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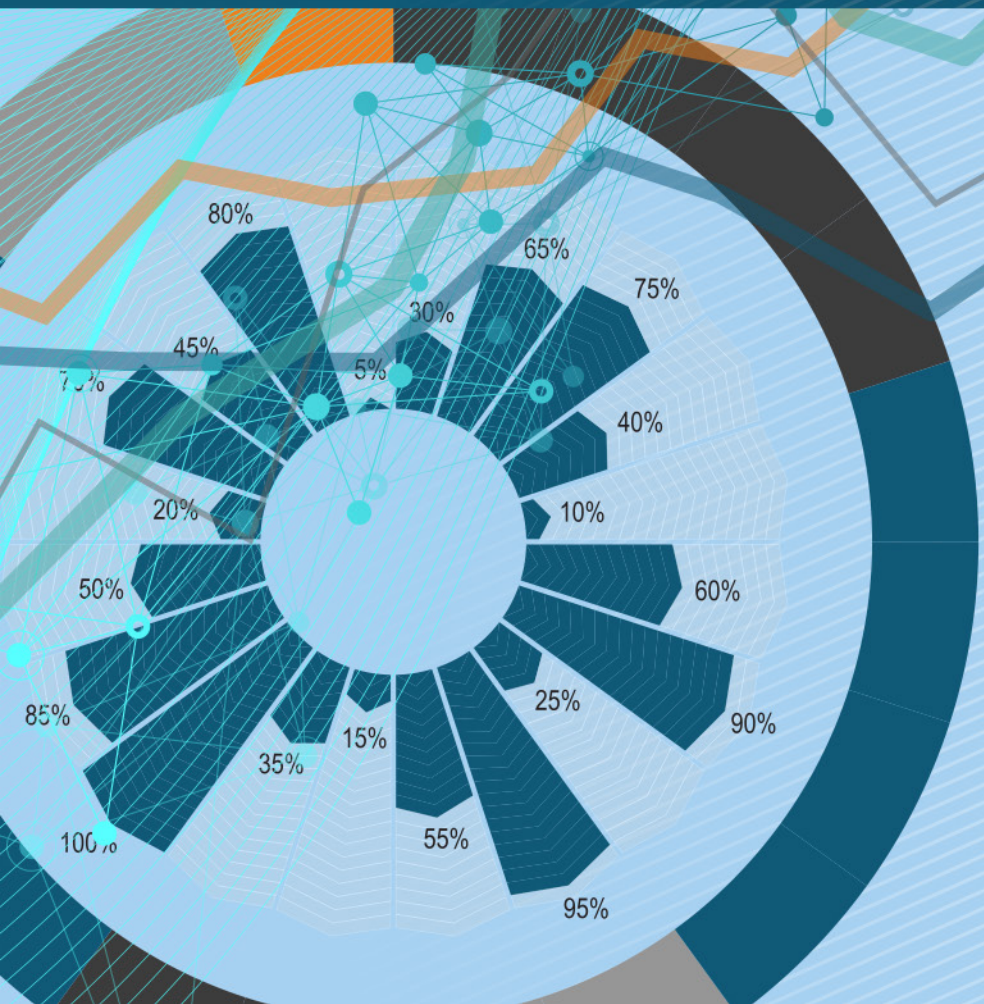

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Contents

THE COMPETITIVENESS OF THE REGION: METHODOLOGICAL PROBLEMS OF RESEARCH

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Abstract. The theory of competition received the most complete development in the middle of XIX century in «Capital» by K. Marx «Capital». However, in the late 19th and early 21st centuries, the competitiveness of the regions became an independent research area. M. Porter made a great contribution to the development of competition theory and practice. However, the methodological problems of the study of the competitiveness of the region are still not given the sufficient attention. There is no common interpretation of the essence of «regional competitiveness», no system of indicators and factors shaping regional competitiveness but there are many methods for evaluating it.
The article identifies groups of factors determining the competitiveness of the regions and their competitive advantages, shows the relationship of competitiveness to the socio-economic development of the region, defines the stages of use of programme-targeting method for managing regional competitiveness. It has been shown that one of the main strategic objectives of the socio-economic development of the regions should be to improve their competitiveness.

Keywords: competition, regional competitiveness, competitive advantage, programme-targeting method, ranking.

JEL codes: E01, A52

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Introduction

Competition is a scientific category inextricably linked to the functioning of socio-economic systems. It is a key concept expressing the essence of market relations. The concept of competition itself was formed in ancient times and comes from the Latin concurrentia «collision, escape», but the modern term «competition» comes from the German word «konkurrenz». Competition was understood to be a conflictual rivalry that led to the acquisition of various advantages by certain over others.

Competition arose simultaneously with market relations, and the first works on the role of competition came from the classical school of political economy, William Petty (1623-1687) and Anna Robber Jacques Thurgo (1727-1781). However, the first theoretical provisions of competition were formulated in the middle of XVIII century by Adam Smith (1723-1790) as one of the founders of economic theory in «The Study on the Nature and Causes of Wealth of Nations» (1776) where he studied the specificities of competition at the micro level, developed a competition mechanism, identified the basic conditions of its efficiency. «The Beginning of Political Economy and Taxation» by David Ricardo (1772-1823) and «A treatise of political economy, or a simple description of the way in which wealth is created, distributed and consumed» by Jean-Baptiste Saya (1767-1832) so as other representatives of classical school of political economy made a definite contribution to the theory of competition.

The most complete development of competition theory came in the middle of XIX century in the context of capitalism and marxism. The German philosopher and economist Karl Marx (1818-1883) considered competition as one of the driving forces for the development of the capitalist mode of production («Capital», 1867).

Competition and competitiveness are not identical. In general, competitiveness is the ability of an

economic entity to maintain and improve its position, outperforming others in achieving certain objectives.

Competitiveness is the ability to:

- to compete successfully in product markets (enterprise competitiveness);
- exploit competitive advantages (regional competitiveness).

For a region, achieving competitiveness leads to an opportunity to improve its efficiency as well as to take a higher place in the federal system. Nowadays competitiveness is becoming a basic condition for the sustainable functioning of Russian regions, and its main goal is to improve the living standards of the region's inhabitants. Regional competitiveness contributes to ensuring and enhancing the economic security of the region, which is achieved through the effective operation of enterprises in the real sector of the economy.

In the late 19th and early 21st centuries, regional competitiveness has increasingly come to be seen as a research area in its own right, underlining the theoretical and practical relevance of regional development analysis. Despite the importance of this area of research, it seems that insufficient attention has been paid to methodological issues. Probably because competitiveness of a regional perspective has not been a subject of scientific research for a long time. However, «regional competitiveness» as an economic category has not yet been fully defined. There are differences not only in the definition of the concept, but also in the analysis of the factors shaping regional competitiveness.

The formation and development of national competitiveness is considered in the works of American scientist Michael Eugene Porter (born 1947). He wrote that only those territories can be competitive which, having competitive advantages, retain them and, most importantly, create them.

Many scientists have contributed to the development of the conceptual apparatus of national and regional competitiveness, among them are R.A. Fatkhutdinov, A.Z. Selezneva, L.S. Shekhovtseva, N.Y. Kalyuzhnova and others.

In exposing the theoretical aspect of the essence of regional competitiveness, should be noted that economists are not united on the content of this concept, since there is no generally accepted definition of the term «competitiveness of the region» and, indeed, there are many approaches to interpreting its content and methods of assessment.

The classical approach to regional competitiveness was defined by M. Porter. He indicated it is a consequence of the competitiveness of firms located in the region (Porter, 2002a; Barabanov, 2014).

The Long-term Economic and Social Development Framework of the Russian Federation up to 2020 defines the region's competitiveness as the realization of its development potential (The Long-term Vision... 2020).

There are opinions that regional competitiveness is «the availability and realization of the competitive potential of a region» (Regional Economy, 2007). So, could be said, the competitiveness of a territory as a whole is «a defining characteristic of the level and prospects of regional development» (Comprehensive evaluation..., 2007, p. 44). And the city's competitiveness is in the protection of its market share (Begg, 1999, pp. 795-809). Also, there is the opinion, that «regional competitiveness is a multifactorial economic category which is dialectically interconnected with the competitiveness of a given region» and the regional competitiveness is a factor of economic development that can be described as a complex set of indirect factors (Chebykina, Gracheva, 2016, p. 5).

Professor V.A. Gordeev's opinion is interesting, which, in the analysis of competition, uses methods of systemic-evolutionary, system-structural and system-functional analysis (Gordeev, 2013). A number of authors point out that in a globalizing world, the region's competitiveness is a readiness to respond to the challenges of the global environment (Regional Basics..., 2007, pp. 160-163).

A large selection of definitions of regional competitiveness can be found in L.N. Chaynikova's monograph «Methodological and Practical Aspects of Regional Competitiveness Assessment», besides the theoretical aspects of competitive advantages and methods of regional competitiveness assessment are analyzed. (Chaynikova, 2008).

Results and discussion

We agree with the position of those authors who define the competitiveness of a region as the ability of a federal subject to realize the available economic potential for stable socio-economic development of the region in order to ensure a high quality of life for its population (Vasilyeva, 2010; Belyakova, 2001; Chub, 1999).

We consider the notion of regional competitiveness in relation to temporal characteristics:

- in statics, we can talk about the competitiveness of regions immediately for a set time. According to I. Begg, in this case competitiveness depends on the sectoral structure of the regional economy, the efficiency of institutions and other factors (Begg, 1999);
- in dynamics, competitiveness shows itself not only in rivalry, but also in the possibility of improving it. I. Begg pointed out that in the long run competitiveness depends on the ability to achieve sustainable changes in the factors that lead to productivity growth (Begg, 1999).

An important economic component of regional competitiveness is competitive advantage, which was first scientifically substantiated in the 1970s and 1980s by M. Porter (Porter 1993b; Porter 2005c). It is a certain value of a particular region that allows it to compete with others. Competitive advantages can be divided into actual, realisable and potential competitive advantages, which, depending on the development of the region, include such potentials as resource, financial, environmental, etc. Furthermore, competitive advantages are grouped according to their type:

- low-order advantages, which cannot provide long-term advantages over competitors (cheap resources: labor, material, financial; preferentially low prices for the purchase of goods);
- high-order advantages, which indicate that the region is sustainably competitive, i.e., it finds itself in a leading and unattainable position for some time (unique products, technologies, specialists, etc.; recognizable brands).

Regional competitive advantages are most often determined by a set of natural, institutional, socio-economic, scientific, educational, informational and other conditions prevailing in a region.

The economic components of a region's competitiveness are closely connected with its socio-economic development (Figure 1).

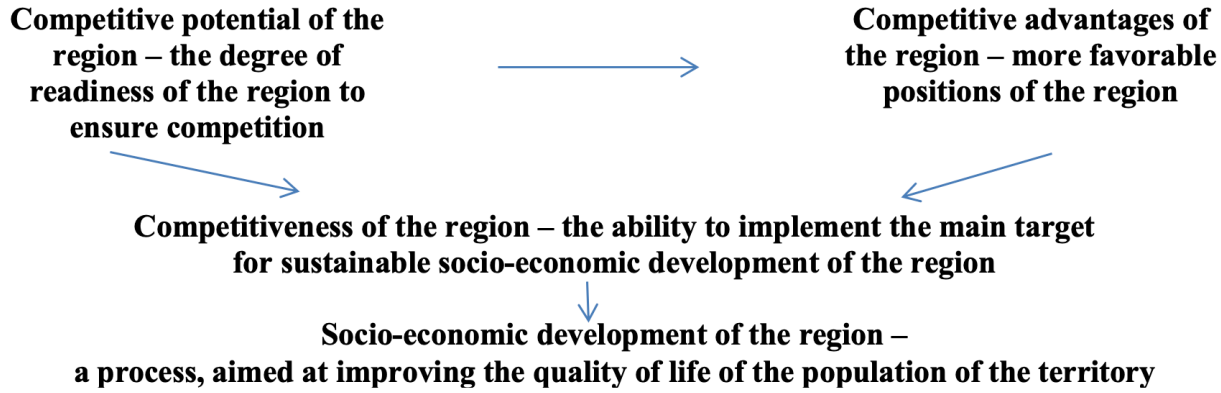

Figure 1. The relationship between the socio-economic development of the region and its competitiveness
Source: composed by the author

The competitiveness of a region is determined by various factors: economic, social, political, etc., and can be assessed in different ways. It should be mentioned, I. Begg considers productivity, employment and quality of life as indicators of competitiveness, and M. Porter considers productivity of use of regional resources (labor force, capital, etc.). From the point of view of the World Bank, the successful development of a region can be assessed by such indicators as: the level of GRP, the amount of natural and productive resources, and the education of the population.

The competitiveness of the regions of Russia is shaped by contradictory conditions, which have both positive and negative effects on it (Regional economy ... 2007, p.122), therefore for good governance it is

important to identify and analyze the factors determining the competitive advantage of the region. The main sets of factors and statistical indicators for analyzing the competitiveness of the region are presented in table 1. In terms of time characteristics, regional competitiveness factors can be divided into static (natural-climatic, geographical, etc.) and dynamic (demographic, socio-economic, logistical, political, etc.).

Table 1 - Groups of factors that determine the competitiveness of regions and their competitive advantages

Factor Groups	Indicators and directions of competitiveness development	Competitive advantages
Internal factors of the region's competitive advantages and competitiveness		
institutional	- federal regulatory and legislative framework; - the presence of regional legislation that determines the directions for improving the competitiveness of the region and protecting the interests of investors in the region; - institutional structure	- regional conditions for the development of competition
financial and economic indicators	- gross regional product, including per resident of the region; - the region's net financial result; - the level of development of the region's economy; - economic efficiency of production; - structure of the labor market; - the share of employees in small and medium-sized enterprises in the total number of employees in the region; - financial stability of the region's enterprises	- diversified structure of the economy; - industry specialization of the region; - development of small and medium-sized businesses in the production sectors of the economy; - development of the service sector; - low unemployment rate; - efficiency of the use of the fixed capital of the region
infrastructure projects	- the state of the infrastructure (social, telecommunications and ICT, transport, banks, etc.)	- development of the social and business infrastructure sector
investment projects	- the volume of investments in the economy of the region; - investment efficiency; - formation and use of investment resources; - investments in fixed assets; - share of foreign direct investment	- investment attractiveness; - mobilization of investments in the real sector of the economy and their effective use
scientific and technical	- NTP achievement level; - availability of universities, technology centers, and research organizations; - number of scientists per 10,000 people of the population	- the speed of updating the fixed assets of the region on a higher technological basis; - level of development of science and scientific research

Factor Groups	Indicators and directions of competitiveness development	Competitive advantages
entrepreneurial and innovative activity	- innovative strategy of the region; - share of innovative products in gross regional product; - the share of innovative products sold in the volume of industrial products	- innovative mobility; - availability of high scientific, intellectual and innovative potential of the region
socio-demographic indicators	- the standard of living of the population (the size of the subsistence minimum, the level of income of the population, etc.); - the demographic situation (population size, dynamics of natural growth, gender and age composition of the population, etc.); - development of human capital (intellectual capital, level of education, development of culture, health care, etc.)	- low cost of living; - high purchasing power of the population; - good demographic situation; - high level of human capital development
information services	- ICT development index; - use of information technologies and information and telecommunications networks by the population; - availability of telecommunications services	- the level of development of information and communication technologies
resource resources	- the quantity and quality of resources available to the region; - the level of qualification of the workforce	- availability of a knowledge resource; - availability of a highly qualified workforce
External factors of the region's competitive advantages and competitiveness		
natural and geographical features	- geographical location; - size of the territory; - climatic conditions	- favorable economic-geographical and transit position; - favorable climatic conditions
environmental issues	- effectiveness of environmental management	- favorable environmental conditions
political	- state support for the development of entrepreneurship; - the degree of stability of the political situation in the country	- regional support for the development of entrepreneurship
integration of the region into the global economic space	- changes in the global economy and international competition in the context of globalization; - structure of export and import (import and export) of the region;	- a high degree of involvement of the region in the international and interregional division of labor; - possibility of interregional cooperation

Factor Groups	Indicators and directions of competitiveness development	Competitive advantages
	- the presence of joint ventures and enterprises with foreign investments in the sectors of the economy	

Source: composed by the author

Problem-based management methods, one of which is program-based management, can be used to deal with long-term and complex situations in shaping the competitiveness of a region. The use of program-based management of the economy began in the 1920s with the creation of a targeted economic program for the electrification of Russia (the GOELRO plan). Later, the USSR gained a great deal of experience in developing targeted integrated programs. The methodology of the program-oriented method was developed in the USSR in 1960-1970. By its essence, it was similar to the Western technology of Peter Drucker's «Management by Objective» (Drucker, 2013).

In the programmed-oriented method, the set goals and objectives form a multi-level, hierarchically constructed target system characterized by a high level of concreteness, quantitative certainty and adaptability to the search for effective solutions (Skulches, 2012). The ultimate result of the program-based approach is the development of targeted programs that improve the credibility and soundness of plans, while at some point taking into account legal and regulatory constraints (Figure 2).

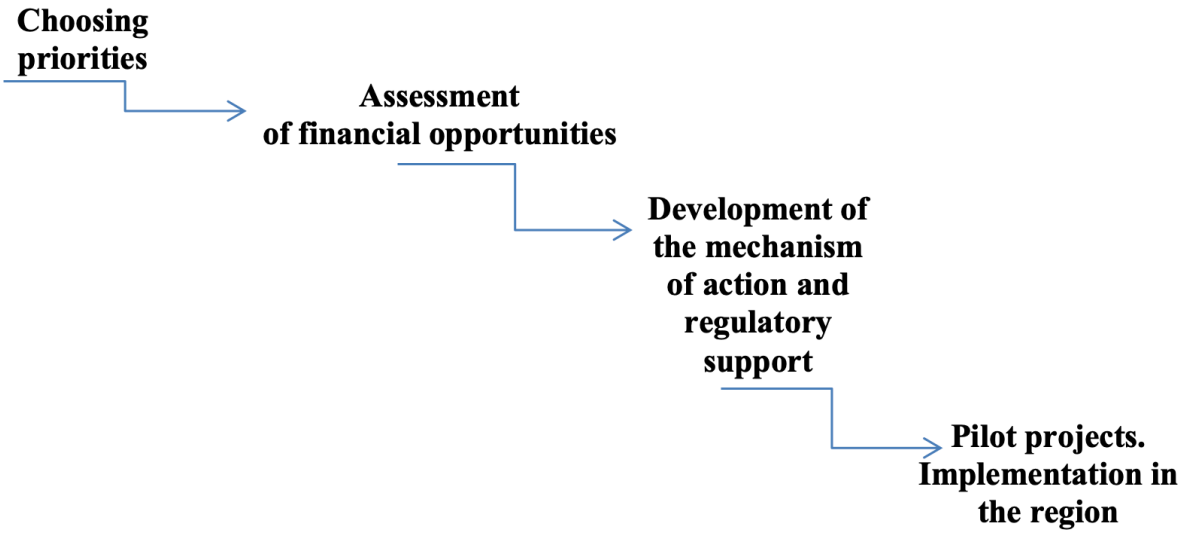

Figure 2. Stages of the program-target method

Source: composed by the author

The formula for program-based planning can be presented in the form of «objectives - ways to achieve the objective - means to achieve the objective - resources to achieve the objective - organization of implementation» or in short «objectives - ways - means».

