application of modeled indicators, will allow problems to be precisely determined and as a result key measures for their surmounting to be taken. The object of the research is human resources at sea ports and the subject – the methods through which the problems are identified and measures are proposed.

For the realization of the research, the following scientific methods are applied:

- *Statistical* – necessary for the examination of information from the EUROSTAT Database, Bulgarian National Statistical Institute and Annual Reports of Varna and Burgas ports;
- *Analytical* – to analyze the gathered data to evaluate the studied indicators, concerning human resources management at sea ports;
- *Methods of induction and deduction* – to summarize the problems hindering human resources management at sea ports and to propose measures for its future development.

As a result of the research, the following indicators are analyzed as well as the correlations among them: *average wage of an employee at sea ports; labor productivity according to the cargo volumes transshipped; revenues of a person employed and number of employees at sea ports*. The specifics of human resources management at sea ports are revealed, the existing problems in this field are identified and particular measures for their development are proposed.

1. Human resources management in maritime transport

Human resources management at Bulgarian sea ports reveals opportunities for its optimization, which could multiply the financial results of infrastructure operators in accordance with the classical microeconomic function on production. Having in mind the aforementioned, the personnel is of great importance for the development of the transport sector and especially for the maritime transport as it contributes for the safe and secure navigation, timely transshipment operations and increasing the productiveness of ports and ships.

When studying the human resources management in maritime transport, it must be indicated that this process is affected by two groups of factors. The first one includes the so called ***external factors*** (Ehrenberg, R, Smith, R, 2012, pp. 25) that consist of the following:

a. *State policy for human resources management in the maritime transport* – there are many legal acts in the field of maritime transport[1][2], which concern the requirements for occupation admission; duration of the working day; working conditions at ports and at ships; conditions of the insurance system and etc. However, there is no purposeful state policy to motivate graduates to continue their professional realization in the field of maritime transport.

b. *Globalization of the economy* – as a result of the world economic and financial crisis, many industries which are main consumers of the maritime transport services, closed up their productions (e.g. Kremikovtzi JSc, which is a key consignor in the carriage of oversized and general cargos through maritime transport liquidated its production in 2009).

c. *Status of the labor market in transport sector* – the main participants in the labor market at transport sector are work force, transport operators and intermediaries. In this regard the demand for labor in transport is determined by the transport companies' number while the supply of labor will be defined by the active population which holds the necessary professional qualification, knowledge and experience to take part in the freight and passenger carriages. During the period 2002-2008 a significant drop in the number of licensed transport operators is

[1] Merchant Shipping Code and the corresponding legal acts;

[2] Law on the Maritime Spaces, Inland Waterways and Ports of the Republic of Bulgaria and the corresponding legal acts

observed as 7761 of them have closed their economic activity up. As a result a great number of the employees in transport sector are shortened. After this period a trend of increase is reported but after 2010 the number of transport companies is constant. (National Statistical Institute of Bulgaria, 2016).

