

Forming New Approaches to Assessing Competitiveness of Economic Systems Exemplified by the Volgograd Region

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Abstract—Western nations, limiting economic relations with Russia, contribute to the formation of relevant imperatives of a competitive economy. Ensuring a high level of economy competitiveness cannot be possible without qualitative methods of its assessment. This paper considers I. Adizes' methodology-based approach to assessing competitiveness of socio-economic systems. The authors of the paper propose a composite competitiveness index including four indicators (performance, consistency, proactiveness and organicity of the socio-economic system) for baseline assessment of competitiveness of socio-economic systems. As far as dynamic assessment is concerned, it is proposed to form individual short-term and long-term competitiveness indices. Performance and consistency indicators are used to form the individual short-term competitiveness index. Proactiveness and organicity indicators are used to form the individual long-term competitiveness index. Comparative assessment of Volgograd Region's industries has been carried out. The indicator of a specific industry performance has been calculated as the share of an industry's enterprises in the turnover of all Volgograd Region's organizations. The other indicators have been calculated as follows: the consistency indicator as an industry's share of gross value added, the proactiveness indicator as an industry's share of fixed investment and the organicity indicator as an industry's share in the total number of Volgograd Region's enterprises and organizations.

Keywords—Competitiveness, region, regional economy.

I. INTRODUCTION

Domestic market development is becoming even more urgent at the time of the Western world's harsh stance on limiting economic relations with Russia. Successfulness of a solution to this issue, arising from the way of how region economies function and complicated heterogeneity of the economic space, is determined by competitiveness of industries, regions and regional economies.

This paper considers a methodical approach to assessing competitiveness of various economic systems (hereinafter referred to as "systems") exemplified by industries of the Volgograd Region. The subject-matter versatility of this approach makes it possible to apply it for assessing

competitiveness of particular enterprises, regions and national economies.

A detailed analysis of the most used methods for assessing competitiveness of territorial economies [1,5,6,7,8] allows to highlight their principal features. These methods to assessing a region's competitiveness are featured in the first place by their diversity which is due to various goals set during the assessment. It is also should be noted that the comprehensive nature of a region's competitiveness assessment indicator is a feature that all methods have in common. At the same time, various indicator groups are distinguished within all methods, and this surely makes the competitiveness assessment issue lack logical and content completeness.

Let us formulate principal features which are typical for the majority of methods for assessing competitiveness of regions and which make it possible to express some critical remarks regarding their content.

Firstly, each method proposes a set of particular indicators. The number of these indicators varies in each case.

Secondly, all methods are featured by correlations almost always found between indicators. For example, it is obvious that indicators of investment activity, productive capacity, performance etc. have impact on one another.

What is mentioned above calls for the need to clarify conditions of forming assessment indicators within methods for assessing competitiveness of socio-economic systems in general and regions in particular. We believe that one should consider the following provisions so as to come to determine clarifications. Firstly, the level of the system's competitiveness as well as the level of its economic indicators, which can be used for assessing competitiveness, are an effect, that is the overall result of the system's work.

Secondly, if the system's competitiveness (more precisely, its level) is an effect of its functioning, then there is a process which should be its cause. At the same time, it could be possible through influencing this process to influence the system's competitiveness by changing its parameters. It is

important to determine this causal process whose indicators could be used as assessment indicators of competitiveness.

Acquiring some property as well as competitive advantage by a product during its production depends in the first place on the management process. The more successful this process is (more precisely, it is about management of resource and factor use or development during production), the more successful is transformation of resource and factor (objects, processes and working conditions) properties into competitive advantages of the end product during its production.

If the management process is considered as a basic condition for making a product competitive (as it has been mentioned above), then it should also be considered as a basic condition for ensuring competitiveness of entities producing this product.

In our opinion, this conclusion determines the content focus of future clarification of conditions for assessment indicator formation within an assessment model of competitiveness of socio-economic systems (including regions).

The organization management methodology by I. Adizes, a renowned researcher and management consultant, is considered in this paper as a methodological justification of the proposed approach to forming assessment indicators of competitiveness of socio-economic systems [2].

According to Adizes' methodology, successful organization management depends on its *productiveness* and *efficiency* within short-term and long-term periods. The system is *productive within a short-term period* if its *performance* is ensured during its management. In order to achieve performance, the management process is aimed at achieving results pursued by the system including satisfaction of customers' needs which, with regard to particular products, is the principal function of the system.