L.S. Shekhovtseva proposes to use a program-targeted method based on regional determinants. For this purpose, a two-level «target tree» is formed and defines the significance of the objectives having temporal and quantitative characteristics. Thus, the influence of a factor on competitiveness is established (Shekhovtseva, 2001; Sidorenko, Voskanov, 2014).

There is a wide variety of different methodologies for the integral assessment of regional competitiveness. Their existence proves that a methodology for competitive analysis is still under development. We consider some of the most popular techniques in brief:

- ranking of socio-economic development with the subjects of the Russian Federation, based on a comparative analysis of the subjects of the Russian Federation according to a large set of indicators

characterizing various aspects of socio-economic development, as well as calculating a composite indicator allowing to position the subject among other regions;

- techniques related to multivariate statistical analysis: V.V. Pechatkin, S.U. Salikhov and V.A. Sablina applied methods of multivariate correlation and regression analysis using linear regression models in their study (Pechatkin, 2004). V.V. Merkushov used multivariate non-parametric methods, such as the method of relative differences, the Pattern method, and constructed a parabolic equation of the dependence of the standard of living on the level of competitiveness of the region (Merkushov, 2004). The advantage of the methodologies is that they are based on statistical methods of data processing and the construction of a system of indicators, including those characterizing the economic potential of the region, competitive advantages, etc. A disadvantage of the techniques is the large number of indicators used;

- L.I. Ushvitsky and V.N. Parakhina's methodology, which uses indicators of the region's investment attractiveness and activity, and the calculation of the integral coefficient of competitiveness of the region is carried out using the geometric mean formula. The advantage of the method is the accessibility of the information base, while the disadvantage is the missing of consistency in the choice of competitive factors;

- the assessment of regional competitiveness based on the N.I. Larin and A.I. Makayev index is similar to that used to determine country rankings. The advantages are the accessibility of the information base and the validity of the indicators for determining the level of competitiveness, while the disadvantage is that the methodology characterizes only general economic development;

- B.M. Grinchel and V.E. Kostyleva's methodology is based on different methods of assessing regional competitiveness: 1) on a ranking method of assessment (ranking method), 2) on the use of models for measuring regional potentials (financial, resource, natural, etc.) (Grinchel, Kostyleva, 2003);

- A.V. Antokhina's methodology assesses the competitiveness of a region based on a developed system of three groups of indicators: the level of economic development of the region, living standards of the population and investment attractiveness. The integral is calculated using the geometric mean formula. The advantage of the methodology is that it is based on official statistical reports published by the Federal State Statistics Service and no subjective weighting factors are used in the calculations (Antokhina, 2017). A disadvantage of the methodology is the missing of indicators of the competitive advantages of the regions.

Applying the methodology for rating socio-economic development of the subjects of the Russian Federation, we have concluded that there are significant differences between the regions in terms of socio-economic level of development, their investment attractiveness, favorable economic-geographical and transit location, etc. The most economically developed are the oil and gas areas. For example, Tyumen oblast per capita GRP is 28 times richer than the Republic of Ingushetia (Abramyan, 2020). Statistical data by the dynamics of GRP per capita by regions of Russia are shown in Table 2.

Table 2 - TOP-10 subjects of the Russian Federation in terms of «Gross regional product per capita» (thousands of rubles)

Subject of the Russian Federation	Years			
	2015	2016	2017	2018
Nenets Autonomous Okrug	5 210.1	5 821.6	6 288.5	6950.4
Yamalo-Nenets Autonomous Okrug	3 336.5	3 670.3	4 581.2	5710.1
Khanty-Mansi Autonomous Okrug-Yugra	1 947.7	1 852.3	2 127.2	2680.1
Sakhalin region	1 716.7	1 575.6	1 577.9	2407.9
Chukotka Autonomous Okrug	1 226.2	1 323.2	1 386.1	1578.5
Moscow	1 102.5	1 157.4	1 263.7	1423.6
Magadan region	854.6	1 006.6	1 088.3	1196.7
Republic of Sakha (Yakutia)	780.1	903.6	951.2	1123.1

Subject of the Russian Federation	Years			
	2015	2016	2017	2018
Tyumen region (without districts)	628.1	632.2	680.9	834.8
Komi Republic	614.0	640.6	679.2	796.8

Source: Regions of Russia, 2020

Russian regions such as Moscow and St. Petersburg have a distinct competitive advantage. Moscow ranks first in the regional competitiveness index (Abramyan, 2020). The development of the knowledge in the field of economy in the regions is related to science cities. There are 75 in Russia, but more are situated (31) in Moscow oblast (Batrakova, 2019a).

In terms of the Human Development Index (HDI), defined by income, educational attainment and longevity, the regions of the Russian Federation also differ significantly. Moscow, St. Petersburg and Tyumen Region have the greatest competitive advantages (Abramyan, 2020). The HDI of Moscow is almost the same as that of Norway, and the only region where the HDI is less than 0.8 is the Republic of Tyva (Batrakova, 2021b).

Conclusion

In conclusion, we note that a comprehensive assessment of regional competitiveness is important for the innovative development of territories. Therefore, one of the main strategic objectives for the socio-economic development of regions should be the improvement of their competitiveness. Strategic management is designed to ensure the long-term survival of the region and to identify competitive advantages.

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COMPETITIVENESS OF THE REGIONAL ECONOMY: A RANGE OF TOPICAL ISSUES OF THEORY AND PRACTICE

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Abstract. Based on the interpretations of competitiveness existing in the literature, the paper considers the competitiveness of the regional economy. The methodological principle of symbiosis of political economy and institutionalism shows that the development of the economy should be based on the knowledge of economic laws and the development of proper institutions that consort said identified laws (institutionalization of economic laws). The paper contains an outline of a range of topical issues related to the implementation of the competitive advantages of Russia and its regions. Among them is the comparison of the territory to an economic resource that requires integrated use; ensuring the integrity of socio-economic space, infrastructure development of territories, development of territorial and production complexes (clusters), human resources problem, etc.

Keywords: competitiveness, regional economy, economic space, territory, infrastructure, regional reproduction, cluster economy.

JEL codes: R11, R12, R23, R28, R58

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Introduction

The term «competitiveness» has recently been used more and more often in the modern literature and in the mass media. It applies to the country as a whole, to its individual regions, industries, cities, enterprises, goods (including labour) and services, and institutions. The titles of publications of recent years say the same (Karpov, 2006; Sorokin, 2014; Sadovnikova, 2017; Kitieva, Merjoeva, 2019; Maslova, Avdeev, 2019; Moseiko et al., 2019; Palgova, 2019; Tkachenko, 2019; Khvostenko, 2019 et al.). In other words, competitiveness is a multilevel notion. At each level, the content of the concept has both similar interpretations and differences associated with the objectives, scale of economic activity, economic and socio-cultural characteristics of development, a set of factors determining the external environment in relation to the economic entity. That is to say, competitiveness is a multifaceted category. It can also be considered in terms of competitive advantages — resource, technological, structural, socio-economic, institutional, etc.

In this regard, different interpretations of «competitiveness» can be found in the economic literature, depending on the object of study. Thus, if it is a question of a country's ability to enter the world market and occupy its own niche, in this case the emphasis is made on the compliance of traded goods and services with the requirements of the world market. M. Kitieva and L. Merzhoeva note that «the concept of 'country competitiveness' is the ability of a country in conditions of free international trade to provide the world market with goods and services that meet its requirements with a natural improvement of the well-being of the country and its citizens» (Kitieva, Merzhoeva, 2019, p. 65). In this regard, the competitiveness of goods is understood as «the comparability of their consumer and price performance with foreign analogs and their ability to meet consumer demand» (Chebotarev, 2020, p. 89).

The competitiveness of an organization is defined, for example, «as the ability to achieve its own goals even in the face of adverse environmental developments and competitor opposition» (Khvostenko, 2019). Personal competitiveness in psychology, pedagogy is defined as «a socially oriented system of abilities, properties, and qualities of a personality, characterizing its potential capabilities to achieve success (in studies,

professional and non-professional life activities), determining adequate individual behavior in dynamically changing conditions, providing internal self-confidence, harmony with self and the surrounding world» (Sadovnikova, 2017).

As applied to institutions, competitiveness is the victory of an institution in a competitive struggle. This «means that it is the one that gets disseminated, i.e. applied to solve everyday economic tasks. At the phenomenal level, this manifests itself in a change in the behavior of economic actors and bringing this behavior in line with the competitive norm» (Vasilenko, 2011, p. 188).

As for regional competitiveness, there are also different interpretations. Some emphasize the growth of regional residents' well-being through the target GRP per capita through «the efficient use of regional resources, and primarily labor and capital, compared to other regions» (Sharybar, 2015, p. 320). Others give a broad interpretation of this category, when the competitiveness of a territorial system is understood as «a relative characteristic of a territorial system that determines the availability, identification, and productive realization of its competitive territorial potential. The potential ensures the long-term independent vital activity of economic entities in the territory and sustainable increase in the rates of its socio-economic development, as well as proves an opportunity for the governing bodies of the territorial system competing with other territorial systems for various resources to influence macroeconomic policy, advocate the interests of the territorial system at a higher level of governance, and shape the necessary internal environment» (Moseiko et al., 2019, p. 93). In this interpretation, we see a number of aspects, properties, which we also investigate (Babayev et al., 2017; Babayev et al., 2018):

- firstly, the potential of the territory;
- secondly, the economic independence of the subjects of the territory;
- thirdly, sustainable development;
- fourthly, the socio-economic interests of the territories.

It also makes sense to talk about institutions that are adequate to the requirements of natural and socio-economic laws.

Methodological study basis

A symbiosis of political economy and institutionalism is used as a methodological framework. Political economy penetrates into the essence of a phenomenon or process, revealing regularities, laws of economy functioning, existing contradictions as a driving force of development; it lays the foundation for the development of socio-economic policy, reveals the possible consequences of certain decisions. Institutional economics considers formal and informal norms and rules, which, together with the mechanisms of inducement to comply with them, determine the behavior of economic subjects, leading them in a certain direction. In this interaction of the two economic-theoretical concepts, the objective and subjective principles are combined, and the essential (endoteric) and superficial (exoteric) relations do too.

The productivity of such synthesis has been proven in a number of scientific studies conducted at Ivanovo State University over the past 10 years (Koryagina, 2014; Kosobutskaya, Babaev, 2016; Babaev, Nikolaeva, 2018; Babaev B. & Babaev D., 2019, etc.).

Since the object of study is the regional economy (mesolevel), an important methodological principle is the system approach, which involves looking at the region as an integral open system, actively interacting with the system of a higher level (macroeconomy, megaeconomy), with various structures, relationships and links between elements, subjects, which, in turn, perform certain functions. Another property of the system should be called sustainability, self-preservation, as well as self-sufficiency and integrativeness.

The systemic approach implies the unity of the objective and subjective; the relationship between the theoretical and the applied; interaction of self-development (industry, complex, territory) and state regulation; the unity of historical and logical approaches; unity of natural, technical, economic, social processes.

The functioning of the system can be represented as a scheme:

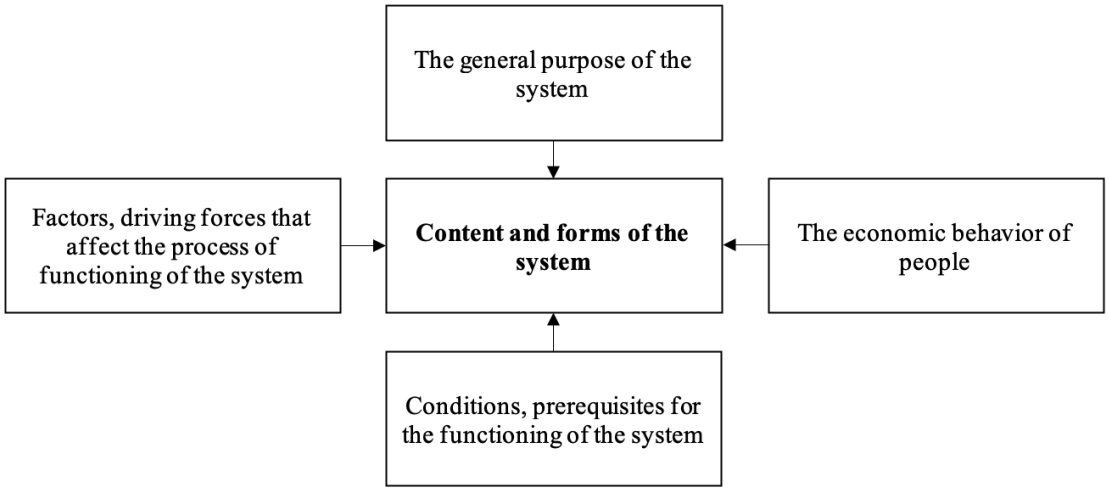

Figure 1. System operation mechanism

Source: composed by the author

Based on this understanding of the system and the mechanism of its operation, one can also consider issues of competitiveness of the regional economy.

Study

It is not the aim of this paper to expand in every respect the essence and manifestation of regional competitiveness. We want to draw attention to the key issues of this topic from a theoretical perspective.

If we talk about competitive advantages, then for any level of system, they are related to the resource potential and its use, i.e. the available opportunities. A region's competitiveness is often interpreted as «the productivity of using regional resources, mainly labour and capital, compared to other regions, which results in the value of the gross regional product (GRP) per capita and its dynamics» (Shekhovtseva, 2001). The resource potential within political economy leads to the problematic of reproduction, including regional reproduction. This involves investigating the conditions necessary for the continuous renewal of processes of both tangible and intangible production. It is important to take into account the unity of economic and social processes. The analysis of regional reproduction by stages (production, distribution, exchange and consumption) allows us to assess the achievability of the ultimate goal of economic development — increasing human well-being. Note that during the implementation of the research project «Theoretical and methodological foundations of an expanded understanding of the economic mechanism in the modern economy» in 2019-2020 with the financial support of the Russian Foundation for Basic Research, the research team proposed a six-stage scheme of social reproduction. Science and scientific service is considered a pre-production stage, followed by the four traditional stages (production, distribution, exchange and consumption), and finally «disposal of the result», i.e. the disposal of human industrial and domestic waste (Extended Concept, 2019) is added.

The topic of regional reproduction is relevant especially for Russia, which is a heterogeneous differentiated space. The researchers of economic space are V. V. Chekmarev, P. A. Minakir, A. N. Demyanenko, V. H. Ukrainskiy, A. I. Tatarkin, O. Ch. Tsyrenov, M. S. Astapenko et al. (Chekmarev, 2001, 2002; Minakir, 2011; 2017; Minakir, Demyanenko, 2010; 2012; Ukrainskiy, 2011; Tatarkin, 2008; Tsyrenov, 2012; Astapenko, 2018). Everything inside the country and its regions can be rightfully considered as an economic space (Pilyasov, Zamyatina, 2015). A number of Ural scientists develop such an approach to the regional level (Tatarkin, 2012; Tatarkin et al., 2012; Tatarkin, Lavrikova, 2015). The regional space as a part of the national and global economic space includes the spaces of the municipal and settlement levels.

Speaking about regional competitiveness, in our opinion, we should start with the study of the economic territory as an economic resource. Russia's territory has the most significant competitive advantage, which

has yet to fully realize its potential effects. This territory can be used as a kind of «bridge» between Europe and Asia, interaction between which is currently actively developing. There are many positive outcomes that can appear out of this. The very diversity of Russian territories, the multinationality of the peoples inhabiting these territories is also a great advantage to be realized. This concerns not only the tourist and recreational orientation of economic activity, but also the diversity of productions placed in these territories, taking into account the historically established traditions and cultural characteristics that influence the uniqueness of created goods and provided services.

Economic territory as a resource considered as a competitive advantage implies the study of such concepts as territorial location of production and population, land development, number and diversity of settlements, population density (this is related to the demographic factor of economic development), connectivity of territory, the development of the infrastructure (e.g., the development of road and transport network, road density, regularity of transport communication between settlements, sustainability of postal services), transit flows, investment (for the construction of roads, social facilities, to improve the quality of life of people in small settlements), the economic effects of using the territory as a resource. An important factor for increasing the efficiency is the exchange of goods between regions, labor migration, which affects the use of the territory in economic terms. The territories of advanced socio-economic development (ASED) with preferential taxation and administrative privileges, which Russia created to attract investment and accelerate economic development and improve people's lives, can be considered in the same way.

With regard to the Russian regions, which differ significantly from each other, in many of the above parameters of territorial competitiveness, there are problems leading to gaps in socio-economic space, when communication within regions is difficult, access to modern high-tech services is limited, «gaps» are formed (abandoned villages, economic objects such as cattle farms, uncultivated fields, empty idle enterprises, etc.). The regions of the country are increasingly differentiated by economic, environmental, and social indicators. This leads to an increase in centripetal processes (directed during the movement towards the center), when economic activity is concentrated in large cities, agglomerations, and the peripheral space is depopulated. There is both a natural decrease in population, when the mortality rate exceeds the birth rate, and an outflow of residents to more prosperous settlements and regions. The coronavirus pandemic in 2020, on the one hand, reduced migration flows (both internal and external) and, on the other hand, led to a significant increase in natural population decline. All this seriously complicated the demographic situation in the country and created additional threats to the integrity of the socio-economic space of the Russian economy. For example, Russian regions are experiencing a severe shortage of doctors and nursing staff — doctors left in droves to work in covidual hospitals in Moscow and St. Petersburg, where they were offered salaries several times higher than previously. This trend is confirmed by sectoral trade unions, mass migration of specialists is also confirmed by the data of Rosstat — mobilization of doctors and medical staff to work in hospitals in Moscow during the pandemic has significantly increased the outflow of personnel, especially from the regions closest to Moscow. Medical institutions in the Central Federal District lost almost 3,000 employees — doctors and nurses — in just a few months of 2020. The greatest loss of medical workers in the CFD is observed in the Tver, Smolensk, Vladimir, Ryazan, and Ivanovo regions. The Russian Duma insists on changing the system of doctors' payments, otherwise many specialists will never return to the regions. The shortage of doctors and nurses affects both the availability and the quality of medical care provided to the population. Even before the pandemic, the country lacked about 40,000 doctors and a lot more mid-level staff. The epidemic has led to hospitals in Russian regions being forced to employ undergraduates and residents. According to the Accounts Chamber of Russia, a number of regions was in the worst situation: Kurgan, Pskov, Vladimir, Tula, and Jewish Autonomous Regions, as well as the Chechen Republic (Medics are leaving en masse to work in the capital, 2021).