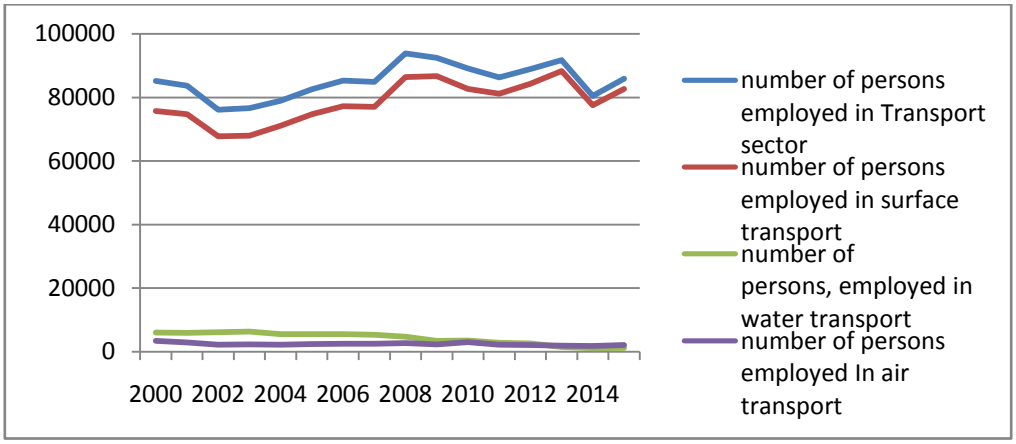

Fig. 1 Dynamics of the persons employed in relevant transport modes

Source: National Statistical Institute of Bulgaria

The biggest number of employees could be seen in the surface transport (road and railway) – 92% of the total number of transport workers, which is normally distributed as the number of the licensed road transport operators is the biggest compared to the other transport modes. On second place is the share of water transport (maritime and inland waterway) – 4,9%, and on the last place is the air transport – 2,7%. The general trend observed is of continuous decrease in the number of persons employed at transport sector after 2010. According to the database of National Statistical Institute of Bulgaria, the mechanical growth in the country is negative, which means that most of the active population immigrates to other member states as the average wages there are much higher.

d. *Demographic trends* – deepening crisis in the last years together with the observed negative mechanical growth are prerequisites for the permanent decrease in the number of working force in the country. On the other hand, the unpleasant economic conditions in Bulgaria prove to be a reason for the increase of the monthly average household costs that grew up to 1,5 points in 2014 compared to 2013 (National Statistical Institute of Bulgaria, 2016) while at the same time household monthly incomes decrease with 1,2 points for the same period. This results negatively on the structure of the labor market in transport sector.

e. *Development of technology and innovations* – the application of information and communication technologies is an important tool for the development of the transport sector and for the effectiveness increase of freight and passenger carriages. The automation of the transport processes and the organization of carriages allow real-time tracking of working time of employees as well as the working conditions on board of vehicles or at the infrastructure sites.

Except for the aforementioned external factors, important for the human resources management are also the following ***internal factors***:

a. *Size of the organizations* – this factor is of great significance for the human resources management structure. In this regard, the sea ports Varna and Burgas could be determined as large organizations, as the average number of employees is over 500 and the transport workers at port Varna are 1623 (port Varna, 2015), and at port Burgas – 602 (port Burgas, 2015). As far as the transportation services in maritime transport are concerned, the largest seafarer Navigation Maritime Bulgaria JSc falls among the big companies as its number of employees is over 1000 (NAVBUL, 2016). This factor is directly related to the fluctuations of manpower. On the other hand, however, the large number of personnel must be provided with continuous increasing cargo and passenger volumes through the sea ports.

b. *Financial status of organizations*– the good financial security of the companies is a prerequisite for more efficient recruitment system, staff assessment, education and motivation of the employees (Torrington, D, 2006). Some of the most important factors that directly influence the financial status of sea ports are:

Current ratio – this indicator is presented on figure 2 and its purpose is to reveal if the infrastructure operators at port Varna and port Burgas are capable of paying their current debts by the current assets.

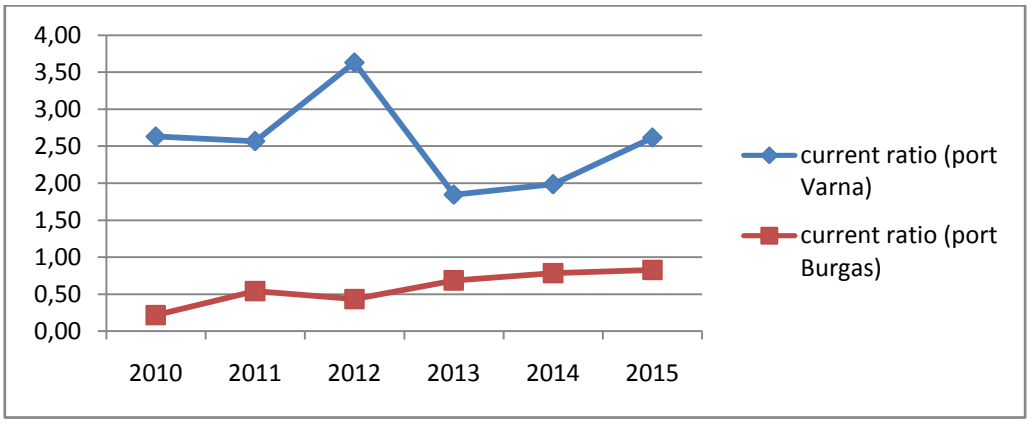

Fig. 2 Dynamics in the current ratio at Bulgarian sea ports

Source: Annual reports of port Varna and port Burgas for 2010-2015 and author's calculations