The system is *efficient within a short-term period* if its *consistency* is ensured during its management. In order to achieve consistency, all processes within the system should be systematized and management based on administering, budgeting, analysis, control, audit, monitoring, standardization, regulation etc. should be provided.

The system is *productive within a long-term period* if its *proactiveness* is ensured during its management. In order to achieve proactiveness, the management should be aimed at making changes within the organization, adapting to new challenges and opportunities and ensuring innovation activity.

The system is *efficient within a long-term period* if its *organicity* is ensured during its management. The system is organic when its elements are held together by integrating dependencies and links making it possible for the system to adapt to changes in internal and external environment: some elements "help" others. Organicity of the system is determined by integrating qualities of its elements represented as "their intention to form coalitions [2]."

At the macroeconomic level (industry, region, country), the system becomes organic if its management results in integrative interactions between its structural elements as well

as integration of these elements and the system itself with the external environment.

According to Adizes' methodology, four systemic qualities for ensuring successful management may be applied to systems of various economic levels: enterprises, industrial complexes, regions and national economies.

A particular feature of the proposed approach for assessing the competitiveness of socio-economic systems is the fact that a list of eventual assessment indicators should be made on the single comprehensive condition of the successful system management.

Considering this, it is proposed to use *the composite competitiveness index* including four indicators determining the levels of performance, consistency, proactiveness and organicity of socio-economic systems so as to assess their competitiveness.

Individual short-term and long-term competitiveness indices are also proposed for the complete analysis and assessment of competitiveness of socio-economic systems within various time periods. The system is able to demonstrate high economic indicators during the current period and nothing may be done for its productiveness within a long-term period. For example, the system is able to use available production capabilities at full capacity without taking any action aimed at the development of these capabilities. In this case the individual competitiveness index for a long-term period unlike that for a short-term period may be unsatisfactory.

The individual index of the socio-economic system's competitiveness for a short-term period is based on two indicators determining the levels of performance and consistency.

The individual long-term competitiveness index is also based on two indicators determining the levels of proactiveness and organicity of the socio-economic system.

It is proposed to calculate composite and individual indices of competitiveness as geometric means of the product of indicators included in indices.

Assessment of industrial competitiveness with reference to particular kinds of economic activity in the Volgograd Region has also been conducted within the research. At the same time, economic values interpreting the methodological content of assessment indicators have been chosen individually.

Official regional collections of the Federal State Statistics Service of the Russian Federation (Rosstat) with the last one issued in 2017 at the time of this research have been used to calculate assessment indicators and industrial competitiveness indices [3]. At the same time, the 2017 Rosstat statistical collection contains only 2015 data about the industrial structure of gross value added which is why 2015 has become the latest year in our research.

The Rosstat 2017 Statistical Collection could not be used as it does not contain statistical data about the industrial structure of gross value added.

All indicators and indices have been calculated for each industry as a kind of economic activity. Names of industries corresponding to the All-Russian Classifier of Types of Economic Activity (OKVED) have been used during the research.

The following assessment indicators and indices have been formed for assessing industrial competitiveness of the Volgograd Region [4].

The performance indicator has been calculated as an industry's share in the turnover of Volgograd Region's organizations. This indicator has been calculated as follows: each industry's share (or relative values) in the total industrial turnover of the Volgograd Region has been calculated according to turnover values.

The consistency indicator has been calculated as an industry's share of gross value added of Volgograd Region's organizations (according to Rosstat's *Gross Value Added Sectoral Structure* tables).

The proactiveness indicator has been calculated as an industry's share in fixed investment of Volgograd Region's organizations. Each industry's share of the total fixed investment of all Volgograd Region's industries has been calculated according to fixed investment values.

The organicity indicator has been calculated as an industry's share in the number of enterprises and organizations of the Volgograd Region. Each industry's share in the total number of enterprises and organizations of Volgograd Region's industries has been calculated according to the number of enterprises and organizations.

The individual short-term competitiveness index for Volgograd Region's industries has been calculated as the geometric mean of the performance and consistency indicators, and the individual long-term competitiveness index as the geometric mean of the proactiveness and organicity indicators (see Fig. 1-2). The composite competitiveness index for Volgograd Region's industries has been calculated as the geometric mean of the performance, consistency, proactiveness and organicity indicators (see Fig. 3).