Russia's vast territories (both in latitude and longitude) pose a number of complicated demographic problems — the territories must be populated, but Russia has many undeveloped areas (with a population density of 5 people or less per sq km area is considered undeveloped), transport problems (transport lines, their maintenance, transport in large permafrost zones; water transport (use of rivers, lakes, seas for cargo and

passenger transportation). For many settlements remote from the center (the north of the country, Eastern Siberia, the south of the European part of the country, etc.) the issues of quality water supply, gas supply, reliable power supply are critical. For the country as a whole, waste management, etc. is an urgent issue.

Economic scientific literature, journalistic journals, Internet publications, social networks continue to discuss the prospects of depressed areas, including old industrial regions of the Upper Volga region, small towns, and rural settlements of these territories. It is widely known that a territory develops only when people live there, economic activity develops, business and authorities interact. At the same time, the presence of diverse enterprises and organizations is required to prevent the negative centripetal trend of concentration of economic activity in a certain number of large centers. It is necessary to regulate, limit these processes, taking into account not only the interests of large cities, but also the huge periphery. Here the topic of knowledge and the use of economic laws, as well as the choice of the most favorable development options, the formation of an adequate institutional environment becomes acute. It is necessary to redistribute resources in favor of the periphery by guaranteeing a significant share of the gross national product for the development of territories. In this case, one can expect an increase of regional competitiveness both on the scale of the national and global economies.

The strengthening of the center-periphery in the country's development, the reorientation of investment activity to the most developed areas, the stagnation of many small towns and villages, the sharp division of the country's regions into «rich» and «poor» can be considered as a discrepancy between institutional norms and the requirements of the law of proportionality and balance of social reproduction. This is manifested in the lack of a system of institutions adequate to the market realities of the Russian economy, ensuring the territorial balance of socio-economic development; the principle of systematic socio-economic policy, including regional policy.

Along with the vast territory of Russia as a competitive advantage, one cannot but mention natural resources in all their manifestations (subsoil, water, forests, flora, fauna, climate, etc.), which provide an opportunity to develop material production. As long as man exists in his present capacity, he will continue to have basic needs for food, clothing, shelter, transportation, and other material goods.

Speaking of natural resources, we should pay attention to deep processing of raw materials in Russia in order to export not raw materials, but a semi-product or a finished product with high added value. The development of industry (extractive, manufacturing), capital construction, the agricultural sector as part of material production is the foundation of development, which can ensure high competitiveness of the Russian economy only when relying on scientific research, technology corresponding to the sixth technological mode (according to Glazyev), highly qualified personnel. And high-tech manufacturing industry is a decisive factor in ensuring the competitiveness of Russian products on the domestic and global markets, improving living standards in the regions and in the country as a whole. The development of material production, and the manufacturing industry within it, is all the more urgent as Russia has to address import substitution to ensure national security under conditions of economic sanctions from other countries, as well as under the influence of the coronavirus pandemic. The Russian regions play a crucial role in this respect. And here success depends on the availability of labor resources of a certain quality in the region. We are talking about scientific, managerial, entrepreneurial personnel capable of proposing new ideas, conducting scientific research, carrying out R&D, translating them into real products and technologies, organizing new production projects. In this regard, attention should be paid to the opportunities for the development of «research and production complexes» and «science cities» in the regions.

The labour potential of Russia is considerable, amounting to about 75 million people. Although the unemployment rate in the country is relatively low, it is significantly behind the developed countries in terms of labor productivity (by 2-3 or more times). As a result, domestically manufactured products are not competitive in comparison with imported products. Western sanctions against Russia have played into the hands of domestic producers, as the share of their products in the supply of the population and the economy, such as food, has increased. One should also take into account the fact that the domestic Russian market is extremely capacious, its potential is far from being exhausted, so it is possible to develop import-substituting

production, focusing on the needs of Russian consumers.

In 2016, within the research project Fundamental Problems of Regional Reproduction, Ways, Methods, and Mechanisms of Their Solution with the financial support of the Russian Foundation for Basic Research, a team of scientists from Ivanovo State University studied the regional reproduction of the Upper Volga regions (Vladimir, Ivanovo, Kostroma, and Yaroslavl regions). The statistical analysis revealed the insufficiency of resources and factors of economic development of Ivanovo region, which led to the conclusion about inefficient use of natural potential and economic territory. Based on the analysis, it was noted that the region has demographic disproportions, problems in the use of labor resources of the region, in the structure of employment by sectors and types of economic activity, by urban and rural settlements. The research considered reproduction weaknesses of fixed assets through the state of capital equipment of enterprises in various industries, the degree of depreciation of funds, dynamics and structure of investment by types of funds, by territory of the region, changes in the structure of production, financial insolvency of many economic entities of the region. There is also an investigation into the road-spatial factor, which shows the degree of development of the territory of Ivanovo region. It is concluded that the intra-regional economic space is not used effectively, there is a significant asymmetry in the use of the economic territory (Babayev et al., 2017). All these problems complicate the task of ensuring the competitiveness of the Ivanovo region economy, which has been put into the category of depressed regions since the 1990s.

Considering the region as a socio-economic system, it should be emphasized that in comparison with the economy of the country, the region is a more open system (Babayev & Nikolaeva, 2018). This property of the regional economy significantly increases the importance of competitiveness of enterprises and complexes, regional products. An open economy in terms of production of goods and services cannot be regarded as self-sufficient, as it functions not only at the expense of its own resources, but also at the expense of attracting external resources as a result of involvement in the social division of labor. But in terms of value creation, development of commodity-money relations, the region's economy should be self-sufficient, i.e. be able to earn the necessary money for its existence and development taking into account financial interaction with the state. One of the significant obstacles in the Russian regional reproduction is the lack of self-sufficiency and self-development ability of the regions themselves and their municipal formations.

The urgent problem of Russian regions, including Ivanovo region, is the shortage of qualified personnel with specialized secondary and higher education, despite the fact that the region has a solid educational base (7 state universities, 5 branches, 19 colleges of various profiles concentrated mainly in the regional capital). Many graduates, as already noted, tend to leave for more prosperous regions of the country where they can earn higher wages. To resolve staffing issues of the Ivanovo region's production enterprises, in early 2021, the governor proposed to introduce the cluster approach in the vocational education. Clusters are to be formed out of large enterprises of consumer goods industry, mechanical engineering, agriculture as the main areas of regional economy and colleges that train specialists for these industries. Their joint task is to train specialists needed by specific enterprises, retrain teachers, supply equipment for training, develop educational programs, popularize specific specialties to attract students, etc. Assistance in meeting market staffing needs will be provided through state and regional support programs. In order to solve the set tasks, the local administration has established the Coordinating Council on Staffing for Industrial (Economic) Growth of the Region (the cluster approach will be implemented to train staff for the regional enterprises).

The competitiveness of products and services should studied by looking at not only economic, but also social aspects, and from the position of a combination of market and competitive and public interests. In conditions of unsatisfied demand in the Russian local market, many domestic products (meat products, cheeses, textile and garment products, metal structures, and a host of other examples) find their buyers. And this fact must be taken into account. In addition, there are areas to which market efficiency criteria cannot be applied. For example, it is clear that a rural paramedic station is not competitive in comparison with a large regional clinic, but this does not mean that it should be declared ineffective and, therefore, closed, leaving people without medical care. The same applies to educational institutions. And in recent years, in many Russian settlements, social infrastructure facilities are not only stagnating, but also ceased to

exist as inefficient, incomplete. This is a major mistake for our vast spaces, because in the absence of social facilities, people leave the settlements, the area gradually falls into decay without population. If we talk about competition in the global market, of course, it is necessary to apply market criteria of efficiency, to change the situation in engineering, machine tools and a number of other high-tech industries, which for objective and subjective reasons over the past quarter century are seriously lagging behind foreign producers.

Other scientists note that the competitiveness of the territory is often interpreted through the share of markets that the region holds, ensuring the development of production and improving living standards on the basis of effective management. This view leads the researcher to the range of issues related to the interaction of market and state economic mechanism. At present, as already noted, Russia is facing the task of new industrialization based on modern high-tech industries, which objectively requires strengthening the role of the state in the economy as an active economic entity and as an institution. For a fuller realization of public interests, the state has to strengthen the planned principles to ensure the integrity and sustainability of the system, as well as an integrated approach to the strategic development of the country in both sectoral and territorial aspects.

Russia needs to exploit the competitive advantage in its country-wide and regional economy, thus, the speed of movement of goods and cargo (by road, rail, water transport), reliability and safety of transportation (there is a high accident rate, especially on highways), cargo safety, ease of use of vehicles and stations for passengers, affordability of services at prices and tariffs are of particular importance. Ensuring all these parameters requires substantial investments aimed at modernizing machine-building enterprises, developing modern transport models, developing the road transport network, especially in peripheral areas, and providing a variety of additional services for freight and passenger shippers, including insurance. The state needs to subsidize many transport services, as it does now for the inhabitants of the Far East on flights to the European part of the country, to avoid the threat of a rupture in economic space. After all, high transportation costs sharply reduce the competitiveness of domestic products compared to foreign counterparts. By developing the road network, creating the necessary transport, including specialized transport that will ensure the required capacity, the «connectivity» of the territory gets strengthened. This leads to further socialization of production, deepening of social division of labor.

Along with the topic of state subsidies, the problem of the development of market relations in geographically remote from the center is no less urgent. The development of the productive sector expands internal connections in the country's economy and leads to the domestic demand and domestic market. The conditions for self-development and self-financing of regions are provided this way. In addition, it is necessary to create an appropriate legal framework and coordinating structures (institutions) that will ensure a unified industrial and transport policy across the country as a whole.

Information technology plays an important role in today's environment. The coronavirus pandemic intensified activities in this direction, as it required almost universal use of information and communication technologies, the Internet, and the «digitization» of the economic, social, and cultural spheres. Videoconferencing has made it possible to promptly resolve many issues at various levels of the economy, moving towards the «virtualization of relations.» A common information space is being formed with these technologies, which gives a fundamentally new quality to the economy itself, primarily in terms of opportunities to manage it and achieve better results in economic activity.

It is useful to study and use the experience of other countries successfully promoting their products on the world market. Thus, after the World War II, Japanese state structures widely researched the world market, defining possible market niches for themselves, giving necessary orientation to their Japanese businesspeople. The state applied selective tax and credit incentives, selective control over the composition of competitors in priority industries (the automobile industry in the early '60s, robotics in the late '60s, etc.). In addition, entrepreneurship was also supported by public financing (allocation under the import payment limit in accordance with sectoral priorities; restricting the inflow of foreign capital investment, and encouraging the import of technology, supporting technical upgrading). Government control protected industry from outside competition at a stage when the Japanese economy was not yet competitive enough. In this case, we raise the

issue of coordinating the activities of related economic structures and processes, the managing centers that were developed, for example, in connection with the emergence of clusters or zones of advanced development.

Some scholars treat the regional economy as a cluster-like economy (Tatarkin, 2012; Tatarkin et al., 2012; Tatarkin, Lavrikova, 2015; Babayev et al., 2017). In the Russian history, the topic of economic complexes, territorial-production complexes has been relevant for more than a hundred years. The formation of intra-regional and inter-regional clusters is directly related to the functioning of the regional economy, because it involves both products and services. The parent enterprise (industry) acts as the core of the cluster, focused on the market, around which service and auxiliary economic activities develop. The relations within the cluster are built on a planned basis (tasks in terms of volume, production structure, and other properties). A peculiar intra-cluster market with its own prices and conditions of goods and services movement appears, bringing to the economy a certain regional regularity, the system of internal orders provides stability of functioning of the enterprises included in these complexes (clustering). Clustering creates development impulses, increases economic sustainability and product competitiveness. But as far as the cluster itself is concerned, let us also discuss its competitiveness.

The changes taking place in production, in the sectoral structure of the socio-economic system of the country lead to the need to develop systematic planning based on program-targeted management. This is reflected in the development and implementation of state target programs. The formation of macro-regions and territorial-production, scientific educational complexes (clusters) act as intermediate links in the development of planning at the interregional and inter-sectoral levels, which requires the coordination of interests of all parties involved.

Conclusion

The article touches upon only a small layer of topical issues related to regional competitiveness. That said, it is clear that this topic is far from exhausted, despite the rather large number of scientific studies on the subject. It is necessary to expand the view on competitiveness in the regional-spatial aspect, taking into account current trends in the development of theory and practice.

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EXPORT COMPETITIVENESS AS A SCIENTIFIC CATEGORY: EPISTEMOLOGICAL ROOTS AND THEORETICAL FORMATION

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Abstract. The paper presents a systemic view of the evolution and formation of export competitiveness as an initial category of a holistic scientific concept. The growing importance of exports for individual national economies and world economic development as a whole and the deep involvement of countries in international trade fundamentally change the traditional view of exports as a a foreign economic activity of economic entities that derived from the national activity. Unlike domestic competitiveness, export competitiveness today is formed on the basis of global value chains and reflects a deep integration of the value of goods created by domestic production of the exporting country and imported products incorporated in national exports. The paper solves four interrelated problems. Firstly, it establishes the epistemological roots and scientific sources of the concept of export competitiveness. W. Rostow's theory of modernization, the theory of economic dependence of countries by A.G. Franck and the World-System Theory of I. Wallerstein are considered as the fundamental research of the concept of export competitiveness by the authors. The direct theoretical sources of the concept of export competitiveness are: the theory of international production and transnational corporations, the theory of global production networks and value chains, and the theory of competitive advantage. Secondly, we reviewed the theoretical approaches to understanding the essence of export competitiveness presented in the modern scientific literature. Thirdly, the paper outlines in general strokes how the system of categories of the emerging concept of export competitiveness should be deployed. The system includes such successive categories as extensive and intensive competitiveness, physical and brand competitiveness, initial, mature, and strategic competitiveness; innovatively stratified competitiveness, functionally differentiated competitiveness. Fourthly, it formulates proposals on how to further develop the concept in the context of tiered economic analysis, rethinking the new role of imports in exports and its relationship with global value chains.

Keywords: export competitiveness, global value chains, export, extensive competitiveness, intensive competitiveness, physical competitiveness, brand competitiveness, strategic competitiveness.

JEL codes: O32, L26, C13

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Introduction

Globalization, which began in the 2nd half of the last century, has transformed the relations of the world economic system as a whole and, among other things, significantly changed the way in which companies and countries compete in the global economy. In scientific literature, the category of export competitiveness has not yet taken its own worthy place in the system of categories of the world economy, although it is obvious that it is also in demand in theoretical analysis of the evolution of competition in world markets. It is both in demand in policy decisions — in the formation and implementation of state foreign trade policies

and programs to support national exporters, and in practical terms — to implement strategic objectives and competitive advantages of exporting companies. This paper provides a theoretical review of scientific concepts of export competitiveness and offers an independent interpretation of its essence as a scientific category of modern global economic knowledge.

Epistemological roots and evolution of the concept of export competitiveness

The analysis of the system of views on export competitiveness (hereinafter — EC) can only be considered within the general evolution of scientific schools of the world economy in the post-war period. The epistemological roots of the concept of export competitiveness date back to the middle of the last century, when the main theoretical lines of analysis of the modern world economy were formed. Three theoretical systems contributed significantly to the foundations of the future knowledge of export competitiveness. Firstly, the theory of modernization (Rostow, 1991), which considered the further progress of the world economy in the context of Western leadership: progressive technological and economic-social transformations start in the advanced industrial economies of the West and subsequently spread to the rest of the world. Secondly, the theory of economic dependence (Frank, 1967), which at the beginning categorically perceived the development of economic relations between the West and the Third World as a way to further backwardness and degradation of the latter, but later (in the 1970–80s) inclined to a more flexible position, allowing mutually beneficial trade and investment cooperation between all participating countries. Thirdly, the concept of World-System (Wallerstein, 1979) of the outstanding philosopher and economist I. Wallerstein, who proposed a three-tiered model of the world. It includes the countries of the world core, the world periphery, and the intermediate layer — the countries of the semi-periphery, occupying a transitional position in the spatial and economic structure of the world economy (South Korea, Mexico, Brazil, India and others). These theories methodologically determined the main slices of export competitiveness analysis (Figure 1).

Each theoretical system had its own limitations:

– the theory of modernization practically excluded the possibility of changing the trajectory of socio-economic progress and deviating from the works of W. Rostow's stage-based historical plot.

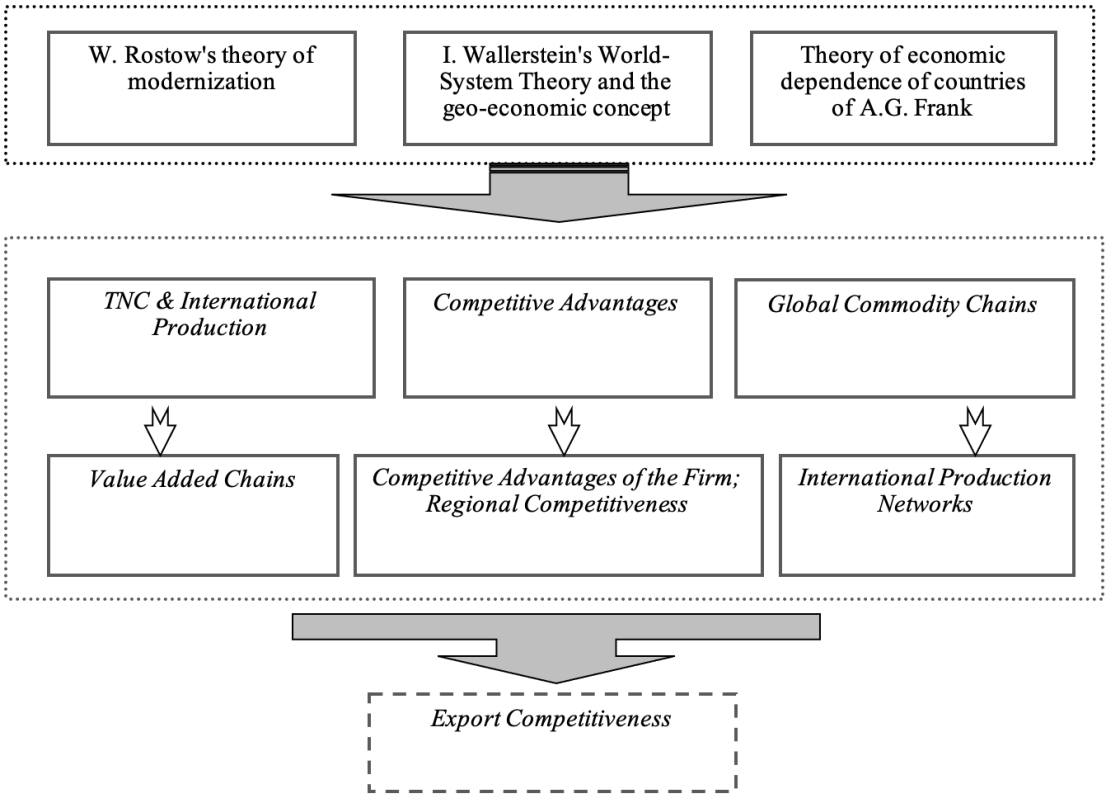

Figure 1. The epistemological roots and sources of the emerging theory of export competitiveness
Source: composed by the authors

– the theory of economic dependence bore the "birthmarks" of the processes of crisis, disintegration, and collapse of the colonial system of imperialism, so it was formed in one way or another as the opposition of developed and developing (at that time — liberated from political dependence) economies.