For the current ratio at port Varna, periods of drop and growth are observed (in 2012 the coefficient value is the highest – 3,63), and it keeps values higher than 1. This means that the financial and trade policy of the infrastructure operator allows seamless paying of the liabilities by the current assets. This leads to personnel costs and liabilities increase which will result in higher productiveness and competitiveness.

Having in mind the values of the current ratio at port Burgas, the infrastructure operator is not able to cover its current liabilities by the assets (current ratio is the lowest in 2010 – 0,21 and in 2015 it grows four times – 0,82, but this value is still lower than 1). As a result the running costs at the port are decreased, incl. the personnel costs, wage costs and insurance costs.

Return on equity (ROE) – the calculation of this indicator is of great importance for the maritime transport as the economic activity in sea ports is capital intensive and it is carried out by the fixed assets such as transshipment facilities and warehouses. In this regard we have to expect the values of this coefficient to be higher than 1.

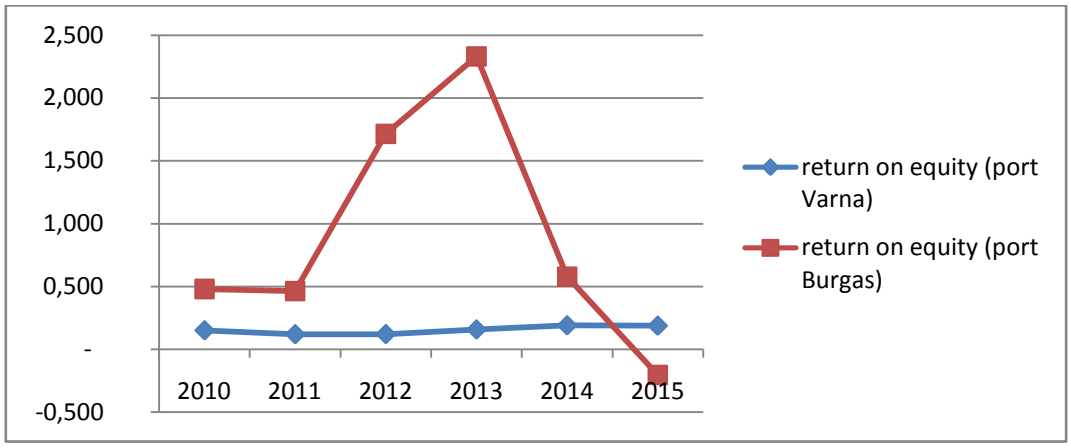

Fig. 3 Dynamics in the return on equity at Bulgarian sea ports.

Source: Annual reports of port Varna and port Burgas for 2010-2015 and author's calculations

On figure 3 one can see that a growth in the values of ROE is observed for port Burgas, as the coefficient is the highest in 2013 – 2,33, but in 2015 decreases significantly and its value is negative – -0,203. This means that the capital intensive economic activity at the port is not done efficiently. The main reasons for this are the usage of outdated transshipment facilities, the prolonged time for ship servicing and lower personnel productiveness.

The ROE of port Varna is constant and it is changing in a range between 0,151 in 2010 to 0,188 in 2015. This means that the fixed assets of the port are not efficiently used in order the invested money by the stakeholders to be profitable.

2. Current status of the human resources management system at the sea ports of Varna and Burgas

The human resources management system is a fundamental element of the economic activity of organizations as it determines the establishment and development of companies. This system includes activities that are of at most importance for the personnel strategic management, its productiveness and the competitiveness of organizations. These activities are as follows: human resources planning; occupation analysis; recruitment and retirement; education and motivation (Boxall, et.al., June 2008, pp.3).

In maritime transport, the process of ***human resources planning*** is related to the needs defining the number of human resources. These needs are prompted by the transport and infrastructure operators' strategic goals about the forecasted cargo volumes that must be carried in the relative destination or transshipped at ports. That

is why when defining the necessary number of employees at sea ports, the business plan of infrastructure operators must be taken into account.

