

SYSTEM OF THE ASSESSMENT INDICATORS OF THE COMPETITIVENESS OF THE CONSTRUCTION INDUSTRY

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Michael Porter, US professor of economics, at the end of last century had devoted a considerable attention to the research of competitiveness and its increase by revealing affecting factors of the competitiveness of the industry and region. In his works M.Porter puts huge attention to the issues regarding the increase of the competitiveness [1; 2; 3]. Within the framework of this article the most considerable focus is put on the theoretical aspects of the competitiveness assessment of the construction industry. Recently, the construction industry has experienced rapid growth. After the Republic of Latvia has joined European Union, increment rate of the construction industry in actual process exceeds 20%. In the following years, development rate of the industry continued to increase until in 2007 due to the growing demand for different construction products for the use in the economic sector as well as in households it reached the growth rate of 52.6% [4]. In the circumstances of rapid growth of the industry, favourable conditions for the increase of the competitiveness of separate construction companies and entire construction industry develop. Within the framework of the work the construction competitiveness is researched in relation with the necessity of the construction industry to stand the competition with other industries of the national economy in the resource production market and meeting with the increasing import of the construction products. For the assessment of the competitiveness of the construction industry a system of indicators is being developed.

Topicality of this topic is related to the special status construction industry has in the system of national economy that is determined by following development aspects of the construction industry:

- a) construction industry creates material basis for the development of available capital in other economic sectors;
- b) construction industry has an important role in the development of the infrastructure of national economy that is used by other subjects of the economic activity and by state institutions in order to perform their functions and households as well;
- c) construction industry has an important role in the development of social sphere and takes part in the development of the materially technical basis necessary for the improvement of the level of social well-being of inhabitants;
- d) an important part of the construction production is used for military purposes and state security;
- e) Activities of the construction industry have explicitly seasonal character that increases expenses of the construction product and reduces the competitiveness of construction industry in the resource market.

The aim of this article is to reveal the method that can be used in the assessment of changes of the competitiveness of construction industry and by using the developed indices to carry out the

necessary calculations in order to be sure of the changes in the competitiveness of the industry during the time period from 2002 till 2007.

Explanation of the competitiveness concept of construction industry and its economic purpose

In the existing conditions of open economics and increasing globalization of economics, on one hand the construction industry is forced to compete with other economic sector of the local market of operation resources, but on the other hand there is the necessity to compete with imported construction products or foreign construction companies that want to take part in satisfying demand of the market of construction products by offering better quality and/or lower price. In the circumstances of open economics it is considered to be necessary to describe competitiveness of construction industry and assess it according to the standards of economic sector as well as on an international level.

Taking into consideration the above stated opinions, the **domestic competitiveness** of the construction industry can be defined the following way:

„domestic competitiveness of the construction industry - ability to acquire necessary resources in the appropriate quantity and quality, at the same time competing with other economic sectors in the resource market that is at the disposal of the state in order to make use of the acquired resources in the production of construction products thus facilitating the increase of the volume of gross domestic product.“

In the internal competitiveness of the construction industry the main attention is put on the resources that are at the disposal of the state and resource allocation in the resource market according to the demand of all economic industries and state internal supply. In the resource market the price is used for the determination of adequacy of the demand and supply. That means that the construction industry as well as other agents of economic activity in the conditions of resource insufficiency has to offer price for the resources taking into account total amount of demand and supply. It is important to draw out that resource insufficiency does not exist for those subjects of economic activity who are able to offer higher price in order to ensure the necessary resources for provision and broadening of economic activities. If for the expansion of production in the construction industry it is necessary to draw in additional resources, then it is possible only in the case if companies working in this industry can offer higher price in comparison with other participants of the resource market. It has to be considered that the government and the society are interested that the resources they have at their disposal – workforce, capital and land utilization are used in the best and most efficient way and subjects of the economic activity operating in the construction industry have to reckon with that.

In the system of open economics domestic construction companies have to take into consideration the possible import of construction products. With the increase of resource prices and production costs, probability of partnership of foreign construction companies to satisfy local market demands also increases. But import of construction products reduces the gross domestic product produced in the country and does not facilitate the increase of the level of inhabitant well-being. Increase of external competitiveness of the construction industry can be defined the following way:

„external competitiveness of the construction industry –ability to produce different construction products according to the technical regulations for the price that is not higher than the price offered by potential competitors abroad, at the same time following all the requirements of conformity in the country in which the product is produced.“

Rapid growth of the construction industry and other economic sectors observed in the recent years made a negative side effect – price increase for resources and finished product. That has a negative impact on the competitiveness of the subjects of economic activity and implicitly facilitates the increase of competitiveness of products produced by foreign companies in the national economy of Latvia. From the point of view of the subjects of national economy it is important to purchase the necessary commodity with particular quality features for lower price. Therefore, external competitiveness in this case influences companies inland in a positive way - making them constantly take care of innovative products, modern technologies and materials, improvement of work organization in order to reduce production expenses. Finally, that provides an opportunity to offer the commodity for lower price and increase company competitiveness both in the domestic and external market. This means that internal and external competitiveness of the companies operating in the construction industry are mutually connected and improves each other.