– The World-System paradigm became a prisoner of its own achievements, and its theoretical polishing turned into the preservation of the closed nature of certain strata (the Industrial North, the Backward South, the European Modernity, and the Eastern Archaicism).

In the mid-XX, the system of scientific views underwent a radical transformation due to the revolution in basic science and technology (Information Age), which led to the emergence of new social productive forces and a new stage of integration of world development. In the last third of the XX century, with the worldwide growth of economic freedom and the model diversity (liberalization phase) and the diversification of world growth trajectories, world economic processes of out-of-country nature start to grow as well: globalization, intersectoral restructuring, macroregional integration. There is a new breakthrough of knowledge, there are scientific theories that can be qualified as theoretical sources of export competitiveness:

1. Theories of transnational corporations and international production. The organizational and scientific formulation of this scientific direction was first of all achieved at Harvard Business School and the Centre for TNC Research at Southbank University in London (Ietto-Gillies, 2019; Hymer, 1970).

2. Theories of competitive advantage of extra-country nature — five competitive forces and M. Porter's cluster theory, P. Krugman's Economies of Scale (Porter, 1990; Krugman, 1979).

3. Theories of global product chains, subsequently — global value chains (hereinafter — GVC) (Gereffi, Humphrey & Sturgeon, 2005). The evolution of the theory of global product chains has its origins in I. Wallerstein's work and marks a landmark transition from a fundamental World-System concept to a more practice-oriented World-Economy (Hopkins & Wallerstein, 1986). As a development of this direction, in 1990, Alfred P. Sloan Foundation launches a large research project in New York called the Industry Studies Program (Alfred P. Sloan Foundation. Industry Studies), later the Rockefeller Foundation sponsored the research project Global Value Chains Initiative (2000–2008) (Duke University. Global Value Chains Initiative). It is in the materials of these projects that the term "export competitiveness" appears for the first time (Kaplinsky, 2004) and, more importantly, becomes widespread in the world economic research.

Review of theoretical approaches to defining export competitiveness

Export competitiveness as a category and its connection with economic growth was covered in classical theory in the works of B. Balassa (Balassa, 1977), who developed the concept of "revealed" comparative advantage of G. Liesner (Liesner, 1958). B. Balassa's contribution to the assessment of export competitiveness consisted in the development of the so-called B-index or coefficient of relative export specialization: the ratio of the share of a good (industry) in national exports to its share in world exports. From theoretical and methodological positions, the concept of B. Balassa was supplemented by D.G. Mayes: international trade and economic integration increase the export competitiveness of domestic producers, as it opens for them more capacious, more competitive markets and specialization, based on the comparative advantages of the national economy (Mayes, 1978). With deep international cooperation and strong cross-border production chains, the EC has undergone a strong transformation. The increasing use of imported components and the localization of parts of the production process in different countries means that final exports may contain a high percentage of foreign value added and a correspondingly low percentage of exporting country value added. The value of final exports will contain both domestic value added and imported value added.

A major advance in the development of the EC theory was the UNIDO development of a methodology for compiling a global ranking of the export competitiveness of countries and the corresponding EC index (Zhang, 2014). The Composite Country EC Index (XC) is calculated as the geometric average of the products of the three normalized indicators: the per capita volume of a country's industrial exports (MXpc), the share of industrial exports in the country's total exports (MXsh) and the share of high- and medium-tech exports in industrial exports (MHMXsh):

$$XC = \sqrt[3]{MXpc \times MXsh \times MHMXsh},$$

where the component indicators of all countries are normalized on a scale ranging from 0 to 1 (lowest and highest value) for the whole set of compared countries. Rationing is performed according to the following principle (the same for all three indicators):

$$M_{ni} = (N_i - Min) \div (Max - Min),$$

where n = 3 (MXpc, MXsh, MHMXsh); N is the absolute value of the indicator for the i-th country; i is the number of countries in the population; Max and Min are the maximum and minimum values of the indicator for the countries in the aggregate. UNIDO's approach to the interpretation of export competitiveness caused a discussion in the scientific literature and was generally welcomed by most participants of the expert community.

Further analysis of EC has led to its decomposition into separate components. The documented research notes the following among the main components: export adaptability, export innovativeness, unpredictability, flexibility of tasks. Export adaptability refers to a firm's ability to match its external environment and the export performance of key firms (Morgan et al., 2003). Export innovation is defined as "openness to new ideas and an aspect of corporate culture" (Calantone, Cavusgil & Zhao, 2002); innovation reflects an export firm's ability to use new methods, techniques, and ideas in export processes to create or reconfigure value added. The unpredictability of exports comes from the difficulties in anticipating possible actions in international markets, involving the reconfiguration of existing resources that allow international firms to form new rules of participation in the competitive environment (Austin, Devin & Sullivan, 2012); unpredictability is generally regarded as an uncontrollable characteristic of the environment. Task flexibility is the fourth option; in export, it reflects the multifunctional competencies of export managers who can work equally effectively on sales, marketing, service, and customer support (Campion, Medsker & Higgs, 1993).

The competitiveness category is unique because it covers both macroeconomic and microeconomic levels of a country's export efficiency. The discussion in the context of the tiered approach is deeply rooted in theory: back in the mid-1990s, Paul Krugman called competitiveness a "dangerous obsession" and reduced it to productivity (Krugman, 1994). Competitiveness, according to P. Krugman, turned out to be an "elusive" concept, and economists could not reach a consensus on how to define and measure the international competitiveness of the economy (Krugman, 1997). It is widely known that P. Krugman argued that one can only speak of competitiveness in relation to a firm, but one cannot speak of national competitiveness. If a corporation is inefficient and its business is unprofitable — which is exactly what it means by being uncompetitive — then it eventually goes bankrupt. But it is much harder to grasp how and when a country becomes uncompetitive and what does this logically lead to? To this day, this discourse is one of the most fruitful sources of scientific thought in competition theory and the system of EC categories discussed in the next section owes much to its emergence.

So, firstly, export competitiveness is in its infancy as a holistic concept that combines several disciplines and is relevant at different levels: of the firm, industry, national economy as a whole. Secondly, at the firm level today, it focuses more on general functional business capabilities, processes, productivity, and company performance without highlighting the specific attributes and thesaurus of EC. Thirdly, modern economic thought has developed and formed scientific approaches to the system of categories of national EC, which is understood by most researchers as the country's total share in world exports, but not a simple quantitative indicator, but a dynamic one; it is about the increasing structural share of the country in the advanced echelons of world exports: growing share of high value medium- and high-tech exports with a decreasing share of primary products and products of extractive industries (Porter & Rivkin, 2012).

The system of categories of the emerging concept of export competitiveness

The total scientific knowledge about EC today is not logically complete; we have tried to generalize and systematize the available knowledge with the prospect of further construction of a holistic categorical scientific apparatus of EC. Export competitiveness should be understood as the potential or realised ability

of an exporter to supply its goods/services to foreign markets on a sustainable basis, providing a socially required level of quality of goods/services, recovering its costs and making a profit corresponding to the socially normal level of profitability, while maintaining or expanding a strategically significant market share of a particular good/service.

There are several key points for classifying EC.

Depending on the exporter's place in the organizational system of product promotion, there is physical EC and branded EC. In GVCs aligned with the key (branded) producer, a "physical" EC is formed — the ability of the country's national companies to meet "physical" production standards as much as possible in capital-intensive high-tech industries with a rigid system of coordination. The basis of physical EC is a high level of technical standardization of products and strict compliance with the hierarchy of technological processes and quality along the entire chain. Physical EC exists in both developed and developing countries. Thus, in the manufacturer's GVC, the EC is possessed by the one who fits the leader's requirements. In GVCs built for a well-known brand owner (brand owners, as a rule, do not produce themselves, but only create product design, issue specifications, and sometimes hold their own brand trade networks), a "branded" EC is formed — the ability of national companies of the country to create flexible production and sales networks, to which all types of production and related operations are transferred. The essence of branded EC is the independence and flexibility of producers within decentralized production under a single "umbrella" brand of mainly consumer goods; finished products are sourced mainly from developing countries. Thus, in the Buyer's GVC, the one who, other things being equal, suits the large intermediary (retailer, trader, trading network) has the EC.

In the dynamic dimension, export competitiveness is revealed in two categories: as intensive EC and extensive EC. Intensive competitiveness occurs when exports grow in quantity terms while the composition of exports to the same trading partners remains unchanged. Extensive competitiveness occurs when exports grow through market expansion: if firms start exporting their existing products to new partners, or through innovation, when firms develop new products and export them to existing partners, or enter new markets with them (matrix illustration of the processes — in Fig. 2). Intensive EC provides export growth within existing supplies of "old products" to "old destinations" (OPOD — Segment I.A), while extensive EC can include 4 variants of changes: modified "old products" — "old destinations" (OPOD — I.B) combinations; new destinations, where "old products" are exported to "new destinations" (OPND — II); new combinations: "new products" are exported to "new destinations" (NPND - III); and a new range: "new products" are exported to "old destinations" (NPOD — IV).

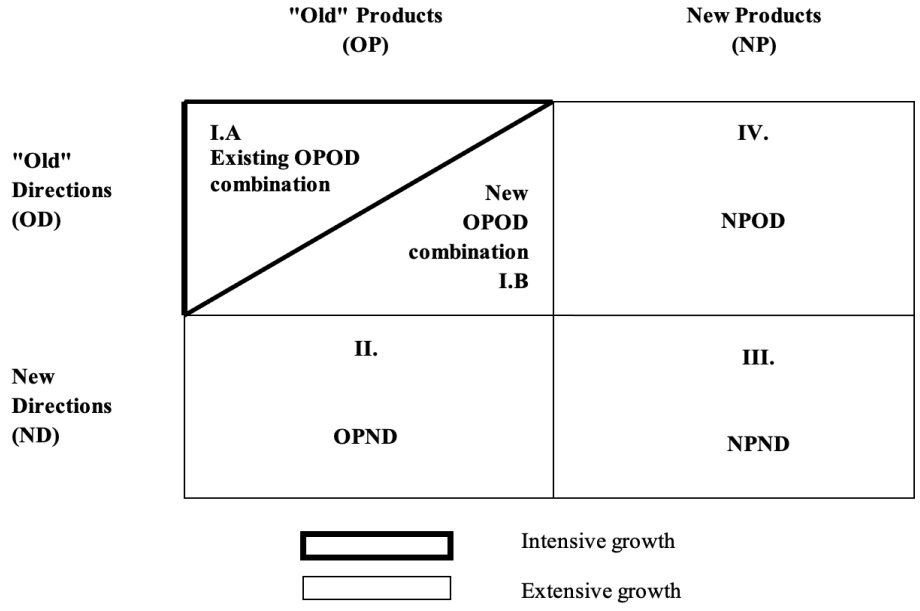

Figure 2. Export growth based on intensive and extensive export competitiveness
Source: Beltramello, De Backer & Moussiegt, 2012

EC associated with the effects of value generation of network nature is formed in local strata of innovation type:

– supply-chain cities that integrate all the links from procurement to the finished product, including design centers and showrooms. The essence of EC is the rapid training and "absorption" of competencies and knowledge of new technologies and management through the attraction of foreign direct investment of major TNCs, which are favored by local authorities, provincial leadership, and the state (Zhang, To & Cao, 2004);

– firm-factories, each of which belongs to a particular large well-known company and combines different parts of the reproduction chain — design, supply, production, while minimizing transaction costs, significantly saving on scale and providing more flexible chain management (Appelbaum, 2008);

– cluster cities. These clusters cover the entire social and communal complex near the factories, including production buildings, dormitories, and employee welfare services. They initially focus on a single product, but as they grow, they involve related and supporting businesses. The essence of EC is, a highly developed transport infrastructure and logistics provide low transport costs and high speed of delivery of export goods (Kusterbeck, 2005);

– town-and-village enterprises. Transitioning town-and-villages have been established mainly as part of government production and export development projects in traditional agricultural areas. The essence of their EC is the reorientation of industrial policy towards the development of high value segments of reproduction chains and high-tech export with maximum cooperation with all the subjects in the territory (Wang & Meng, 2004).

– Industrial condominiums are giant full-service industrial agglomerations, more typical of Latin American countries. The essence of EC is geographical concentration of production in these growing countries and organizational consolidation of GVCs. They have realized the critical need for key global manufacturers to reduce the number of partners and retain the most efficient and most conveniently located suppliers. Gradually, these suppliers pushed back the key producers themselves (Hasegawa, Venanzi & Silva, 2015).

Judging by the functional criterion, within the structure of global production chains, EC is differentiated by value-added functions: the higher is the function of the exporter in the product-production chain, the higher is its export competitiveness. The challenge of increasing EC is to identify the conditions under which countries and firms can continuously move up the value chain from basic assembly operations using cheap, simple labor to increasingly sophisticated forms of "full package" supply and integrated technologies (Figure 3). The reality is that the bulk of high-cost activities are concentrated in the pre-production and post-production functional segments, forcing companies to develop these segments more actively. Companies from developed economies are firmly entrenched in high value-added segments, while producers from emerging economies are concentrating on lower value-added functions.

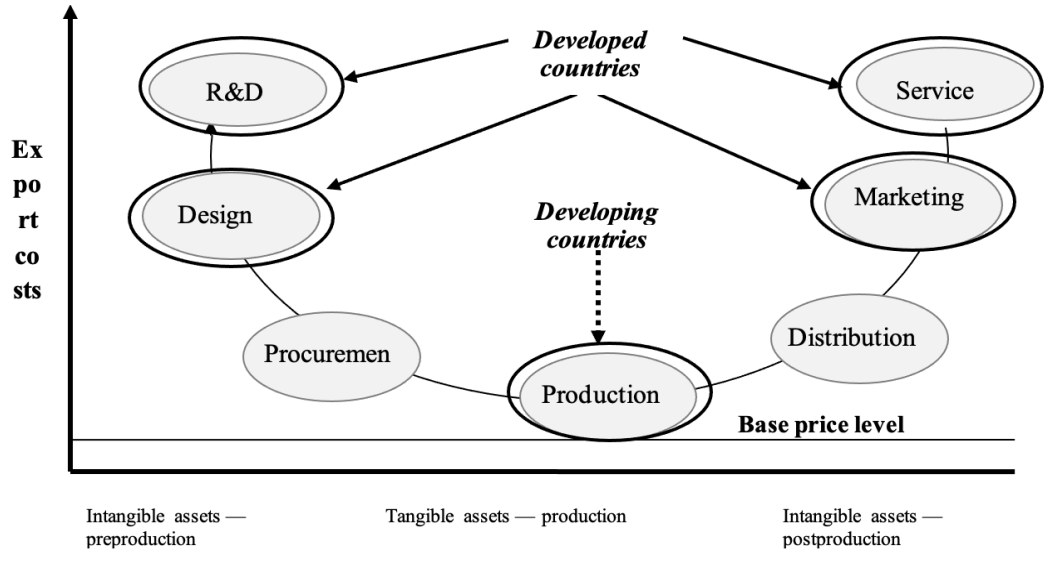

Figure 3. "Smiling" curve of global value chain segments

Source: Baldwin, Ito & Sato, 2014

The general logic of development of the system of export competitiveness categories is presented in Fig. 4:

– The initial category is the initial EC, in which the exporter is embedded in the primary, or production, functions of a single (main) value chain with a simple raw material or initially processed semi-finished product; in this case, more often than not, the expansion of the exporter's presence in the foreign market comes as a natural development and depends on the production strategy of the chain leader;

– The expanded category is a mature EC, in which the exporter diversifies its foreign markets by products and enters parallel or adjacent to the main production chains with a semi-finished technically sophisticated intermediate product; in this case, more often the exporter's expansion of presence in the foreign market is more independent and coordinated with the production strategies of several large companies-leaders of the chains;

– The developed category is the strategic EC, in which the exporter of branded products independently controls/expands/reduces its presence in foreign markets in accordance with the conjuncture and export strategies of the company; the position in the production chain is associated with the upper level functions: R&D, product design, marketing and promotion, feedback. The exporter usually controls the retention in foreign markets and further expansion (both product and geographic), which are secondary to the top level and long-term corporate strategic goals: inclusive growth, social responsibility, ecosystem synergy, and human capital wealth.

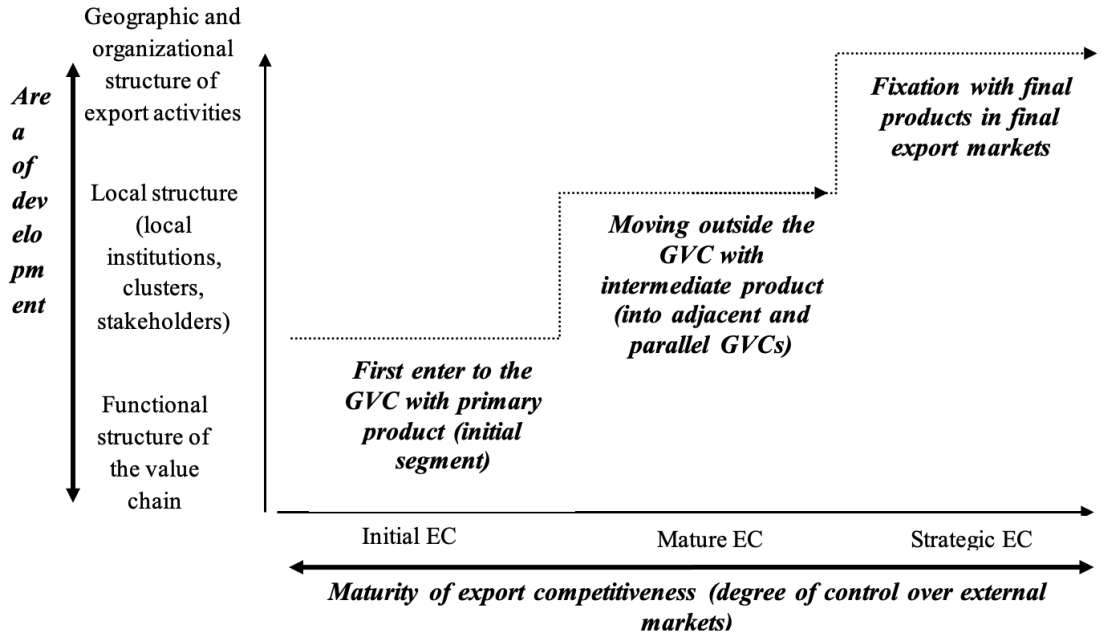

Figure 4. Development of export competitiveness of participants in global value chains
Source: composed by the authors

Conclusion

The epistemological roots of the theory of export competitiveness are formed by three fundamental theoretical systems: the theory of transnational corporations and international production; the theory of competitive advantage ("Porter's diamond") and cluster theory; theories of global product chains, later — global value chains.