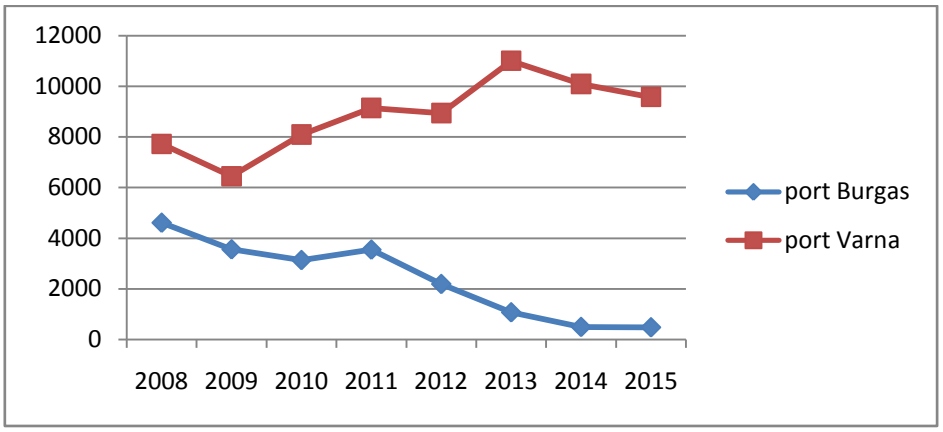

Fig. 4 Dynamics in the volume of cargos (thousand of tones) transshipped at port of Burgas and port of Varna

Source: Annual reports of port Varna and port Burgas for 2008 - 2015

As can be seen on figure 4, in port Burgas a general trend of decrease in the volume of cargos transshipped is observed and in 2015 a drop of 89,5% compared to 2008 is reported. What is typical for port Varna is large dynamics in the cargo volumes as after 2013 (when the amount of cargoes transshipped is the biggest – 11 million tons) a trend of continuous decrease begins and in 2015 their volumes reduce with 13%.

The observed dynamics in the cargo volumes transshipped at the sea ports suppose gradual cut down in the number of employees. Taken into account also the negative trend of the financial indicators of ports – current ratio (figure 2) and return on equity (figure 3), the infrastructure operators are incapable of paying their liabilities to the personnel and keeping the necessary rate of employment.

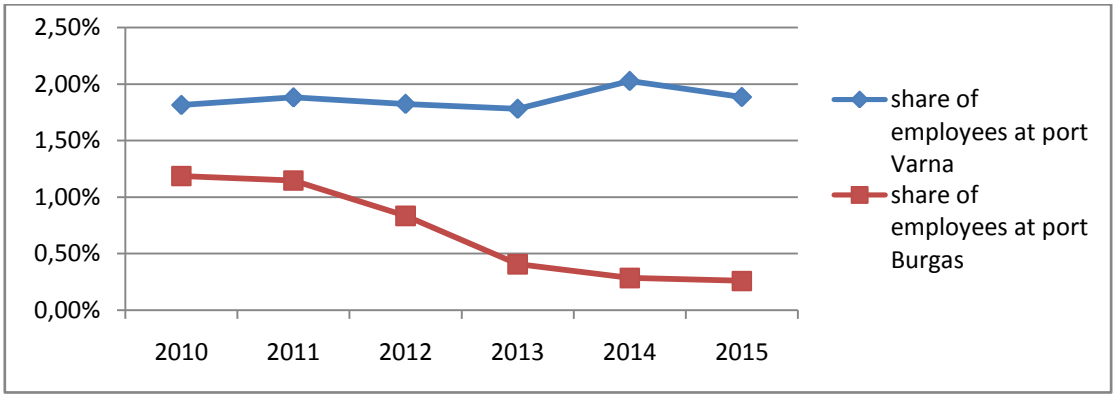

Fig. 5 Dynamics in the number of persons employed at Bulgarian sea ports as a share of the total number of employees in transport sector

Source: National Statistical Institute of Bulgaria and author's calculations

The share of employees at port Varna (1,87%) and port Burgas (0,69%), as one can see on figure 5, is insignificant compared to the total number of people employed in the transport sector. This means that maritime transport is still not an attractive environment for professional realization of graduates. Moreover a general trend of gradual decrease in the number of transport workers is observed at port Burgas (a drop of 78,1% in 2015 compared to 2010 is reported), while the number of employees at port Varna is stable, with slight fluctuations in the range between 1619 and 1632. The trends in the employment development at sea ports are following the dynamics in the volumes of cargos transshipped at ports of Varna and Burgas.