Advantages of the competitiveness of the traffic industry

Competitiveness of the construction industry is made by the advantages of competitiveness that can be divided in the following groups:

- 1) Advantages of natural competitiveness, the most important of them are:
 - a) geographical location of the country;
 - b) amount and quality of resources that are at the disposal of the country;
 - c) area (territory) of the country;
 - d) market capacity.
- 2) Advantages of the acquired competitiveness, the most important of them:
 - a) ability to use efficiently resources that are at disposal;
 - b) ability and interest to use in the construction the most progressive technologies and newest building materials;
 - c) ability to be flexible to the market changes – constantly follow the changeable requirements and take them into account when producing a construction product;
 - d) ability to ensure the compliance of the construction product with the technical standards included in normative acts.

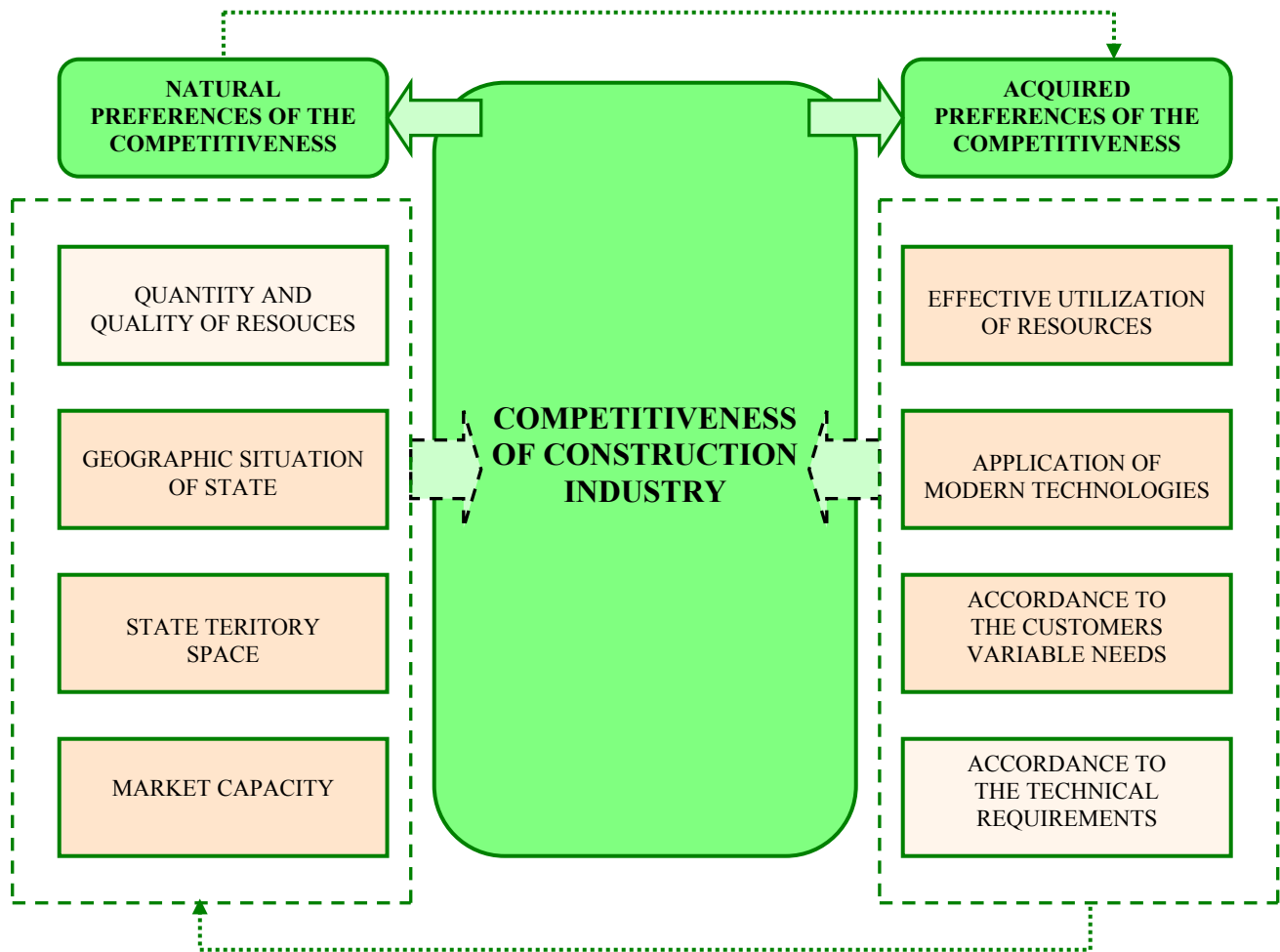
Graphical model of the correlation of competitive advantages developing the competitiveness of the construction industry is shown in Picture 1.