Export competitiveness as an initial category represents an independent scientific category reflecting the ability of the exporter to supply its goods to foreign markets steadily, providing the socially necessary level of quality, while recovering costs and making a profit corresponding to the socially normal level of profitability and maintaining or expanding strategically important market share.

The differentiation of the category "export competitiveness" implies distinguishing and studying its specific forms: extensive and intensive; physical and brand; initial, mature, strategic. The evolution of the

concept means the unfolding of the logical system of categories related to the original category — export competitiveness, through the study of the essence of economic processes of the world economy linked to exports to foreign markets. In this case, a special competitiveness is formed that emerges in local innovative strata. Functionally differentiated competitiveness is formed at different stages of value generation in the GVC.

The concept of export competitiveness, like any young theory, is in dire need of further productive development. It is worth evaluating some critical positions and directions for further analysis.

First. Development of level analysis of export competitiveness

There is no clear distinction between analysis levels of EC in the existing studies. Most authors recognize that export competitiveness as a scientific category synthesizes three levels of analysis: macro-level, meso-level, and micro-level. But then there are discrepancies: what exactly is meant by EC at each level, since the understanding of these levels varies from author to author? The reason for the incompleteness of the analysis and the inconclusive nature of some of its results, in our view, lies in the methodological confusion of two approaches: institutional, when countries are taken as the main actors of the global economy, and organizational, when the focus of analysis is on transnational companies and inter-firm business networks.

Second. Rethinking export competitiveness in the context of the new role of imports in exports

Numerous studies have revealed a strong reciprocal relationship and conditionality between the growth of global imports of intermediate goods and global exports of final products. There is a clear trend towards an increase in the "import content" of the country's exports under conditions of strengthening vertical industrial-trade integration. This raises the question: what is the meaning of export competitiveness today, given the fact that countries' exports themselves largely contain previously imported and "processed" imports of intermediate products.

Third. The link between export competitiveness and the integration of countries into global value chains

The emergence and development of GVC changes approaches to the understanding of export competitiveness. But theory involuntarily continues to recognize developed economies as leaders, although in fact a transformational structural shift in trade flows has already occurred, and developing countries have surpassed developed ones both in volume and growth rate of medium- and high-tech exports, not only in the supply of intermediate products, but also in finished products. A critical rethinking of the new architecture of the EC in the relationship between developed, top developing, emerging, and transitional economies is also overdue.

Thus, the directions of future EC research are related to the further development of the logical structure of export competitiveness categories, which will allow obtaining new scientific results not only in the development of the theoretical concept and its practical application.

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CLUSTERING AS A COMPETITIVE ADVANTAGE OF REGIONAL ECONOMICS

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Abstract. Nowadays, to date, there is a consensus of opinion in the scientific and methodological literature on the positive role of clustering in accelerating of socio-economic development and enhancing the competitiveness of territories. However, the activity and success of cluster formation and operation processes are regionally specific. The purpose of this paper is to develop a methodology for diagnosing regional conditions conducive to the formation of effective regional clusters. At the first stage of the study, based on international experience of cluster development, we substantiated the optimal parameters of the state of regions contributing to the emergence of clusters and proposed an algorithm for their integral evaluation. The second stage concerned with the methodology testing on the particular segment of Russian regions, the results confirmed the relation of the regional environment state, the level of cluster development and regional competitiveness.

Keywords: regional competitiveness, clusters, clustering, regional conditions for cluster formation.

JEL codes: C19, M21, O18

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Introduction

There is an active searching of internal reserves for development in an increasingly competitive international environment. It is obviously, the national competitiveness cannot be entirely determined by the leading regions. The increased focus on strong agglomerations has led to serious problems such as growing regional asymmetries, increased migration to large centers, declining quality of life in smaller settlements, and others.

These issues are particularly important because of the huge territorial extent of the Russian Federation. In this context, a number of acts have been adopted in recent years: Federal Law of 28.06.2014 N 172-FZ "On Strategic Planning in the Russian Federation"; Federal Law of 29.12.2014 N 473-FZ "On Territories of Advanced Socio-Economic Development in the Russian Federation"; Forecast of Long-term Socio-Economic Development of the Russian Federation for the period until 2030; Foundations of State Policy for Regional Development of the Russian Federation for the Period until 2025; Strategy for Spatial Development of the Russian Federation for the Period until 2025; Methodological recommendations on the development and adjustment of the socio-economic development strategy of the subject of the Russian Federation and an action plan for its implementation, etc.

The successful modernization of the economy in its territories determines the future development of Russia. That involves the creation of innovation-oriented regional and inter-regional environments. Global challenges require new approaches in defining of the place and role of regions as structural elements of the national economic complex. The entities of Russia not only experience the problems associated with the formation of competitive advantages of the domestic economy, but also have their own peculiarities, requiring the scientific study and development of effective solutions in terms of regional specifics.

The difficult socio-economic situation in the country makes the regions to explore new and promising

directions related to the formation of a modern knowledge-based economy, the optimal use of available resources and the search for unrealized potential. The effective regional clusters forming is the one of the ways to solve economic, social and environmental problems. The positive experience of many countries where the cluster initiatives have been successfully implemented makes it possible to identify the cluster approach as a promising area for socio-economic development in the regions. However, the methodological aspects of diagnosing the region's readiness to form effective clusters that increase its competitiveness remain insufficiently researched. It is the relevance of the study.

Theoretical basis of the study

The theory of regional competitiveness is rich. Nowadays the world science concentrates on three major directions: construction of location models, theory of interregional specialization and international trade, and development theory (Development Theory / Development Economics). The first one explores the microeconomic factors of competitiveness of individual territories and their areas using mathematical, statistical methods and Big Data. The second is based on classical political economy and neoclassical economic theory, and complemented by the more modern Region Science & Urban Economics - RSUE, studies the relationship between regional competitiveness and the free spillover of factors of production (labor and capital) combined with free trade. The third strand emphasize that regional development is determined by a complex of factors, such as institutions, education of the population, infrastructure, production specialization, level of productivity and technologies used.

The formation of regional clusters is the one of the long-term strategies for enhancing the competitiveness of territories. The cluster approach has already found application in the Russian Federation, as evidenced by the approval of regional cluster initiatives by state authorities and the supporting measures. Territorial clusters are managed by specialized organizations and executive authorities of constituent entities of the Russian Federation. According to the Ministry of Industry and Trade of the Russian Federation official data, there are 93 industrial clusters in 43 regions in the Russian Federation (Industrial parks. Technoparks. Clusters: geographic information system (GISIP), 2020).

The formation of regional clusters can be considered as an effective tool for GRP growth, small and medium-sized enterprise development, modernization and growth of the innovation potential of the economy, which determines the competitive position of both the region and the national economy as a whole. However, the potential of cluster development has not yet been exhausted in many territories. We would like to emphasize that we are talking about cluster formation processes, which should be regulated and managed, based on a partnership between business, central and local authorities, as opposed to cluster origination initiated by the internal needs of enterprises for cooperation and collaboration. According to the above, the formation of effective clusters should form the basis of government cluster policy at both the regional and national levels. Nevertheless, many of the studies in this area focus on the advantages of this form of territories integration. At the same time, methodological aspects of the successful formation of territorial clusters to enhance the region's competitiveness remain insufficiently researched.

Cluster theory is formed by the research of Marshall (1920), Krugman (1991), Enright (1996), Malmberg and Maskell (2002), Morosini (2004), Sölvel (2008) and others. M. Porter defined an industrial cluster as "geographically concentrated groups of cooperating companies and related organizations (e.g., universities, standards agencies, as well as trade associations) in certain fields, competing but also working together" (Porter, 2000). The same definition is in methodological guidelines and reports on the status of cluster development of international organizations: The Role of Clusters in Smart Specialization Strategy (2013), Smart Guide to Cluster Policy (2016), Cluster programs in Europe and beyond (2019) and others. Thus, regional cluster theory continues to deepen and become practice-oriented.

In the foreign cluster literature, the territory's competitive positioning in the cluster formation process is characterized by a variety of advantages. These include:

- outputs of cluster members - volume of output, profit (Porter, 1990);
- outcome in the form of increased cooperation, deepening the specialisation of cluster residents (Choe

& Roberts, 2011);

- the competitive advantage, including access to new markets, investment and reputation (Tallman et al., 2004);
- benefits, including access to specialized knowledge and technology, productivity and a stronger research base (Lines & Monypenny, 2006);
- spillovers, e.g., an increase in demand when a new producer emerges or an increase in innovation activity of cluster enterprises influenced by competitors (Iammarino & McCann, 2006);
- public good as a set of social consequences for a region (Bellandi, 2002);
- effects specific to the industry or geographical scale of the cluster (Lindqvist, 2009; Bottazzi & Gragnolati, 2015).

Russian cluster literature has a lot of previous research in the fields of economic zoning, territorial economic location of industries, economic use of natural resources, creation of inter-sectoral combines, industrial hubs and territorial-production complexes (Bondareko, 2016). The significance of clusters for regional competitiveness appeared as a scientific research since the mid-2000s (Larina, 2006; Kalyuzhova, 2008; Yurasova, 2009; Dubovik, 2009; Gasanov & Kanov, 2013). Many domestic studies focus on the task of diagnosing and measuring the effects of clustering on the competitive position of a territory. However, they are mainly based on the assessment of either the cluster's external environment or individual quantitative and qualitative indicators of functioning of member enterprises and the cluster region, such as the level of innovation, geographical concentration, cooperation, investment volume, number of employees, individual indicators of economic efficiency and integration effects, improvement of the quality of life of the region's population, etc. (Markov, 2007; Nikolaev & Mahotaeva, 2012; Kozina, 2012; Klerikova, 2013; Ivanenko & Niyazova, 2018).

We can note, these characteristics have both qualitative and quantitative measures; they refer directly to the cluster members or have the long-term strategic nature for the territory as a whole. Moreover, the level of their occurrence is largely determined by the regional background, i.e., the degree of maturity of the regional environment to provide them. And the methodological aspects of diagnosing the region's readiness to form effective clusters that increase its competitiveness remain insufficiently researched.

Background and methodology

Table 1 shows the correlation between the level of cluster development and the state of regional economies.

Table 1 – Russian regions with the largest number of clusters

The Russian Federation constituent entities	Number of clusters	Have the state-supported status	Place in the 2019 Regional Socio-Economic Rankings
Moscow	6	5	1
Saint Petersburg	11	3	2
Moscow oblast	6	5	4
Tatarstan	8	8	5
Perm Territory	5	4	16
Chelyabinsk oblast	7	7	17

Source: compiled by the authors by: Industrial parks. Technoparks. Clusters: geographic information system (GISIP), 2020

According to the data, the regions with the most advanced clusters have a noticeable position in the socio-economic ranking. In other words, those regions have a significant competitive advantage where clusters are successfully formed and developed.

We have systematized the characteristics that determine the region's potential in the managed processes of cluster formation based on the description of the features of the current cluster experience. Indicators identifying these characteristics, as well as quantification of their levels of occurrence, are shown in table 2.

1. The investment attractiveness of the cluster territory forming. Indeed, the formation of modern

industrial clusters with vertical linkages in production chains (this provides synergies of cluster interactions) requires investment in new and upgraded enterprises.

It can be determined by the position of the region in the national investment attractiveness rating.

Table 2 - Parameters used in the authors' methodology for diagnosing regional conditions that contribute the effective technological clustering

Parameters	Territory's investment attractiveness	Innovation action of regional enterprises	Total R&D investment in the region	Regional enterprise support level	Population of the region employed in industry	Cluster initiatives presence	Cluster support infrastructure
High level	The region's place in the first third of investment attractiveness rating	Higher than the average level of innovation action of enterprises in a country	%, higher than average total R&D investment	Place in the first third of the ranking of regions in terms of turnover of products produced by SMEs	More than half of the working-age population	There is basic cluster initiative	Infrastructure organizations of the region
Medium level	The region's place in the second third of investment attractiveness rating	Equal to the average level of innovation action of enterprises in a country	%, equal to the average total R&D investment	Place in the second third of the ranking of regions in terms of turnover of products produced by SMEs	40-50% of the working-age population	The cluster initiative is in the final stage	Infrastructure facilities are being opened in the region
Low level	The region's place in the last third of investment attractiveness rating	Lower to the average level of innovation action of enterprises in a country	%, lower than average total R&D investment	Place in the last third of the ranking of regions in terms of turnover of products produced by SMEs	Less than 40% of the working-age population	The cluster initiative is currently being developed	Infrastructure organizations of the region are missing

Source: composed by the authors

2. Degree of innovation action of regional enterprises. Characterized by the number of enterprises carrying out research and development, having received patents and having intellectual property objects of the total number of enterprises in the region. These enterprises are becoming the core of an innovative industrial cluster.

3. Total R&D investment in the region This indicator, as well as the previous one, will determine the region's potential to form industrial clusters as part of economic modernization and to ensure the

competitiveness of the products of cluster member enterprises.

The first approach in the proposed methodology uses absolute values, the second one emphasizes the share of R&D investment in the structure of production costs.

4. Level of support for entrepreneurship in the region. We have noted the importance of a developed business environment for the formation of a cluster involving small enterprises. Since each region has its own specific characteristics, in our opinion, the most objective state of entrepreneurship measures the regional per capita turnover of products (services) produced by small enterprises, including microenterprises and sole proprietors. The proposed methodology uses a regional ranking by this indicator.

5. Population of the region employed in industry This indicator shows the industrial capacity of the region along with the existence of a sufficient number of organizations providing human resources training for the regional cluster.

6. Existence of cluster initiatives in the region, i.e., organized and documented activities, programs, projects aimed to the cluster development in the nearest future.

7. Cluster support infrastructure in Europe is The European Cluster Collaboration Platform (ECCP). In Russia this kind of infrastructure is formed by organizations created to support entrepreneurship in general.

The method was tested during the formation of a rating of competitive positions of regions by the level of conditions for the cluster's formation. The regions selected were:

a) geographically close,

b) ranking close to each other in terms of the socio-economic situation of the regions,

c) having cluster support organizations,

d) the quality level of the clusters is provided by the support of the government.

This included the Moscow, Voronezh, Lipetsk, Kaluga and Tula regions. For comparative analysis, the list was supplemented by the Yaroslavl region (Table 3).

Table 3-Regions of the Russian Federation selected for the evaluation

Oblast	Place in the Ranking of Socio-Economic position of the regions for 2019	Number of clusters	Number of clusters included in state support programs
Belgorod region	18	2	2
Voronezh region	21	6	2
Lipetsk region	22	6	6
Kaluga region	28	2	2
Tula region	29	3	1
Yaroslavl region	37	-	-

Source: composed by the authors

The indicators were then assessed using a point-based approach: a high level of characteristics was assigned a score of 3, a medium level a score of 2, and a low level a score of 1. The oblast with the best K_i indicator was taken as a benchmark. The other regions were rationed:

$$K_i=P_i/P_o,$$

where Pi is the value of an indicator of favorable regional conditions for the formation of regional industrial clusters; P_0 is the value of an indicator of the conditions for the formation of regional industrial clusters in the reference region.

The integral assessment was based on a generalization of the partial K_i coefficients using the geometric mean formula:

$$Kз = \sqrt[n]{\prod_{i=1}^{n} Ki} \quad ,$$

where $K_з$ is the integral score of the region in terms of the level of regional conditions favorable for the formation of the cluster.

The evaluated objects ranking is arranged in descending order of the level of the integral indicator. The results of the assessment are shown in Figures 1 and 2.

As Figure 2 shows, the Yaroslavl oblast ranked last in the generated rankings. Figure 3 shows the reasons for this lag and the directions for improving regional conditions. These assessments correlate with the state of cluster development in the region, where cluster initiatives have not been formalized.

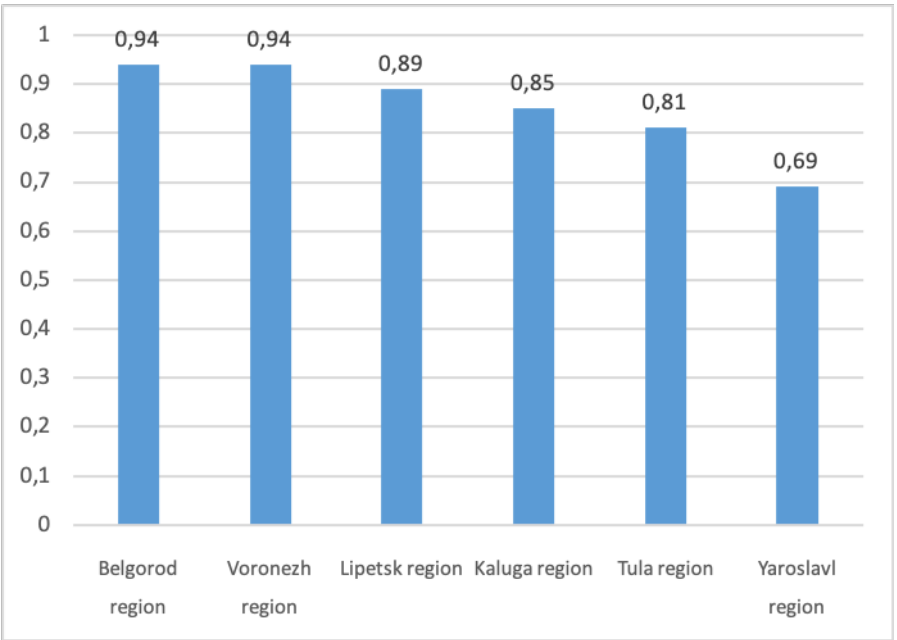

Figure 1. Assessment of the competitive positions of regions by the level of conditions for the formation of clusters

Source: composed by the authors

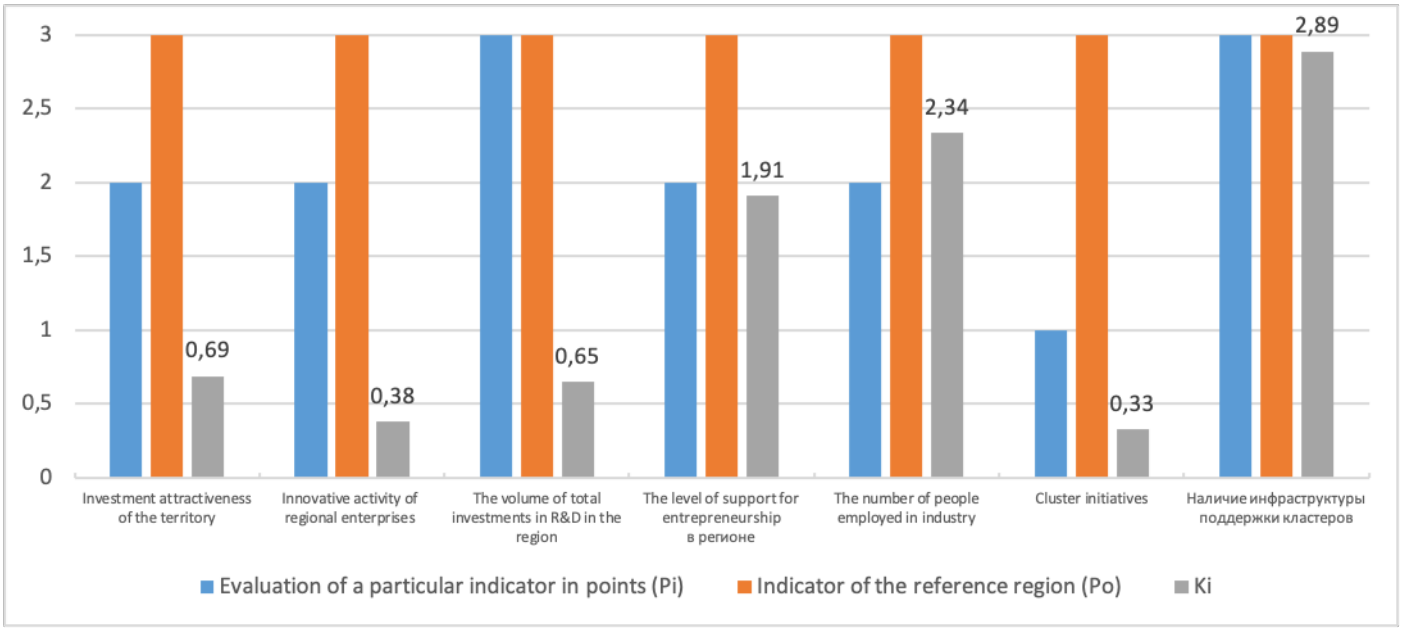

Figure 2. Comparative assessment of the regional conditions for clustering in the Yaroslavl region

Source: composed by the authors

According to the results methodology testing, the competitive positions of regions in terms of clustering conditions have not shown a direct correlation with their place in the Socio-Economic Status Rating. This can be explained by the fact that the methodology uses a larger number of social indicators, while the authors use

parameters that are directly related to cluster development.