Another key element of the human resources management system at sea ports is the personnel recruitment. It is a process on which depend the possibilities of infrastructure operators to attract transport workers with the appropriate and eligible qualification and competences. In this way, the main leading condition when companies demand for labor force in transport sector is employees to cover all of the legal requirements for occupation. In the maritime transport, all workers must be medically fit to work on the board of ships or at ports; have approved education (to graduate university or high school in sea or technical specialties) and have seagoing internship when it is required. In accordance with the aforementioned requirements and specifics of the main and secondary activities done at the sea ports, the most widespread occupations (National Statistical Institute of Bulgaria, 2016) at ports are stevedore; expert in transshipment operations; manager trade exploitation; head of sea station and etc.

Of great importance for the efficient functioning of the working force at sea ports, except for the legal requirements, is the employment price. It is prompted by the fact that wages of transport workers must ensure normal living standard. On the other hand monthly wages directly influence the amount of money in circulation, as most of it is spent by the employees for their household utilities, social and physiological needs satisfaction.

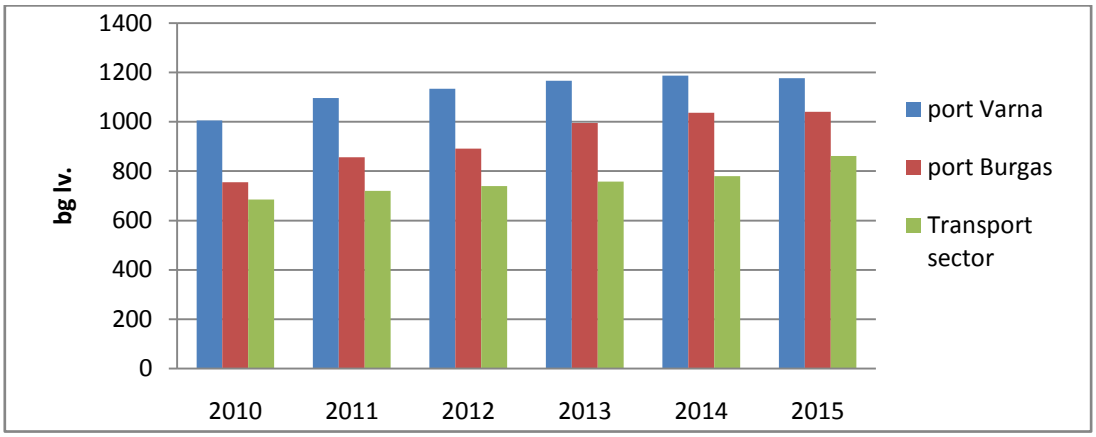

Fig. 6 Dynamics in the average month wage at Bulgarian sea ports and at the transport sector as a whole

Source: National Statistical Institute of Bulgaria and author's calculations

On figure 6 a trend of continuous increase in the wages in sea ports is observed. Its level is higher than the average for the transport sector. The highest wages are paid to the transport workers at port of Varna and they are in the ranges between 1006 and 1177 BGL. Comparatively lower are the average monthly wages at port of Burgas (between 750 and 1040 BGL), which however reported a growth of 37,9% in 2015 in comparison to 2010. The observed increase in the values of the indicator follows a logic trend as, *first* of all – the conditions for transshipment operations at sea ports are continuously developing so as the customers 'needs to be satisfied and *second* – new information and communication technologies are applied to the organization and management of the port and transport activity which fact supposes better professional qualification of transport workers and higher wages. However, compared to the other member states, Bulgaria ranks in the last place on this indicator as in accordance with the officially published data on EUROSTAT, the wages at sea ports are 12 times lower than these in the old member-states and 4 times lower than wages in the new ones.