Graphical model of the correlation of competitive advantages of the construction industry

As it is illustrated in the model described in Picture 1, in the group of the natural competitive advantages of construction industry quality and quantity of the resources that are at disposal of the state and contributes to the development of the produced volume and conformity of the construction product are considered to have the highest priority. Territory of the country and market capacity are interrelated and factors complementing each other that contribute to the development of natural competitive advantages. In the model described in Picture 1, it is clearly illustrated that natural competitive advantages are involved in the development of acquired advantages and acquired advantages provide an opportunity to develop natural competitive advantages.

Acquired competitive advantages of the construction industry are considered to be determinative for ensuring internal as well as external competitiveness. Ability of the construction industry to use efficiently resources that it has at its disposal is taken to be the most important of the acquired

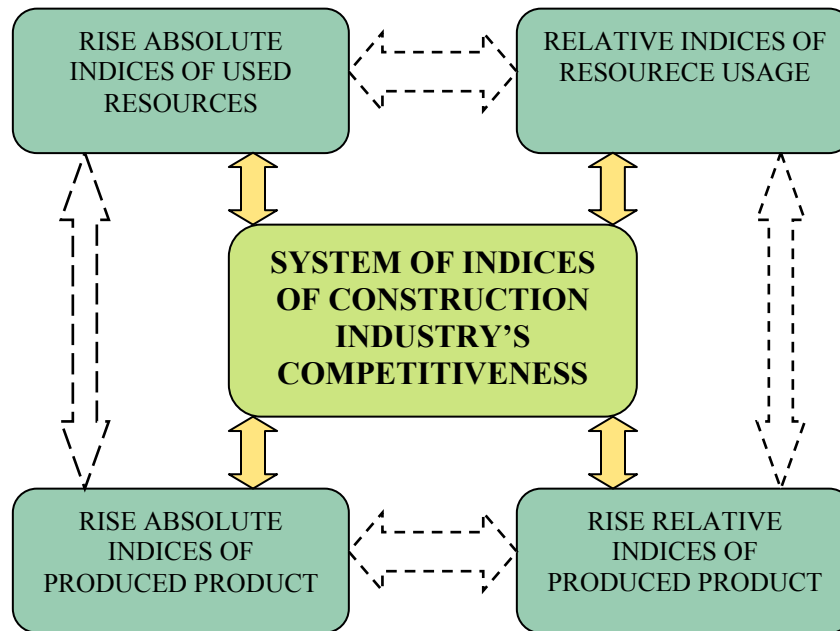
competitive advantages. In order to ensure it, it is necessary to reduce resource losses in different stages of the production cycle of the construction product. Efficient usage of resources is closely related to the management skills of the construction companies to react flexibly to the internal and external factors affecting the construction process. To maintain and increase the competitiveness, it is important to ensure the compliance of the produced construction product to the changeable requirements of the customers and normative acts regulating the construction process. It is important to note that provision of the technical compliance of the production of construction products is closely related to the quality of the finished product produced in the result of building and construction operations.



Picture 1. Competitiveness of construction industry

System of the indices of the competitive capacity of the construction industry

System of the indices of competitive capacity of the construction industry is made by 4 interrelated elements which are considered to be the most important and are illustrated in Picture 2.



Picture 2. Graphical model of the system of indices of construction industry's competitiveness

As it is illustrated by the graphical model of the system of indices shown in Picture 2, structure of the indices of the assessment of competitive capacity is developed according to the definition of the competitiveness of construction industry and by using classical principle of “input and output” of the production system. Taking into consideration this principle, in the system of indices describing the competitiveness the utilized resources – quantitative and qualitative indicators of the “system input” as well as quantitative and qualitative indicators of “system output” are included.