Conclusion

The regions are competitive because of the competitiveness of their key enterprises, despite the wide variety of viewpoints on the components of regional competitiveness, as reflected in domestic and foreign academic literature. The activities of such enterprises determine the specialization of the regions, provide the bulk of tax revenues to the regional budgets and play a major role in determining of their population quality of life.

Structural and technological changes in the economy, increasing globalization and international competition, and political instability are creating the conditions for escaping from traditional regional industrial policies and a gradual moving towards a new network-based system of production organization. Radical changes in IT, innovations are based primarily on the close relationship between real production, science and education. They create the preconditions for the formation of clusters - new network structural formations - as a competitive advantage of the regions.

Nowadays, a large body of so-called cluster literature has been created. This field investigates the characteristics of the world's cluster development in different industries and regions. Also, the role of the state is discussed, various forms of cluster science and business associations are proposed, the specificity of innovation clusters is analyzed, etc. Nevertheless, many of the studies in this area focus on the advantages of this form of territories integration. At the same time, methodological aspects of the successful formation of effective territorial clusters, playing a significant role in enhancing the competitiveness of the region, remain insufficiently researched.

The assessment of regional cluster formation conditions, based on the proposed methodology, made it possible to identify the leading regions and establish their competitive advantages in terms of the individual characteristics of the assessment. But the lagging regions can realize the prospects of necessary changes to ensure intensification of cluster development processes.

The use of the proposed assessing conditions methodology for formation of regional industrial clusters will make it possible to:

- regional authorities, on the basis of identifying the problematic characteristics of regional conditions, will be able to target measures to improve them, ensuring in advance an environment conducive to the emergence and further functioning of clusters and at the same time ensuring the growth of competitive positions in cluster development;
- national authorities will be able to take the results of the diagnosis into account in the processes of determining the quality of regional governance and in regional cluster development support policies, as well as to monitor regularly the formation of regional industrial clusters and based on its results to develop new or adjust existing documents;
- the management of specialized organizations will be able, with the support of regional authorities, to improve the cluster ecosystem.

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INNOVATIVE ACTIVITY OF ENTERPRISES AS A FACTOR IN ENHANCING THE COMPETITIVENESS OF THE REGION

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Abstract. The paper uses the methods of economic and mathematical modeling to verify the relationship between innovation activity of enterprises operating in the Central Federal District of Russia and GRP of the macroregion subjects in the long term. It is impossible to create a regional model of sustainable development in Russia without overcoming the gap in socio-economic development of the country's regions. The key factor in overcoming the inequality of Russian regions and increasing their competitiveness is the development of scientific and technological base of agglomerations, strengthening their innovation activity. The purpose of the work is to assess the impact of innovation activity of the CFD enterprises on GRP of the macroregion subjects. Two research hypotheses were verified during the study: there should exist a direct (statistically significant) link between the dynamics of innovation activity of enterprises and the growth rate of GRP of CFD regions; there should exist a direct (statistically significant) link between the dynamics of investments in fixed capital and investment activity of CFD enterprises. Correlation analysis was used in the study. The study results led the authors to believe that the innovation activity of the CFD enterprises has little impact on GRP of the macroregion entities, and the amount of investment in fixed capital does not affect the innovation activity in the agglomeration. The results of the study are explained, on the one hand, by the limitations of the model used, and on the other hand, by the uneven social and economic development of the Russian regions, which affects the innovation, among other areas. The results of the study, the methodology, and data set proposed by the authors make the work unique and novel. The conducted research reiterates the task of rethinking the measures of support aimed at stimulating innovation activity at the regional level from the state.

Keywords: innovation activity, GRP, correlation analysis, sustainable development, investment in fixed capital, Central Federal District of Russia.

JEL codes: C12; F20; O11

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Introduction

Sustainable development of the region is a paradigm based on the need to ensure balanced social, environmental, and economic development of the agglomeration, which should preserve the national wealth for future generations.

The problem is that this concept in Russian realities faces significant disproportions in the dynamics of development of individual regions of the country. Differences in nature and climate, population size, economic activity — these and other factors undermine the possibility of a balanced model of regional development, dividing Russian regions into donors and recipients of financial assistance from the federal center.

Opportunities for overcoming the gap in the social and economic development of regions lie in the development of scientific and technological base of the agglomeration, increasing its level of innovation activity. At the same time, intensification of innovation activities at the regional level will contribute to increasing the level of competitiveness of the agglomeration.

The study analyzes role of innovation activity at the regional level as a factor ensuring the growth of agglomeration competitiveness in this regard.

Despite the fact that the overall level of innovation activity in Russia according to international experts is relatively low (for example, in the Global Innovation Index 2020, Russia ranks 47th out of 131 countries represented in the ranking) (The Global Innovation Index, 2020), publications in economic literature indicate that it is innovation that is a key factor in ensuring sustainable regional development in modern conditions.

Table 1 – Dynamics of Russia in the Global Innovation Index, 2015-20

Parameter	2015	2016	2017	2018	2019	2020
Place in the rating	48	43	45	46	46	47
Number of countries in the rating	141	128	127	126	129	131
Innovation resources	52	44	43	43	41	42
Innovation results	49	47	51	56	59	58

Source: Bateneva, 2020

Spitsin et al. (2018); Savin and Winker (2012); Zemtsov & Baburin (2016); Bogatyrev et al. (2019); Priadko (2020); Kokorina & Koroleva (2021) consider the indicators that define innovation activity at the regional level.

Pogodaeva et al. (2015); Babskova et al. (2019); Nikonova (2019); Rodionov et al. (2020); Palkina et al. (2020) reveal the impact of innovation activity on social and economic development of Russian regions.

Study structure:

- The Sources and Methods section presents and substantiates the research methods used and highlights the goals and objectives of the study;
- The Results section contains the main results of the study;
- The Discussion section provides a discussion of the results of the study and describes the main limitations of the model;
- The last section contains a description of the practical relevance of the study in addition to the key conclusions.

Sources and Methods

The purpose of the work is to assess the impact of innovation activity of the CFD enterprises on GRP of the macroregion subjects.

The study addressed two objectives:

1. determine the trend of changes in the studied indicators in the 9-year time interval (innovation activity of CFD enterprises and GRP of CFD regions);
2. verify the relationship between the studied indicators using the methods of economic and mathematical modeling.

Research Hypothesis 1: there should exist a direct (statistically significant) link between the dynamics of innovation activity of enterprises and the growth rate of GRP of CFD regions.

Research Hypothesis 2: there should exist a direct (statistically significant) link between the dynamics of investments in fixed capital and investment activity of CFD enterprises.

Methodological research basis

Source data:

- level of innovation activity of enterprises, grouped by Russian regions, 2010-19, % (Rosstat. Science and Innovation, 2020);
- GRP dynamics in the CFD regions, 2010-18, million rubles (Rosstat. National Accounts, 2019);
- dynamics of investments in fixed capital in the CFD regions, 2010-18, million rubles (Rosstat. Regions of Russia. Socio-economic indicators, 2019);

Study period: 2010-2019, Russia.

Correlation analysis (significance level 10%) was used to verify the relationship between the studied indicators; the data were processed using Statistica (StatSoft).

Results

The results of the correlation analysis are presented in Figures 1 and 2, Table 2.

The analysis of the data presented in Figures 1 and 2 indicates a statistically significant relationship between the studied indicators, but does not allow us to evaluate it quantitatively.

The data presented in Table 1 allow us to quantitatively assess the correlation between the studied indicators:

- Hypothesis 1 was confirmed for 7 out of 18 CFD regions; no link for 9 regions; for two CFD regions (the Bryansk and Orel oblasts), the inverse relationship was found between the amount of investment in fixed capital and innovation activity of organizations;

- Hypothesis 2 was confirmed for 6 out of 18 CFD regions; no link for 8 regions; for five CFD regions, an inverse relationship was found between the innovative activity of organizations and their GRP.

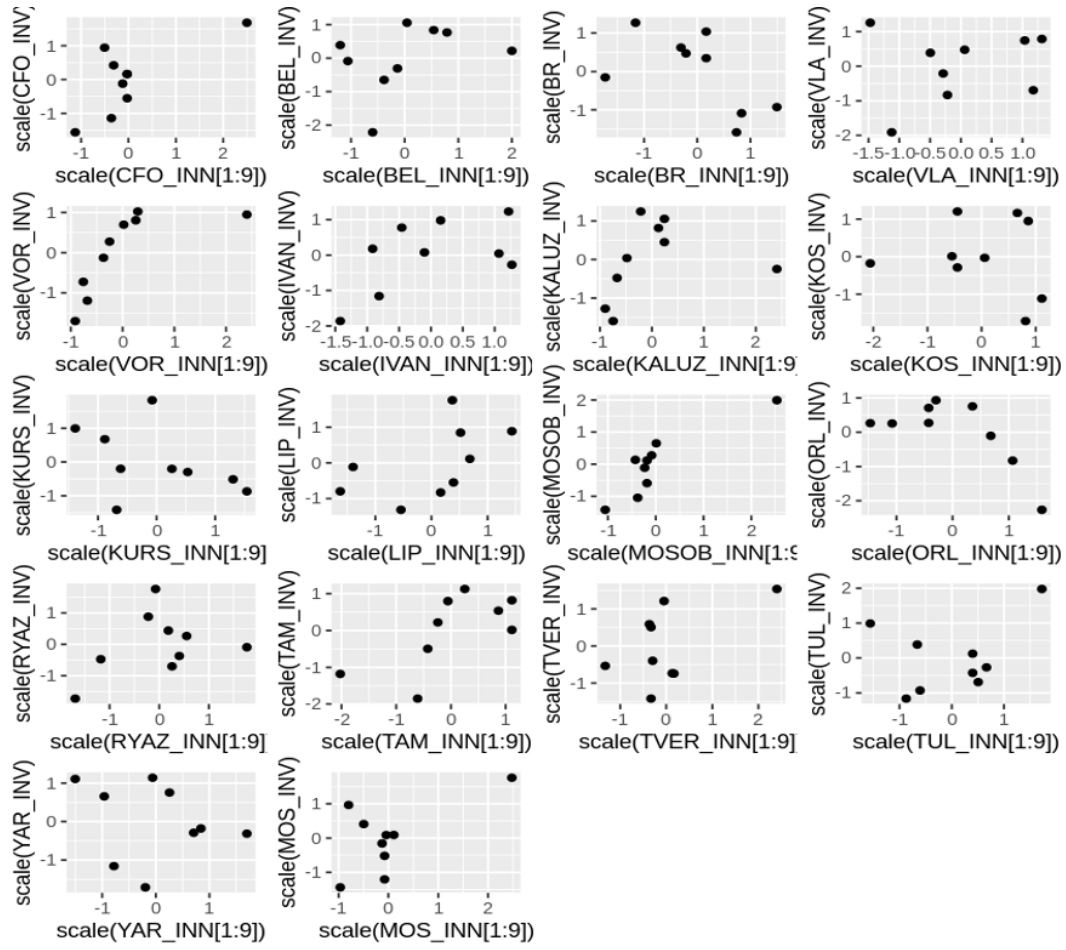

Figure 1. Correlation field between the investment in fixed capital and innovation activity of CFD enterprises[1]

Source: composed by the authors

1 Scale (*_INV) — investment in fixed capital in (*) the corresponding CFD region; Scale (*_INN) — innovation activity in (*) the corresponding CFD region

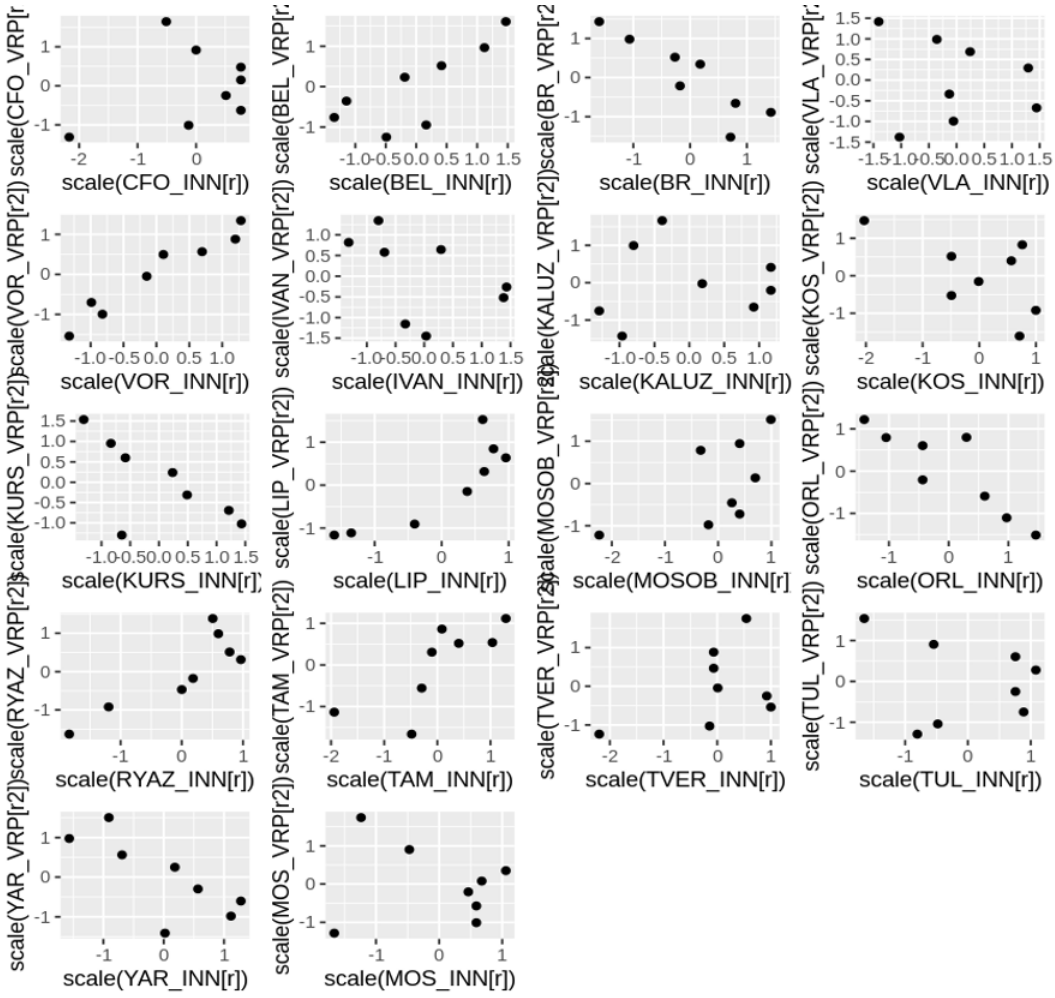

Figure 2. Correlation field between innovation activity of CFD organizations and GRP of macroregion subjects (1 year lag)[2]

Source: composed by the authors

Table 2 — Results of correlation analysis

	Impact of investment in fixed capital on innovation activity of CFD organizations	Impact of organizations' investment activity on GRP of CFD regions (1 year lag)
Central Federal District	0.7219047	no correlation
Belgorod region	no correlation	0.7857201
Bryansk region	-0.59061	-0.893689
Vladimir region	no correlation	0.968218
Voronezh region	0.7113511	no correlation
Ivanovo region	0.5518052	no correlation
Kaluga region	no correlation	no correlation
Kostroma region	no correlation	-0.598318
Kursk region	no correlation	-0.6750151
Lipetsk region	0.5335429	0.8692922
Moscow region	0.874703	0.60245

2 Scale (*_VRP) — GRP in (*) the corresponding CFD region; Scale (*_INN) — innovation activity in (*) the corresponding CFD region

	Impact of investment in fixed capital on innovation activity of CFD organizations	Impact of organizations' investment activity on GRP of CFD regions (1 year lag)
Orlov region	-0.7060207	-0.8741719
Ryazan region	no correlation	0.865232
Smolensk region	no correlation	0.7737095
Tambov region	0.6646106	no correlation
Tver region	0.5412771	no correlation
Tula region	no correlation	no correlation
Yaroslavl region	no correlation	-0.7579139
Moscow	0.6158775	no correlation

Source: composed by the authors

Discussion

In general, the study results do not confirm any of the hypotheses proposed in the paper.

The results of the study contradict the conclusions of earlier studies: Spitsin et al., 2018; Teplykh & Galimardanov, 2017; Ermasova & Nikitin, 2014.

The results of the study should be interpreted with caution, due to a number of model limitations associated with the study such as:

- insufficient sampling;
- a time lag between investment in fixed capital and innovation activity of enterprises; between the innovation activity of enterprises and the GRP of a CFD region;
- changes in the Rosstat calculation of the studied indicators;
- using nominal rather than real indicators.