Independently of the rising level of wages at sea ports, it is important to be determined if it carries out its reproductive function – to ensure normal living standard for transport workers and their families. For this purpose the dynamics in the consumer price index (CPI) must be analyzed. The main reported trends in the CPI are of drops and growths. To the present moment the annual rising of consumer prices is at faster pace than the average annual increase in the wages at sea ports. For example, in 2015 the inflation increased with 1,3 points or a growth of 92%

compared to 2014 (National Statistical Institute of Bulgaria, 2016) while at the same time the wages at sea ports reported only a growth of 4,7%.

Crucial for the effective functioning of the human resources management system is the labor productiveness. It is determined by a group of factors, such as: education and qualification; application of information and communication technologies; innovations of the transshipment operations; better working conditions; change in the cargo volumes structure and destinations and etc. Taking into account the specifics of main and secondary activities at ports, the labor productiveness could be calculated while comparing the output volumes and the labor input. (Tichon, M., 2005, pp. 78).

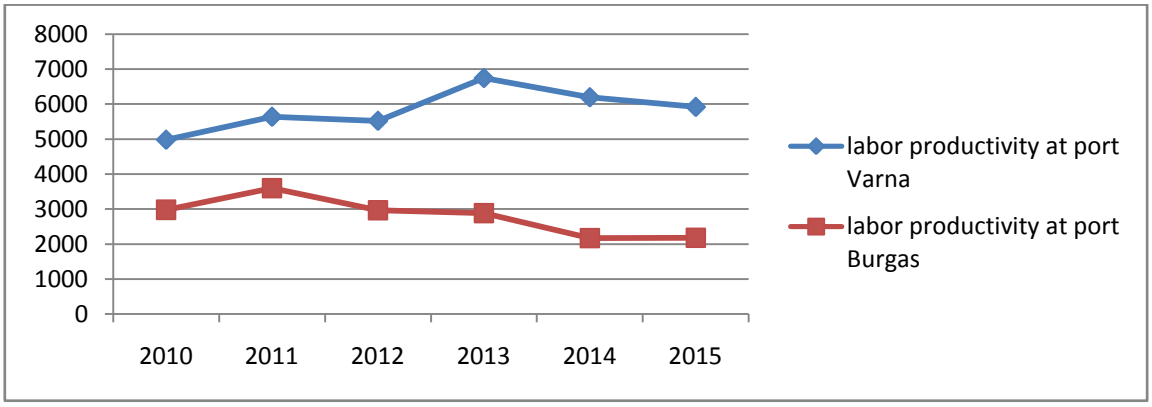

Fig. 7 Dynamics in the labor productivity at Bulgarian sea ports in tones

Source: Calculations of the author

On figure 7 the labor productiveness at sea ports is presented as higher rates of decline could be seen at port of Burgas – 39,6% in 2015 compared to 2011, when the average cargos transshipped per an employee was 3590 tons. Approximately two times higher is the labor productiveness at port of Varna, however it also decreased in 2015 with 12,3% in comparison to 2013 when it was the highest (6740 tons). The observed dynamics in the labor productiveness at sea ports are following the trends of the cargo volumes transshipped (see figure 4) and the number of persons employed (figure 5). For the examined period, drops in the cargo volumes at ports are reported and also some individual terminals of the ports are given to concession which facts result in much of the employees to be discharged.

In general the specifics of labor productiveness at sea ports are related to the revenues per employees. In this regard on figure 8, the dynamics of this indicator are presented.