It is important to note that each of the elements included in the system consists of the group of several indicators. Indicators included in each group give opportunity to evaluate changes of the competitiveness of the companies operating in the construction industry in the production of construction products as well as in the rivalry with foreign companies operating in the construction industry in domestic market and abroad. In the model of system indices it is seen that elements included in the system are related to each other and every single element influences the entire system. This means that when the “system input” absolute and qualitative indicators change, the quantitative and qualitative indicators of the entire “system output” also change.

To apply the system of the indices used in the assessment of the competitiveness of construction companies, the following features of the system should be taken into account:

- a) which of the changes of the indices of competitive capacity included in the system influence the competitiveness of entire construction industry;
- b) all indices included in the system are interrelated and oriented to the common goal – to find the changes of the competitiveness of construction industry within definite accounting period;

- c) indices of the assessment of competitive advantage included in the system supplement each other and give more detailed idea on the changes of internal and external competitiveness of the construction industry.

Absolute indices used for the assessment and analysis of the competitiveness of construction industry

In the competitiveness assessment of construction industry several absolute and comparative indices can be used. Within the framework of the work the following most important **absolute indices** of the assessment of competitive capacity are revealed:

- 1) absolute increase of the produced construction product of a definite type within the accounting period. For calculation of the indicator the following equation can be used:

$$\Delta BP_{PP} = (\sum BP_{NE} + \sum NBP_{GB} - \sum NBP_{GS}) - BP_{PP0} \quad (1)$$

where ΔBP_{PP} – changes in the growth of the produced construction product within the accounting period;

$\sum BP_{NE}$ – construction products expressed in the terms of value in comparative prices put into operation within the accounting period;

$\sum NBP_{GB}$ – construction products of a definite type expressed in the terms of value in comparative prices unfinished within one year;

$\sum NBP_{GS}$ – construction products of a definite type expressed in the terms of value in comparative prices unfinished at the beginning of a year;

BP_{PP0} – volume of the produced construction product in the previous year.

The first equation can be used to determine the changes of the construction production produced in total during a year. Also in this case, in the calculations assessment of the produced construction products expressed in the terms of value in comparative prices can be used.

- 2) for calculation of the added value of the amount of added value produced by the construction industry within the accounting period – the following equation can be used:

$$\Delta PV_{BN} = (\sum IZL_{BN} - \sum SP_{BN}) - PV_{BN0} \quad (2)$$

where PV_{BN} – increase of the added value produced by the construction industry within the accounting period;

$\sum IZL_{BN}$ – output volume of the construction industry within the accounting period;

$\sum SP_{BN}$ – total value of the goods of intermediate consumption used for ensuring output of the construction industry;

PV_{BN0} – added value produced by the construction industry within the previous period.

- 3) absolute increase of the number of human resources – workforce employed by the construction industry within the accounting period can be calculated by using the following equation:

$$\Delta NDV_{PP} = \frac{\sum ND_{GS} \times DD_{NGS}}{\sum DD_G} + \frac{\sum ND_{PD} \times DD_{NPD}}{\sum DD_G} - \frac{\sum ND_{AD} \times DD_{NAD}}{\sum DD_G} - NDV_0 \quad (3)$$

where ΔNDV_{PP} – changes in the average number of workforce employed in the production of construction products within the accounting period;

$\sum ND_{GS}$ – number of workforce employed by the construction industry at the beginning of the year;

$\sum DD_{NGS}$ – number of working days per year worked by the employees employed at the beginning of a year;

$\sum DD_G$ – number of working days per year;

$\sum ND_{PD}$ – number of workforce employed by the construction industry hired during a year;

$\sum DD_{NPD}$ – number of working days per year worked by the workforce hired during a year;

$\sum ND_{AD}$ – number of workforce of the construction business fired during a year;

$\sum DD_{NAD}$ – number of working days per year worked by the workforce fired during a year;

ΔNDV_0 – average number of workforce employed in the production of the construction products in the previous period.

In case of the necessity the 2nd equation can be used for determining quantitative changes in the workforce employed in the building work for production of a definite type of construction product or changes in the number of workforce employed by the construction company during a year or within another accounting period.