Conclusion

The results of the study show that the innovation activity of CFD enterprises has little impact on GRP of the macroregion subjects, and the amount of investment in fixed capital does not affect the innovation activity in the agglomeration.

The uneven social and economic development of the Russian regions does not create an opportunity for a model of sustainable regional development and affects the innovation area as well (large businesses are the main innovation drivers in our country but are not represented in all CFD regions).

The research may be useful because the results of the study do not allow us to unambiguously interpret the determinants of innovation activity growth in Russian regions, the impact of innovation on the growth of regional economies. It brings us to the need to rethink government support measures that are aimed at stimulating innovation activity at the regional level.

We hope that this work will activate a new wave of applied research of innovation activity at the regional level.

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INSTITUTIONAL SUPPORT OF THE COMPETITIVE EDUCATIONAL ENVIRONMENT

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Abstract. The article examines the institutional foundations of the functioning of a competitive educational environment. The article represents the market of services in the field of higher education, which is a system of exchange relations. There is the sustainable demand for educational services from the main economic entities and their supply by various educational institutions interact in a competitive environment.

The identification of the methodological foundations for the formation of a competitive educational environment allowed the author to justify the expediency of using the diglossia principle, which is based on the characterization of higher education as a mixed public good provided in the field of higher education in accordance with the differentiation of the level of development of higher educational institutions. Based on the analysis of supply and demand in the market of educational services, the characteristics of the competitiveness of higher education organizations are identified, including taking into account the use of e-Leaning project technologies. The institutional approach has made it possible to justify the role of the quality of education in a competitive educational environment.

It is argued that an important institutional method of ensuring the competitiveness of HEOs is the establishment of the integrated system of educational quality management. This allows us to meet the needs of the labor market for qualified specialists. The use of distance learning is a particular tool for improving education, especially in the context of the coronavirus pandemic. In competitive education markets, there are the higher education organisations, which use modern technical means and technological techniques to successfully deliver information to students.

Keywords: Competitiveness, institutional support, higher education, educational environment, e-learning.

JEL codes: I23

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Introduction

An important part of a market economy is a competitive educational environment, which is the part of a market economic system directly deals with the labour market. The competencies acquired as a result of educational activities are implemented in various areas of working life.

The market of services in the field of higher education as a system of exchange relations has formed. There is the sustainable demand for educational services from the main economic entities and their supply by various educational institutions interact in a competitive environment. New concepts have appeared in the educational environment: market, services, marketing. In particular, specialists of the marketing service of higher education institutions carry out the process of planning and promotion of educational services, determine the parameters of pricing, monitor and analyse the behaviour of entities in the market of educational services. Open days and public information fairs are held in order to carry out promotional activities for the promotion of education among the population.

The development of the market for higher education services is directly linked to the functioning of the labour market, generating supply and demand for labour. A entity-object relationship arises with regard to the training of professionals for the labour market. The level of development of higher education has become the most important indicator of the state of the labour market, the social sphere and the entire national

economy.

The establishment of educational services market is linked to the establishment of a system of market relations. It was formed in the context of the collapse of the Soviet economic system, based on planned methods of development. A new educational system in higher education was created in the context of insufficient budget financing and institutional problems related to the legal and regulatory framework. In the 1990s, there was a low level of income for employees in the state institutions at higher education system, and there was a public demand for educational services from non-state higher education institutions. These factors have led to the emergence of a market for educational services in a competitive Higher Education Organisations (HEOs) and fee-paying forms of study.

Methodology of the study

The analysis of the higher education market is supported by a theoretical and methodological framework based on the work of domestic and foreign scientists dedicated to the analysis of higher education institutions as an element of a market-based socio-economic system. On the basis of the results obtained, the economic nature of competition in the market of educational services is conceptualized, instruments and methods are defined, capable to ensure the competitiveness based on the high quality of the educational process in higher education organizations.

Dialectical method was used as the main method of research. The work is based on the principles of unity of historical and logical approaches to the analysis of economic phenomena in higher education; rationality of construction and functional specialization of economic systems and subsystems, which include the activities of higher education institutions. The methods used were comparative, structural, coefficient and index analysis, generalisations and clustering, as well as graphical and statistical visualisation techniques in order to investigate the competitive educational environment.

Results

The identification of the methodological foundations for the formation of a competitive educational environment allowed the author to justify the expediency of using the diglossia principle, which is based on the characterization of higher education as a mixed public good provided in the field of higher education in accordance with the differentiation of the level of development of higher educational institutions. Based on the analysis of supply and demand in the market of educational services, the characteristics of the competitiveness of higher education organizations are identified, including taking into account the use of e-Leaning project technologies. The institutional approach has made it possible to justify the role of the quality of education in a competitive educational environment.

Discussion

The development of a competitive educational environment is influenced by the internal and external environment in which higher education institutions operate. External environment factors are based on the influence of political, financial, economic and technological influences on the activities of HEOs. The political impact is determined by the need to provide specialists for the national economy in order to ensure economic growth in an internationally unsustainable environment. Financial and economic factors determine the need to ensure the competitiveness of a higher education organisation in terms of the use of material and financial resources. Technological factors characterize the impact of new technologies specific to the digital economy on the organization of the educational process. Internal factors reflect the intellectual, financial and economic capacity of HEOs to operate effectively in the education services market. The basic foundations for the organization and functioning of the education market can be found in the studies of Antonova (2012), Abdulkerimov (2011), Gaynutdinova (2011), Lashko (2008), Semenyak (2007), Shevereva (2005), Shishkina (2007) and other scientists.

The quantitative and qualitative changes are characterizing the emergence of a competitive educational environment. The significant increase of number of higher education institutions in the late 1990s and early 2000s effects on the declining of the quality of education. HEIs mainly competed on educational programmes

in order to recruit applicants on a fee-paying basis, which led to a significant increase in students enrolled in law, economics and management studies. The concept of «buy a diploma» has appeared. This has required radical institutional changes. As a result, the number of higher education institutions has been optimised and the system of two-tiered bachelor's and master's degrees has been introduced. A competence-based model for training students in higher education institutions was introduced.

There have been quantitative changes in higher education system in recent years. According to Rosstat data (Russian Statistical Yearbook - 2020), the total number of graduates has decreased by 559,300 over the last 10 years (Table 1). The number of graduates in private higher education institutions has decreased significantly, too. Their quantity decreased by 181,900. This is the result of the stricter requirements of Ministry of Education and Science's for licensing and accrediting the activities of educational institutions.

Table 1 - Number of HEOs graduates

	2000	2010	2019
Total:	635.1	1467.9	908.6
State and municipal HEOs	578.9	1177.8	800.4
Private HEOs	56.2	290.1	108.2

Source: Russian Statistical Yearbook, 2020

The main socio-economic pre-conditions for the formation of competitive foundations in the educational environment are radical changes in the system of organizational, managerial and economic relations of education, the use of the achievements of the sixth technological mode, based on the widespread use of digital technologies (Irodov & Korechkov, 2018). Institutional maintenance of a competitive educational environment includes:

- modernization of the normative and procedural framework for higher education;
- transformative processes in education;
- development of new forms of activities of higher education organizations;
- use of innovative management methods;
- use of the digital economy through the widespread use of information and communication technologies and e-learning products;
- active development of scientific research in higher education institutions;
- application of modern forms of marketing;
- enhancing the HEOs interaction with organisations of the real economy, state and municipal administration authorities.

By implementing these institutional approaches, HEOs consolidate their position on the market of educational services and apply technologies to achieve the mission of the educational institution. Launching the educational programmes, a higher education institution graduates with specific competences. Actually, the HEOs present the results of activities to the labour market in the form of the knowledge, skills and abilities of the graduates. The opportunity to experiment by introducing new educational technologies enhances the competitiveness of a higher education institution by making it an innovative structure.

The research of the competitive educational environment can be conducted in many ways. On the one hand, it is a way for HEOs to develop the abilities of students, moulding them into individuals with the necessary knowledge and patriotism as a result of the educational process. On the other hand, it is a way of infrastructural innovative development of the economy of the individual regions and country as a whole. The research area combines an analysis the educational needs of individuals and society. To achieve a sustainable competitive advantage in an educational environment through the efficient management of financial or logistical factors of production alone is becoming almost impossible. By D. Bell's «The coming of post-industrial society: A venture of social forecasting», the mental work prevails over physical one (Bell, 1999). It is confirmed by the experience and level of technology of digital companies. The development from an industrial to a post-industrial society has substantially increased the role of intellectual production factors.

In the information economy, the ability to increase the intellectual capital has come to play a central role, characterised by the growing role of intellectual property.

The scientific level of the teaching staff in higher education has been declining in recent years. Over the last 10 years the number of doctors of sciences in HEOs has decreased by 7.7 thousand and the number of candidates of sciences has decreased by 52.6 thousand (Table 2). At the same time, the requirements of the Ministry of Education and Science for the implementation of research in higher education are increasing significantly.

Table 2 - Number of scientists in higher education institutions

	2010-2011	2019-2020
Number of lecturers and teaching staff - total	356.8	229.3
With a degree of		
Doctor of Science	44.0	36.3
Candidate of Science	185.5	132.9
With an academic degree of		
Professor	35.8	24.0
Associate Professor	115.7	87.4

Source: Russian Statistical Yearbook, 2020

Innovative ways of managing the educational process play an important role in the acquisition of a competitive advantage for HEOs (Korechkov, 2017). Choosing the educational technology most appropriate to their mission, higher education institutions should focus on quality of teaching staff and the innovative forms and methods used to organise the successful students training. The growing role of intellectual capital is based on the realisation of the ability to perform mental work. In this regard, by G. Becker, each person can be considered as a combination of one unit of simple labour, which any capable individual possesses, and a certain amount of human capital (additional, specific knowledge, skills) incorporated into it (Becker, 1993).

The development of competitive relations in the educational environment is determined by the following prerequisites:

1. Management in the digital economy is changing. The transition from the vertical integration, typical for energy companies, to the horizontal integration, typical for IT organizations.

2. The higher education system is transforming into a platform for the knowledge based on the concept of «lifelong learning». There is a view defining the society as «the knowledgeable», «society knowledge society», and the modern economy as «knowledge economy». A «knowledge industry» has appeared in the educational environment. Education is characterized as a branch of economy (in the USA it ranks 5th among other branches; already in 1998 the educational «branch» brought $265 billion profit and employed 4 million people (Galagan, 2013), in 2020 the structure of the US GDP was as follows: services (education; health care; science; finance; trade; transport and communication; public services) - 78 %; industry - 21 %; agriculture - 1 % (US GDP, 2020-2021). In contrast to China, where the manufacturing sector dominates the economy, the US economy is a «service economy» and education takes a leading role there.

A Tinkoff Data analytical survey of more than 7,000 respondents found that since the end of March 2020, when the self-imposed exclusion regime was introduced, Russian citizens have spent 58% more on education than in the comparable previous period. And the first quarter of 2021 figures compared with the first quarter of 2019 show that education costs have risen by 165%. At the same time, during the pandemic year, people's expenditure on retail chains increased by 22% and on purchases of medicines and drugs from pharmacies by 14% (Lapina, 2021).

In recent years, new processes have taken place in the education system, which indicate a change in the essence of competition. The definition «coopetition» has appeared, derived from the English words «competition» and «co-operation», to denote a situation where competing organisations team up to solve problems that they cannot solve alone. This has led to the emergence of industry associations, such as EdTech

Finland, founded two years ago by educational start-ups to exchange experiences, create services, organise professional events, etc. In June 2021, the European Edtech Alliance was created, which is a consortium of nineteen organisations working in the field of educational technology. The alliance accounts for over 1,500 European educational technology companies (Karppinen & Korhonen, 2021).

The new electronic technologies play a significant role in ensuring the competitiveness of higher education institutions in the market environment. Nowadays, especially during the pandemic, all HEOs have set up e-learning systems. Thus, the university competitiveness is the quality and the price of the technology used. Therefore, cost assessment is a necessary element of an e-Learning project. The main purpose of cost assessment is to develop an optimal project budget and to organise the monitoring of the project's implementation. The calculation of the total cost of an e-Learning project in a HEO should be based on a methodology including the following components: hardware costs (software and hardware platforms); off-the-shelf course purchase costs; development, updating and implementation costs; training costs; administrative costs. The cost of developing, updating and implementing training materials leads in terms of quantity. The following costs of an e-course are taken into account: its creation, updating, localisation and implementation of the e-course in the company's LMS. Leading HEOs with greater financial resources are achieving a competitive advantage in the market for e-learning courses and related products.

The e-learning system is a way of solving the problem of migration from remote areas, town and villages. The appearance of distance education, based on the use of modern information technologies and e-courses, reflects the essence of the transformation of society in a digitised economy. The relevance of distance-learning systems was particularly evident in the context of the COVID-19 pandemic (Velikorossov et al., 2021). Effective use of e-learning is not only a factor in increasing the competitiveness of higher education institutions, but also the only possible form of knowledge acquisition and implementation of the educational process in times of public concern.

The analysis allows us to highlight the forms of competitiveness of an educational organization (Table 3).

Table 3 - Forms of ensuring the HEOs competitiveness

Name	Content
1. Application of new organisational forms	1.1. Integration processes 1.2. Networking 1.3. Streamlining of internal governance. 1.4. Public reorganisation.
2. Sustainable use of resources	2.1. Enhancing in-university specialisation 2.2. Sharing the technology base 2.3. Forming a unified service infrastructure.
3. Enhancing the effective use of scientific and pedagogical capacities	3.1. Creating conditions for highly qualified lecturers at different levels of education. 3.2. Wider involvement of students in scientific research. 3.3. Expanding opportunities for creative and professional growth. 3.4. Enhancing opportunities to overcome the social and welfare problems of the staff.
4. Lifelong learning introduction	4.1. Creation of new educational trajectories demanded by the economy. 4.2. Enhancing the different forms of work in the regions. 4.3. Start-ups creating.
5. Financing the competitiveness of HEOs	5.1. Implementation of educational programs with budgetary resources. 5.2. Implementation of a system of contractual relations with organisations on the basis of targeted training for students.

Name	Content
	5.3. Enhancing e-learning opportunities for additional education through e-technology. 5.4. Attracting additional financial flows and implementing multi-channel financing. 5.5. Fundraising opportunities using. 5.6. Implementing fee-based research work.
6. HEOs image improving	6.1. Marketing programs implementation. 6.2. HEOs goodwill increasing. 6.3. Extracurricular activities opportunities enhancing. 6.4. Educational component of the educational process enhancing. 6.5. High level of social protection ensuring.

Source: composed by the author

In addition to the forms of competitiveness of HEOs listed in the table, methods and tools for increasing the sustainability of educational structures should be considered. However, it is important to note that the quality of the main educational programmes, curricula and programmes of study, the creation of an effective system of management decision-making and implementation, the increasing importance of the scientific component, and the introduction of new forms of educational work with students are important.

Conclusions

The institutionalization of the higher education system allows to improve the quality of HEOs in the educational environment,

use organizational, managerial, pedagogical and other methods to improve the educational process.

Competitiveness of higher education institutions is an important challenge for educational services market. The development of the system of paid services leads to appearing of new forms of competitive relations. They reflect the «usefulness of HEOs» in the economic system and facilitate the implementation of new educational programmes based on the use of modern educational technologies.

An important institutional method for providing the competitiveness of HEOs is the establishment of an integrated quality management system for education. Это позволяет удовлетворить потребности рынка труда в квалифицированных специалистах. The use of e-Learning projects is a special tool for improving the educational process, especially in the context of the coronavirus pandemic. In competitive educational environment, the most successful is the HEO, which uses modern technology provide the students with information.

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COMPETITIVENESS OF NATIONAL IT COMPANIES IN THE NEW ENVIRONMENT

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Abstract. In the current conditions of the economic downturn, the majority of national companies operating in the field of information entrepreneurship have identified a number of problems related to the assessment of competitors and the need to maintain their own competitiveness.
The purpose of the study: on the basis of new global trends, to analyze the competitiveness of domestic IT-firms operating in a post-pandemic situation. The article presents an overview of the current state of Russian IT-companies and their competitive positions based on content analysis and descriptive method. The main results of the study: the general trends and trends in the development of the processes of competitiveness of Russian IT-companies are reflected; it is shown that the information sector has been affected by the non-economic factors of the pandemic, which should be considered not only as threats, but also as opportunities for finding new competitive niches; it is noted that national players, being present in the global market of information goods and services, are actively involved in the global digital space.
The result of the study is the conclusion that domestic companies are inferior to foreign competitors in certain positions, but also have competitive advantages in the field of generating and promoting relevant digital technologies of Industry 4.0. The study makes a theoretical contribution to the study of national information sectors and allows us to expand our understanding of the practice of ensuring the competitiveness of IT companies in the changed conditions of 2020-2021.

Keywords: competitiveness of the Russian IT-sector; Digital technologies; glocality; digitalization; information and digital trends; economic recession.

JEL codes: A1, B52, D21, D40, D81, L1

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Introduction

Today's global transformation is defined by the next stage of technological revolution, determined by the pervasive processes of digital innovation of Industry 4.0.

Within the information and digital paradigm, the scientific community is actively studying and understanding the processes that have a multidirectional impact on the virtual business environment and business activity of economic actors. A review of scientific sources allows us to state that digitalization initiates new types of virtual business practices, organizational structures, regulations, and role models. Digitalization is transforming modern business models, prompting companies to reconsider their business context and strategic capabilities (Kagermann, Wahlster & Helbig, 2013). The Industry 4.0 philosophy seamlessly combines intelligent and physical manufacturing and operations with cognitive-digital technologies for real-time connectivity, access to analytics, processes, partners, products, and people (What is Industry 4.0 – the Industrial Internet of Things?, 2021). Early adopters of Industry 4.0 technologies benefit the most (WEF. White Paper, 2019). and their competitive advantage will far outweigh the costs associated with early adoption of I4.0 innovations. Under the I4.0 model, competitiveness and advantage arise not so much from its own assets, but from the characteristics of the digital ecosystem, while the model is part of it. In this case, it is possible to maximize the benefits both through efficiency and innovation (Gotz & Jankowska, 2020).

Digitalization as an active spread of virtual technology is turning into a megatrend, a mainstream, and a strategic development prospect, and information technology companies make up the majority of the most competitive corporations in the world, based on market capitalization. For example, Apple and Amazon

have reached a market capitalization of one trillion US dollars (Templeton et al., 2019). Each new stage of information technology development becomes a source of competitive advantage for the company (Byrd & Turner, 2001), pushes the boundaries of business, expanding its potential opportunities. It is through information and communication technologies that global competition is created, ... "innovation turns out to be more important than mass production, investments are made in new concepts or the means of their creation..." (Encyclopedia of the New Economy, 2019).