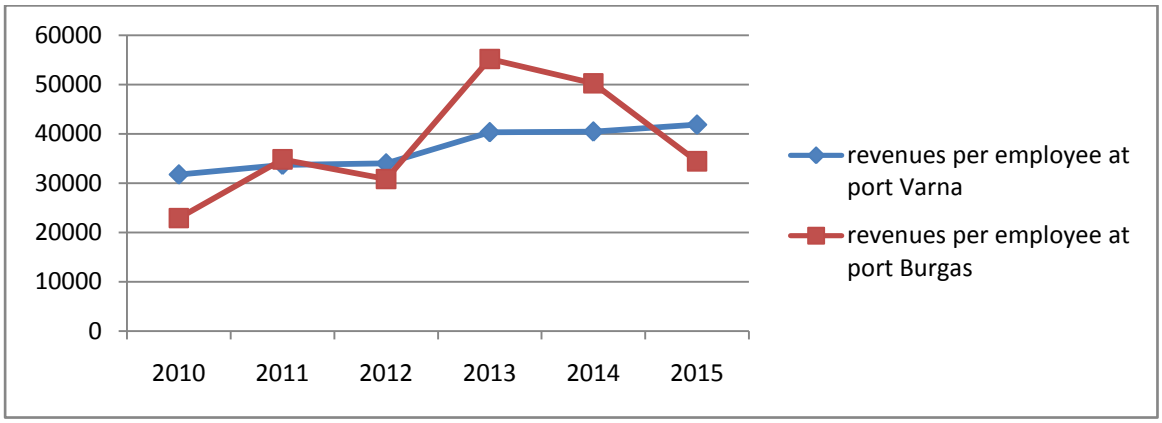

Fig. 8 Dynamics in the revenues per employee at Bulgarian sea ports

Source: Annual Reports of port Varna and port Burgas for 2010-2015 and author's calculations

For the revenues per employee at port of Burgas periods of decline and growth are reported. In 2013 the values of the indicator are the highest (55,1 thousand BGL), which dues to the smaller number of workers during this period as well as to the bigger share of secondary operations carried out at the port. In comparison, the revenues per employee at port of Burgas decrease two times as a result of both the lower labor productiveness and lower cargo volumes transshipped.

For port of Varna a trend of continuous increase in the revenues per employee is observed, as in 2015 a growth of 31,8% compared to 2010 is reported. Consequently the main activities at the port are carried out efficiently, as the average wage costs for the same period are also increasing but on lower pace than the increase of the revenues per employee (17%).

Conclusions

The efficient performance of sea ports is determined to a large extent by the presence of enough and qualified personnel, as well as by the favorable conditions of the working environment. Based on the analysis done in the previous chapters about the human resources management in maritime transport, the following conclusions could be made:

Firstly – the number of transport workers at sea ports decrease each following year as in 2015 a drop of 31,1% compared to 2010 is observed. The share of persons employed at ports of Varna and Burgas is hardly 1,28% of the total number of workers in the transport sector.

Secondly – a trend of continuous discharge of transport workers at sea ports is reported as well as lower labor productiveness.

Thirdly – although a growth of 26% in the amount of wages at sea ports is reported for 2015 compared to 2014 the workers monthly incomes could not efficiently perform their reproductive function as the consumer price index increases at faster pace for the same period.

Lastly – the revenues per employee at sea ports decrease with 20,1% in 2015 in comparison to 2013.

As a result of the analyzed system of indicators, the main problems that hinder the effective human resources management at sea ports could be outlined as well as measures for their surmounting could be proposed. In this regard the regression analysis is applied in order to be determined which of the indicators influence the most the fluctuations in the number of workers and in this way the appropriate measures to be taken into account.

The biggest influence over the fluctuations in employment at ports exercises the rates of wages, as 90,9% of the variations in the number of persons employed due to the payments of labor. In this regard the level of wages must be standardized with the level of wages in the other member-states as in short-term run to those in the new member-states (Poland, the Czech Republic, Romania).

On the next place, crucial significance for the effective human resources management have the revenues per employee and 71% of the variations in the number of workers at sea ports due to this indicator. Some of the measures that could be taken into account are *firstly* – much more cargo flows to be attracted as a result of the implementation of innovative transshipment facilities and *secondly* – implementation of autonomous, competitive, efficient and transparent infrastructure charges pricing in accordance with the trade and financial policy of the ports.

As a result of the regression analysis, it was specified that the consumer price index also influence the fluctuations in the number of persons employed at sea ports, as approximately 54% of the dynamics in the number of transport workers due to the inflation. The introduction of wages which amount rises at faster pace than the consumer prices will both allow better image of the maritime transport as a favorable environment for professional realization of young graduates to be achieved and will contribute to better living standard of the transport workers.

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