4) changes of the average annual value of the assets that are at the disposal of the companies operating in the construction industry within the accounting period are calculated by using the following equation:

$$\Delta KV_{PP} = \frac{\sum KBN_{GS} \times DD_{KGS}}{\sum DD_G} + \frac{\sum KBN_{IG} \times DD_{IG}}{\sum DD_G} - \frac{\sum KBN_{NG} \times DD_{NG}}{\sum DD_G} - KV_0 \quad (4)$$

where ΔKV_{PP} – changes of the average value of the assets used for the production of construction products within the accounting period;

$\sum KBN_{GS}$ – value of the assets used in the construction at the beginning of the year;

$\sum DD_{KGS}$ – number of working days per year of the capital investment used at the end of the year;

$\sum KBD_{IG}$ – amount of the assets bought during a year to use it in the construction;

$\sum DD_{IG}$ – number of working days per year of the capital investment bought during the year;

$\sum KBN_{NG}$ – amount of the assets written-off during a year in the construction industry;

$\sum DD_{NG}$ – number of working days per year of the capital investment written-off during the year;

KV_0 - average value of the assets used for the production of construction products during the previous period.

5) changes in the absolute increase of the value of building materials used for the production of construction products and other current assets within the accounting period are calculated by using the following equation:

$$\Delta ALV_{PP} = \frac{\sum AL_{GS} \times DD_{ALGS}}{\sum DD_G} + \frac{\sum AL_{IG} \times DD_{ALIG}}{\sum DD_G} - \frac{\sum AL_{GB} \times DD_{ALGB}}{\sum DD_G} - ALV_0 \quad (5)$$

where ΔALV_{PP} – changes in the average annual value of current assets used for the production of construction products within the accounting period;

$\sum AL_{GS}$ – value of the current assets that are at disposal of the construction industry at the beginning of the year;

$\sum DD_{ALGS}$ – number of utilization days per year of current assets that are at disposal of the construction industry at the beginning of the year;

$\sum AL_{IG}$ – amount of current assets acquired by the construction companies during a year;

$\sum DD_{ALIG}$ – number of utilization working days of the current assets acquired during a year;

$\sum AL_{GB}$ – amount of current assets acquired during a year and not used;

$\sum DD_{ALGB}$ – number of working days of the amount of current assets acquired and not used by the construction company during a year;

ALV_0 – average value of the amount of the current assets used for the production of the construction products in the previous period.

6) changes in the increase of intermediate consumption used for the production of construction products within the accounting period are calculated by using the following equation:

$$\Delta SP_{BN} = \sum SP_{BN1} - \sum SP_{BN0} \quad (6)$$

where ΔSP_{BN} – changes in the increase of the added value used for the production of the added value produced by the construction industry during the accounting period;

$\sum SP_{BN1}$ – intermediate consumption of the construction industry during the accounting period;

$\sum SP_{BN0}$ – intermediate consumption of the construction industry during the previous accounting period.

7) changes in the increase of credits given to the companies operating in the construction industry within the accounting period are calculated by using the following equation:

$$\Delta IK_{PP} = \frac{\sum (KA_{GS} \times DD_{KAGS})}{\sum DD_G} + \frac{\sum (K_{IG} \times DD_{IK})}{\sum DD_G} - \frac{\sum (K_{AG} \times DD_{AK})}{\sum DD_G} - IK_0 \quad (7)$$

where ΔIK_{PP} – average annual amount of credits given to the companies operating in the construction business;

$\sum KA_{GS}$ – balance of the total amount of given credits at the beginning of the year;

$\sum DD_{KAGS}$ – number of the days the credits given at the beginning of the year are used during a year;

$\sum K_{IG}$ – total amount of credits given to the construction companies during a year;

$\sum DD_{IK}$ – number of working days per year in which given credits are used;

$\sum K_{AG}$ – total amount of credits returned within a year;

$\sum DD_{AK}$ – number of working days per a year in which the credits returned within a year have been used;

IK_0 – average amount of credits given during a year to the companies operating in the construction industry in the previous year.

8) changes in the increase of the total amount of invested and accrued foreign capital in the companies operating in the construction industry within the accounting period are calculated by using the following equation:

$$\Delta UAI_{PP} = \frac{\sum (UAI_{GS} \times DD_{AIGS})}{\sum DD_G} + \frac{\sum (AI_{IG} \times DD_{AI})}{\sum DD_G} - \frac{\sum (AI_{ZIG} \times DD_{ZI})}{\sum DD_G} - UAI_0 \quad (8)$$

where ΔUAI_{PP} – changes of the accrued foreign investment sum in the accounting period for companies working in the construction industry

$\sum UAI_{GS}$ – balance of the total amount of accrued foreign investments at the beginning of the year;

$\sum DD_{AIGS}$ – number of the utilization days per year of the existent accrued amount of foreign investments at the beginning of the year;

$\sum AI_{IG}$ – total amount of foreign investments incoming in the construction companies during a year;

$\sum DD_{AI}$ – number of the days in which foreign investments incoming in the construction companies are used during a year;

$\sum AI_{ZIG}$ – total amount of foreign investments lost during a year;

$\sum DD_{ZI}$ – number of utilization working days per year of the total amount of foreign investments lost during the year;

UAI_0 – average amount of accrued foreign investments in the previous period.