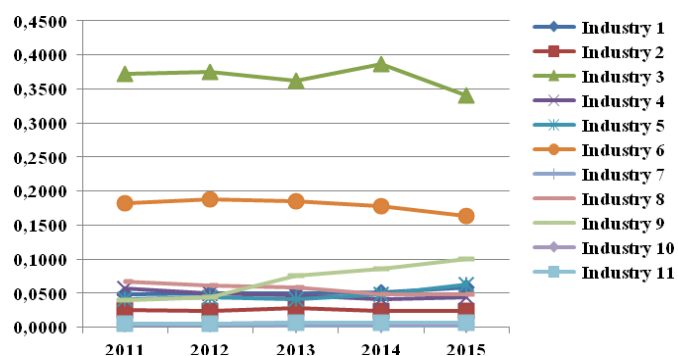


Fig.1 Individual short-term competitiveness index dynamics of Volgograd Region's industries in 2011-2015.

Numbers from 1 to 11 in the diagram are attributed to the following industries: 1 for Agriculture, Hunting and Forestry, 2 for Mineral Extraction, 3 for Manufacturing Activities, 4 for

Production and Distribution of Electricity, Gas and Water, 5 for Construction, 6 for Wholesaling and Retailing, Repairs of Motor Vehicles, Household Goods and Personal Items, 7 for Hotels and Restaurants, 8 for Transport and Communications, 9 for Real Estate, Renting and Services, 10 for Education and 11 for Healthcare and Social Services.

The considered approach ensures a relative assessment of industrial competitiveness within the economic system (region or industry). This does not make the proposed approach for assessing competitiveness limited or imperfect. On the contrary, the absence of the absolute measuring scale makes the approach autonomous and independent of measuring instruments.

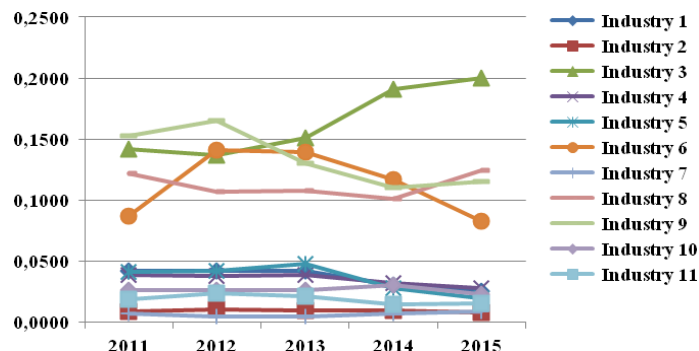


Fig. 2. Individual long-term competitiveness index dynamics of Volgograd Region's industries in 2011-2015.

It should be noted that by determining different values of each of the two individual competitiveness indices in the value of the composite index we can talk about different dominations of individual indices.

According to which individual index has a larger presence in the value of the composite index, we can make an indirect conclusion about a relative contribution to total competitiveness on the part of short-term or long-term competitiveness.

Selection of economic values most suitable for interpreting assessment indicators should also be done within another research.

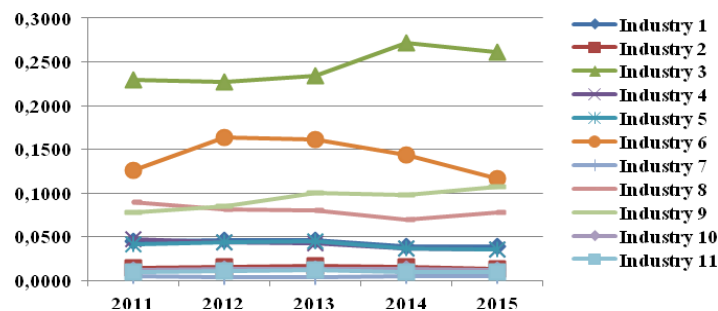


Fig. 3. Composite competitiveness index dynamics of Volgograd Region's industries in 2011-2015.

II. CONCLUSION

We have come to the following conclusions during this research:

1. A particular feature of the proposed approach for assessing competitiveness of socio-economic systems is the fact that the entire list of assessment indicators is made on the single comprehensive condition of *the successful system management*.

2. Forming *individual short-term and long-term competitiveness indices* is proposed for the complete analysis and assessment of competitiveness of socio-economic systems within various time periods.

3. A comparative analysis of industrial competitiveness exemplified by the Volgograd Region has been conducted.

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