9) changes in the increase of the export of construction production are calculated by using the following equation:

$$\Delta EX_{BN} = \sum EX_{BN1} - \sum EX_{BN0} \quad (9)$$

where ΔEX_{BN} – indicator of the increase of changes of the export product produced by the construction industry;

$\sum EX_{BN1}$ – export volume of the construction industry during the accounting period;

$\sum SP_{BN0}$ - export volume of the construction industry during accounting period in the previous period.

10) changes in the increase of import of construction production during the accounting period are calculated by using the following equation:

$$\Delta IMP_{BN} = \sum IMP_{BN1} - \sum IMP_{BN0} \quad (10)$$

where ΔIMP_{BN} – indicator of the increase of changes of import product produced by the construction industry;

$\sum IMP_{BN1}$ – import volume of the construction industry during the accounting period;

$\sum IMP_{BN0}$ - import volume of the construction industry during accounting period in the previous period.

11) changes in the export and import balance of construction production are calculated by using the following equation:

$$\Delta EIS_{BN} = (\sum EX_{BN1} - \sum IMP_{BN1}) - EIS_{BN0} \quad (11)$$

where ΔEIS_{BN} – indicator of changes of export and import balance of the produced construction product;

EIS_{BN0} – export and import balance of the construction product in the previous period.

Last three equations can be used for assessment of external competitiveness in comparison with other industries of economic activity. It is important to draw out that the indicators of the competitiveness of construction industry can be used together with the respective indicators of a particular company or other industry of economic activity of the object selected for the comparison. Usage of absolute indices for assessment of the competitiveness of construction industry is quite limited. The following activities should be performed for practical application of these indices:

a) to determine economically and technologically compatible, mutually connected absolute indices that are used for the assessment of competitiveness. For instance, changes in the intermediate consumption and added value of the products produced by the construction industry;

b) to select objects to be included in the competitiveness assessment – construction industry and competing industries of economic activity operating in the resource market;

- c) to choose the period of the competitiveness assessment, for instance, quarter, half a year, a year, several years and so on;
- d) to compare objects of the study, changes in the indicators characterizing competitiveness within the chosen period of the competitiveness assessment;
- e) to assess and interpret the obtained result, for instance, the competitive advantage of the construction industry will be higher if the effectiveness indicator – absolute increase of the added value is higher than the increase of intermediate consumption of the resources in comparison with the respective indices of the rivalry object.

Regardless the restrictedness of the application of absolute indices in the competitiveness assessment of two or several subjects of economic activity, their calculation is crucially necessary for further application in order to determine the indicators of the competitiveness.

Comparative indicators applied for the assessment of the comparative advantage of the competitiveness of construction industry

Comparative indicators applied for the assessment of the comparative advantage of the competitiveness of construction industry are mainly guided to the utilization efficiency of resources that are at the disposal of the industry and to intensity comparison of different development processes with existing and potential rivals. To analyse and evaluate the competitiveness the following comparative indices that have the most of significance can be used:

- 1) for evaluation of the efficiency of the utilization of resources that are at the disposal of the construction industry the following equation can be used:

$$RIE_{BN} = \frac{\sum PV_{BN}}{\sum SP_{BN}}, \quad (12)$$

where RIE_{BN} – indicator of the efficiency of the utilization of resources that are at the disposal of the construction industry;

$\sum PV_{BN}$ - total added value produced by the construction industry during the accounting period;

$\sum SP_{BN}$ - intermediate consumption used for the production of added value of the construction industry.

- 2) efficiency of the utilization of labour force working in the construction industry can be calculated by using the following equation:

$$DR_{BN} = \frac{\sum PV_{BN}}{\sum NDV_{BN}}, \quad (13)$$

where DR_{BN} – indicator of the work productivity in the construction industry during the accounting period;

$\sum PV_{SN}$ - total amount of added value produced by the traffic industry during the accounting period;

$\sum ND_{SN}$ - average number of workers employed by the companies of traffic industry.

- 3) efficiency indicator of the application of capital that is at the disposal of companies operating in the construction industry;

$$KIE_{BN} = \frac{\sum PV_{BN}}{\sum KV_{BN}}, \quad (14)$$

where KIE_{BN} – indicator of the efficiency of the application of capital that is at the disposal of companies operating in the construction industry;

$\sum KV_{SN}$ - average annual value of capital that is at the disposal of companies operating in the construction industry per year.

4) efficiency indicator of the application of current assets that are at the disposal of companies operating in the construction industry:

$$ALIE_{BN} = \frac{\sum PV_{BN}}{\sum ALV_{BN}}, \quad (15)$$

where $ALIE_{BN}$ – efficiency indicator of the application of current assets that are at the disposal of companies operating in the construction industry;

$\sum ALV_{BN}$ – average annual value of current assets that are at the disposal of companies operating in the construction industry.

5) indicator of the labour-intensity of the added value produced by the traffic industry:

$$DI_{BN} = \frac{\sum (ND_{BN} \times NDD_{BNG})}{\sum PV_{BN}} \times \frac{1}{1000}, \quad (16)$$

where DI_{BN} – labour-intensity of the added value produced by the traffic industry during a year;

$\sum DL_G$ - number of man-hours worked during a year.

6) efficiency indicator of the application of money resources used for remuneration of the labour force:

$$DSA_{BN} = \frac{\sum PV_{BN}}{\sum (MND_{BN} \times MDA_{BN})}, \quad (17)$$

where DSA_{BN} – efficiency indicator of the application of money resources used for remuneration of the labour force employed by the construction industry during the accounting period;

$\sum MND_{SN}$ – average number of workers employed by construction companies per month;

MDA_{SN} - average monthly salary paid by the companies of the construction industry.

7) indicator of the assessment of credit standing of companies operating in the construction business:

$$KRS_{BN} = \frac{\sum_{i=1}^n KR_{BU}}{\sum PV_{BN}}, \quad (18)$$

where KRS_{BN} – indicator of credit standing of the construction industry;

$\sum KR_{BN}$ – total amount of credit given to the companies of the construction industry during the accounting period;

n- number of companies operating in the construction business which during the accounting period have got loans given by credit institutions.

8) efficiency of the application of given credit to construction companies can be calculated by using the following equation:

$$KRE_{BN} = \frac{\sum PV_{BN}}{\sum_{i=1}^n KR_{BU}}, \quad (19)$$

where KRE_{BN} – indicator of the efficiency of the application of given credit to the companies operating in the construction industry.

9) credit standing of the labour force employed by the construction industry indicates the capability of the working personnel of this industry to raise credits in order to ensure

amplification of the activities of the construction companies and their modernization. The indicator is calculated by using the following equation:

$$KRS_{DS} = \frac{\sum_{i=1}^n KR_{BU}}{\sum NDV_{BN}}, \quad (20)$$

where KRS_{DS} – indicator of credit standing of the labour force employed by construction industry;

$\sum NDV_{BN}$ - average number of workers employed during the accounting period by the construction industry.

10) export ability of the construction industry indicates the ability of the industry to compete with foreign companies by producing different construction products in other countries per one unit of the added value produced by the industry. Indicator of the export ability can be calculated by using the following equation:

$$EXS_{BN} = \frac{\sum EX_{BP}}{\sum PV_{BN}}, \quad (21)$$

where EXS_{BN} – indicator of export ability of construction industry;

$\sum EX_{BN}$ – total volume of the construction product produced abroad by construction companies.

11) import ability of the construction industry indicates the ability of foreign companies to produce different construction products in a domestic market, calculating per one unit of the added value produced by the construction industry. To calculate the import ability of the industry, the following equation can be used:

$$IMPS_{BN} = \frac{\sum IMP_{BP}}{\sum PV_{BN}}, \quad (22)$$

where $IMPS_{BN}$ – indicator of import ability of construction industry;

$\sum IMP_{BN}$ – total volume of construction product produced by foreign construction companies.

12) comparative indicator of foreign trade balance of construction product integrates indicators of export ability and import ability and indicates the external competitiveness of the construction industry changes in which can be evaluated within a certain accounting period during several years. To calculate this indicator, the following equation is used:

$$EXI_{BN} = \frac{\sum EX_{BP} - \sum IMP_{BP}}{\sum PV_{BN}}, \quad (23)$$

Indicators of the external competitiveness of the construction industry – export ability, import ability and comparative indicators of the balance of foreign trade in the circumstances of open economy, where no economic restrictions are for foreign trade and technical barriers are enhancing their importance. Indicators are applicable by comparing indicator changes within certain accounting period that consists of several periods and also comparing changes which can be evaluated within a certain accounting period during several years.

The developed system of the competitiveness indices of construction industry gives an opportunity to draw out the following conclusions regarding practical application of the developed indices:

- 1) the developed system of the competitiveness indices of construction industry consists of 2 parts – a group of absolute and comparative competitiveness indices. Each of these groups consist of the indices which can be used for the assessment of the changes of domestic and external competitiveness of construction industry;
- 2) application of the system of indicators of the competitiveness of construction industry is related to the conclusion that the competitiveness changes on an ongoing basis when the cycles of economic development of the country change and, conforming to the changes that affect internal and external factors of competitiveness;
- 3) local construction companies operating in the circumstances of open economic system where do not exist any economic restrictions and technical barriers for foreign companies to produce construction products demanded by the market, the system of competitiveness indicators of the of construction industry enhances the topicality of the application of these indices;
- 4) usage of the indices of absolute competitiveness is limited by the narrow economic contents of these indices, difficulties of their verification and interpretation in comparison with the respective indices of other rivals. Therefore, absolute indices are used for calculation of the indices of comparative competitiveness and in interconnection with them.

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Vanags J., Geipele I. Būvniecības nozares konkurētspējas vērtēšanas rādītāju sistēma

Konkurētspējas un tās paaugstināšanas pētījumiem liela uzmanība veltīta jau pagājušā gadsimta beigu periodā ASV, izdalot nozares un reģiona konkurētspēju ietekmējošos faktoros. Raksta ietvaros lielākā uzmanība tiek veltīta būvniecības nozares konkurētspējas novērtēšanas teorētiskajiem aspektiem. Būvniecības nozare pēdējos gados piedzīvoja strauju izaugsmi. Nozares straujas izaugsmes apstākļos veidojas labvēlīgi apstākļi atsevišķu būvuzņēmumu un visas nozares konkurētspējas paaugstināšanai. Darba ietvaros būvniecības konkurētspēja tiek pētīta saistībā ar nepieciešamību būvniecības nozarei konkurēt ar citām tautsaimniecības nozarēm ražošanas resursu tirgū, saskaroties ar būvniecības produkta pieaugošo importu. Raksta autori būvniecības nozares konkurētspējas vērtēšanai izstrādājuši rādītāju sistēmu. Tēmas aktualitāte saistīta ar būvniecības nozares īpašo vietu tautsaimniecības ekonomiskajā sistēmā. Raksta mērķis ir atklāt metodi, kura izmantojama būvniecības nozares konkurētspējas izmaiņu novērtēšanā un, izmantojot izstrādātos rādītājus, veikt nepieciešamos aprēķinus, lai pārliecinātos par nozares konkurētspējas izmaiņām laika posmā no 2002.gada līdz 2007.gadam.

Vanags J., Geipele I. System of the assessment indicators of the competitiveness of the construction industry

Already at the end of last century a considerable attention to the research of competitiveness and its increase by revealing affecting factors of the competitiveness of the industry and region had been devoted. Within the framework of this article the most considerable focus is put on the theoretical aspects of the competitiveness assessment of the construction industry. Recently, the construction industry has experienced rapid growth. In the circumstances of rapid growth of the industry, favourable conditions for the increase of the competitiveness of separate construction companies and entire construction industry develop. Within the framework of the work the construction competitiveness is researched in relation with the necessity of the construction industry to stand the competition with other industries of the national economy in the resource production market and meeting with the increasing import of the construction products. The Authors of this article have developed a system of indicators for the assessment of the competitiveness of the construction industry.

The aim of this article is to reveal the method that can be used in the assessment of changes of the competitiveness of construction industry and by using the developed indices to carry out the necessary calculations in order to sure of the changes in the competitiveness of the industry during the time period from 2002 till 2007.

Ванагс Я., Гейпеле И. Система показателей оценки конкурентоспособности строительной отрасли

Уже в прошлом столетии в США было уделено большое внимание исследованиям отраслевой и региональной конкурентоспособности и влияющих на них факторов. В статье основное внимание уделяется теоретическим аспектам оценки конкурентоспособности в строительной отрасли. В последнее время строительная отрасль переживала бурный подъем. В этих условиях образовались благоприятные условия для повышения конкурентоспособности отдельных строительных предприятий и строительной отрасли в целом. В статье исследуется конкурентоспособность строительной отрасли в связи с тем, что строительной отрасли приходится конкурировать с другими отраслями народного хозяйства на рынке ресурсов, а также со все возрастающим импортом строительных услуг. Поэтому авторы разработали систему показателей именно для оценки конкурентоспособности в строительной отрасли. Актуальность этой темы определена особым местом строительства в экономической системе народного хозяйства. Целями статьи являются разработка метода для оценки изменения конкурентоспособности, а также расчет изменения конкурентоспособности строительной отрасли Латвии в период времени с 2002 по 2007 год, в основе которого лежат полученные при помощи разработанного метода показатели.