The specifics of the latest technologies, processes, products, the multiplicity of business practices in the IT sphere significantly change the landscape of competitive interactions of all stakeholders. Thus, R. D'Aveni characterizes the environment in which modern companies operate as "hypercompetitive", where actors are aggressive and supermobile, "when rivals must act lightning-fast to gain market superiority and destroy their competitors' advantages ("Interfere with competitors creatively!") (D'Aveni, p. 57). As Manfred Bruhn notes, companies "are increasingly exposed to the combined effect of previously isolated competitive factors, which leads to the emergence of multidimensional, dynamic and aggressive competition" (Bruhn, 1998). Поэтому важнейшим аспектом становится непрерывное обновление оценок рынка, на котором действуют фирмы. Так, если в 80-х годах пересмотр наиболее важных рынков проводился в среднем один раз в 3-6 лет, то сегодня требуется непрерывная оценка рыночной конъюнктуры и своего положения среди конкурентов.

In the global competitive environment, people, markets and business processes are becoming increasingly interconnected (Sewdass & Calof, 2020, p.34), and new technologies are changing the business environment and competitive dynamics for all firms (Matthews, 2020, p.68). But globalization does not mean that all IT businesses standardize their internal processes and local practices, rather, they adapt global experiences and practices to their traditional local environment,... to local traditional conditions, creating a "glocal" landscape. Glocality makes ... the task of measuring competitors' behavior even more difficult, requiring ... a deep understanding of foreign markets (Stanat, 2008). Market turbulence and shortened life cycles of many products are forcing manufacturers to optimize costs, accelerate and localize production processes, so in an unpredictable and rapidly changing environment, IT companies are forced to seek new forms of strengthening their competitiveness through best practices around the world (Du Toit, 2015).

Main results of the study

Rapid changes in global IT markets, rapid transformation of the global economy, increasing complexity and risks, mobility of all processes create a number of challenges that all participants of competitive relations have to reckon with. In particular, Crayon's 2019-2020 State of Competitive Intelligence reports noted a number of challenges in maintaining their own competitiveness that companies face today:

— selecting accurate and reliable sources to obtain the best possible information;

— ensuring that the data are up-to-date;

— stimulating internal engagement of the team and the organization as a whole;

— disseminating information about their competitors, customers, and thought leaders in an increasingly crowded marketplace (State of Competitive Intelligence 2019, 2020).

The content analysis of Russian digital agencies revealed a number of general patterns and local specifics in ensuring their competitiveness. In 2021, more than 13,687 IT companies were registered in Russia and obtained a license from the Ministry of Communications and Mass Media of the Russian Federation. Most of them are concentrated in large Russian cities (Moscow, St. Petersburg, Yekaterinburg, Novosibirsk), which have been present on the IT market for more than 20 years, have their own developed niche and client network.

The largest players among the top ten Russian leaders include: Rostec, National Computer Corporation, LANIT, Softline, IKS Holding, 1C, Rostelecom, GazpromAutomation, I-Teco, Marvel Distribution (Ranking: The largest IT companies in Russia 2019). This top ten controls 54% of the Russian IT market (Pulya, 2021), forming 50% of the total revenue of the top hundred. The number of publications about companies at this level can reach an average of 20 to 50 per month.

The main activities of these companies are software development and production, distribution,

IT services. In the 2020 analytical review of TAdviser, it was noted that the key activities of Russian IT-companies included in the research rating were distributed as follows: 52 companies said integration, 48 said development, 28 said consulting, 15 said information security, and 9 said distribution (Ranking: The largest IT companies in Russia 2019). Russia's most successful IT companies create mass data protection products and services and are leaders in their segments both in Russia (1C Company) and globally: ABBYY, Kaspersky Lab, Speech Technology Center. Major global digital megatrends have initiated active development in large Russian companies of insourcing, Business Intelligence (BI — analysis and interpretation of Big Data), expansion of the range of cloud services providers. Thus, the Russian IT market is more service-oriented: the IT services accounted for more than 78% of its total revenue in 2019-2020.

The largest customers and consumers of IT products and services are the government, state corporations, telecommunications, and the financial sector (for example, the share of Russian software in Russian public authorities and budgetary institutions is 50%; by 2024, the state companies are planning to buy up to 70% of Russian software, and public authorities — up to 90%).

Significant complication of new technologies in Hi-Tech and large projects forces companies to focus on key activity areas, winding down business on inefficient practices in terms of benefits, abandoning long-term and high-risk investment projects. These aspects have led to a clear trend towards the consolidation of national IT companies (an "economy of scale" effect), which has been achieved through mandated mergers and acquisitions. Companies are actively seeking new opportunities for growth and competitiveness through collaboration and consolidation of efforts and resources. In this regard, it should be noted that the competitive positions of Russian IT companies are secured and supported by: 1) penetration and connection (integration) into the system of sectoral and cross-sectoral network links; 2) pooling of interests and resources (collaborations) with network members: partners, the state, educational platforms, research centers; 3) creation of their own chain of partnerships to optimize business relationships with the most important agents through non-company interactions and informal contracts at the lowest cost; 4) development and maintenance of own competitive advantages based on rare and unique competences, ideas, and knowledge (adversarial competition).

The outlined competitive positions of information sector firms are most effectively applied exactly in the institutional network environment, where intra- and inter-firm contacts arise. The integration of Hi-Tech IT entities into network structures clearly illustrates the growing role of institutional factors in competition, within which information business entities cooperate for mutual benefit. A selected part of parameters of networking in the leading Russian IT firms is presented in table 1.

Table 1 – Networking indicators of Russian leading IT companies

IT company	Networking indicators
Rostec	Rostec is a radioelectronic cluster (REC) of high-tech products, owns Shvabe and Roselektronika holdings, Avtomatika Concern, more than 200 enterprises in 35 regions of Russia. REC enterprises produce: electronic components and units, optical and medical equipment, complex software packages and systems; participate in projects to develop 5G wireless communications, industrial Internet of Things, blockchain, and other advanced high technologies.
1C	1C (software developer) operates through one of the most extensive partner networks, including more than 10 thousand of regular dealers; more than 4,500 enterprises of 1C:Franchising network certified by 1C; competence centers and certified training for 1C:Enterprise products; more than 1,200 authorized training centers, more than 200 authorized certification centers within 1C:Professional project.

IT company	Networking indicators
Technoserv	Technoserv is the largest Russian systems integrator operating in Russia, CIS countries, and Europe with large-scale projects on implementation, development, outsourcing of the IT infrastructure, information security systems, energy and engineering systems, application platforms for large enterprises and industries; it implements and develops digital communication and engineering systems based on its own technological developments as well as the solutions of IT leaders: Avaya, Cisco Systems, EMC, Hitachi Data Systems, HP, Huawei, IBM, Microsoft, Oracle, VMware, etc.
NCC	NCC – National Computer Corporation includes more than 40 offices in the Russian Federation; own plant for the production of computer equipment; more than 300 authorized service centers in all regions of the Russian Federation; has 11,000 business partners and more than 260 partnership contracts with the world's largest manufacturers. NCC operates in most segments of the IT market: computer equipment manufacturing, IT equipment distribution, system integration and infrastructure solutions, IT consulting, management process automation, portal solutions, e-government solutions, custom software development, IT outsourcing, industrial automation, federal-scale corporate supplies, management consulting, implementation of in-house developed software solutions.

Source: composed by the author

The examples in table 1 allow us to conclude that there is not only a network effect but also a synergistic one, because partner network members benefit by being able to share positive experiences and reduce costs by sharing the same resources, services, customers, and suppliers. This model of organizing virtual business practices once again proved its success in the changed conditions of 2020, when it became quite clear that digital technologies create not only competitive advantages and many positive network effects, but are also the drivers of scientific and technological progress in the countries that operate within the trend of digital transformation.

Given the trends of global digitalization, the IT industry in Russia today has to operate and develop not only in a hyper-competitive environment, but also in local competition: today, it is no longer possible to make a project, innovation, service, or product successful and competitive if it is designed only for a narrowly targeted consumer market.

The 2020-2021 period has made notable adjustments to the competitiveness of the national IT sector.

In the changed conditions of this period, Russia found itself in a slightly better position compared to the European countries. Nevertheless, there is a clear decline in the growth rate of the national IT industry and a drop in demand and sales in a number of product segments: sales of mobile phones decreased by 8%, servers — by 12%. The Russian segment of the global IT market grew by 7% in 2019, or 25 billion USD, but has seen a drop of 30% since spring 2020; the share of Russian IT companies in the global market is insignificant and amounts to about 1.5-2.0% (it is worth mentioning that foreign competitors are also active in the Russian market, including such IT giants as Apple, Hewlett-Packard, Foxconn, TrendMicro, which have significant financial resources, technologies and seek to attract leading Russian IT specialists). National industries and corporate customers interested in information technology have reduced their demand for IT services and cut their IT spending, focusing on digital projects with short-term returns on investment. Savings on investments in the IT industry will affect the opportunities for continued digitalization of sectors of the Russian economy and the competitiveness of domestic IT products and services on local and foreign markets. Experts estimate that without tax preferences and with a significant drop in demand for IT goods and services from crisis-hit sectors in 2020, the industry will be able to return to 2019 levels of the GDP share and the number of employees not earlier than 2024 (Dynamics and perspectives of IT industry development, 2021).

The global trends of Industry 4.0 and the current state of the Russian IT industry in the changed economic and social and political conditions of 2020 allow us to highlight a number of fundamental positive points:

— there has been a marked increase in transparency and improved competition in the generation and diffusion of IT technologies;

— the quality of provision of IT products and IT services improved significantly;

— the activity of foreign integrators in the Russian market had a positive impact both on the IT industry as a whole and on individual companies, which gained new experience from technological and methodological points of view (for example, Russian companies are gradually abandoning Western software due to its high cost, and functional analogs have already appeared in the country);

— the departure of businesses to the Web has mobilized and accelerated the development of "end-to-end" digital technologies in the Russian IT space, which are promising, creating multiplier effects in various sectors of the economy: industrial internet, Big Data, distributed registry systems, quantum technologies, sensorics, 5G wireless communication technologies, virtual and augmented reality technologies;

— Russian telematic services technologies are successfully developing unfilled niches in the global market (applications for navigation and traffic monitoring can provide certain prospects);

— Russian developers have a good track record in the development and implementation of applications for mobile devices abroad (this segment is one of the main development areas of the global IT industry);

— there are developments and a certain advance in the field of intelligent information and neurocognitive technologies (many initiatives in this endeavor are coordinated by Sberbank, whose experts and IT specialists have developed a sub-technology roadmap: natural language processing, speech recognition and synthesis, neuroimaging, computer vision, neurointerfaces, neurostimulation and neurosensing, intelligent decision support systems) (Digital Russia – 2024. How new technologies will change the lives of Russians, 2021);

— the pandemic situation and economic recession have initiated a growing demand and popularity of digital technologies that can help with organizing activities from anywhere at any time, not only for the private business sector, but also for households (remote work and office, online education, telehealth, virtual leisure — digital museums, tours, theaters, delivery services, electronic shop, etc.).

Results and conclusions

In line with the indicated trends and the review analysis of the domestic IT industry, it is necessary to state that for the Russian IT sectors, the provision of competitive positions in the new environment can be ensured by:

— firmly entrenching themselves in those niches where they are stronger than Western manufacturers (this is the development of specific and specialized software products);

— intensive development of core market segments while maintaining the accumulated knowledge base and practices of the IT business;

— development of competitive exclusive intellectual services and products;

— retention of Russian IT specialists by creating attractive conditions for work and professional promotion (this is especially important for the country, since the tough conditions of IT competition and the increase in the intellectual component in IT development fundamentally change the staff "architecture": competent specialists working at the intersection of business, information technology, engineering, and linguistics are in most demand today) (Varavva, 2020);

— effective partnership between the state and the business enterprise sector based on willingness to interact, transparency, and technological neutrality;

— a clear recognition that digital technologies provide real opportunities and techniques to diversify, reorient different types of businesses and business practices and enable them to withstand critical moments of crisis.

Thus, the world's open economies are now faced with factors that cannot be foreseen or predicted. New threats and challenges of non-economic nature significantly transform and destroy the established models of competitive interaction of entities. With the global economic recession, national IT companies are faced with a set of challenges that need to be addressed. But even in the changed situation, national players in the global IT market are actively expanding their areas of competitiveness, finding undeniable advantages and strong

positions in the generation of relevant digital technologies. Against the background of the general slowdown of the global market, Russian IT companies can occupy their own promising niches.

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COMPETITIVENESS OF SOCIO-ECONOMIC MODELS IN THE LIGHT OF NEW CHALLENGES OF THE 2020S

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Abstract. The paper discusses ways out of the crisis, in which the world economy has plunged in the late 2010s, accelerated by the COVID pandemic and the consequences of measures taken to overcome it. Crises of this kind not only change the supremacy balance between countries, but also raise questions about the effectiveness of socio-economic models, the competitiveness of which is ultimately ensured by the cultural codes embedded in the foundation of national models. The paper considers the prospects of maintaining the leading position of Anglo-Saxon cultural code models, strengthening the position of Han cultural code models and the chances of the domestic model based on the Russian cultural code.

Keywords: competitiveness, socio-economic models, formational approach, civilizational approach, cultural codes, Anglo-Saxon cultural code, Han cultural code, Russian cultural code.

JEL codes: A12, F01, P51

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Introduction

To paraphrase F. Engels, competitiveness is winning the «war of all against all». It is possible to produce the most competitive product, organize the most competitive enterprise, and create the most competitive national economy. What is the time limit of these «wins»? Obviously, a competitive economy is a more resilient product than a competitive product or service. In some industries, competitors are willing to offer customers their analogs of a successful new product just a few months after it becomes available. Therefore, companies worried about maintaining their leadership position should «run very fast» and introduce a new product number 2 at a time when competitors are dumping their version of number 1 — literally 2-4 months later.

It will take more than one year to build a competitive economy. However, in this case, borrowing is also possible. Was it not the success of Roosevelt's New Deal, under which later Sir J.M. Keynes summed up the theoretical framework, that predetermined the triumphal spread of Keynesian recipes of economic prosperity among most developed countries for several decades?

If we cast a bridge from the Great Depression of 1929-1933 to the Great Recession of 2008-2009, we again find similarities: Different countries had not so different selection of the most competitive program to overcome the global crisis of the 2000s–2010s. The program were mainly about the expansion of the macroeconomic policy means used to stabilize and stimulate the economy, represented by a whole arsenal of non-traditional means: helicopter money, negative interest rates, which was hard for macroeconomists to imagine before, as was the fact that such a massive injection of money into the economy would not unwind inflation. The emphasis is on the importance of financial stability. It was the financial destabilization in the market of non-traditional financial instruments (derivatives) that gave impetus to the Great Recession. All banks of the world started to use developed standards of new prudential policy. In other words, countries at different levels of economic development applied identical macroeconomic policies of fiscal and monetary easing, simply to slow down the output decline and create conditions for its exit. Despite the protracted

nature of the recovery from the Great Recession, widespread macroeconomic policies should be recognized as competitive: by the end of the second decade of this century, the crisis had been overcome.

And here is a new crisis born of the COVID pandemic and the measures used to overcome. This crisis is exogenous, i.e. unrelated to economic dynamics. An answer to the biggest question of the 2020s remains unclear: to what extent is the economy prepared to respond to this non-economic challenge?

Such a shock crisis often not only changes the trajectories of countries and their relations with each other, but also tests the socio-economic models themselves. Their competitiveness is ensured in such situations by those factors which are difficult to borrow and impossible to form within a short period of time. We are talking about cultural codes and archetypes, unconsciously forming society's picture of the ideal world underlying the cultural core (or rather, cultural-spiritual-religious core, or matrix) of this society and responsible for its self-identification (Rodina, 2009a; Rodina 2009b; Rodina 2009c; Rodina 2011a; Rodina 2011b).

We assume that the 2020s is the time to revise the existing socio-economic models from the perspective of their competitiveness. The reason for such revision is the search for answers to the new challenges of social development. Do the existing socio-economic models, or, more precisely, their matrices, give the opportunity to carry out the necessary reforms determining the trajectory of society's development before the next bifurcation point, and will society have enough strength and wisdom to avoid the degeneration of these reforms into a purely technical «invention of methods»? If one manages to slip between these Scylla and Charybdis, then another level of novelty will emerge — when these techniques give birth to new meanings, give the model the necessary competitiveness, and take society to new planes of development.

Sources and methods

We have all emerged from the epistemological principle of Marxist philosophy of the primacy of matter and the secondary nature of consciousness, which is brought into shape in our study in the recognition of the primacy of social being and the secondary nature of social consciousness. Social being acts as a set of material social processes that exist independently of the will and consciousness of an individual or society as a whole, and social consciousness is a reflection of social being. From the complex sum of social phenomena, historical materialism singles out material relations because people must eat, drink, clothe themselves, have housing, etc. before engaging in science, politics, philosophy, religion, etc. It is true that «in the historical process, the determining moment in the historical process, ultimately, is the production and reproduction of actual life. ... If anyone distorts this position in the sense that the economic moment is the only determinant moment, the statement turns into a nonsensical, abstract, meaningless phrase» (Engels, 1965). And yet the economy is primary, culture is derived from it, and therefore secondary. But is it?

Culture, once formed, begins to act as a relatively independent variable among the factors of social life. The classic interpretation (the culture of the people is formed and functions primarily depending on the economic and political circumstances) experiences a paradigmatic turn, which manifests itself in switching the notions «economy» and «culture» around. Mathematically, it looks as follow: from the formula $K = f(E, P)$ we move to the formula $EP = f(K)$ (where K is culture; E is economics; P is politics; f is a function indicating the nature of interdependence of the specified quantities). The reference points for evaluating any values are, on the one hand, social experience and, on the other hand, the archetypes of a given culture that have been formed during the survival of an ethnos, nation, clan, etc. (Danilevsky, 2019). The system of archetypes can be described as an immune system, a protective layer of a particular culture that preserves its identity, defining the national identity. By the latter we mean the cultural code, which is a product of geography, national language, and history of the people who have lived for a long time in a certain territory, in a certain climate and who build certain patterns of response to the challenges of time, based on their worldview and their place and sometimes mission in this world. It is a peculiar set of rules for survival and development

These stable rules can help search for the most competitive answers to the challenges of time, or they can inhibit and even block this search (Rodina, 2008a; Rodina, 2011c; Rodina & Stepanova, 2020).

Study

Socio-economic models can be viewed in two frames of reference: formational and civilizational.

The specifics of any one social formation are determined by property relations. This approach can be considered relevant as long as it is acknowledged that modern socio-economic systems are capitalist at their core (Rodina & Brillante, 2020). This could be «late capitalism» (Buzgalin &Lenchuk, 2020, p. 119). Or a capitalism in the last stage of structural crisis, i.e. at the stage of the termination of its existence due to the launching of the mechanism of self-liquidating geopolitical quasi-monopoly (Wallerstein, 2015). It matters not that I. Wallerstein gave this capitalism no more than 30 years before its historical demise — as long as it is capitalism, its essence is unchanged.

Cultural codes are at the heart of a particular civilization. Four basic civilizations can be distinguished in the modern world, based on which 11 cultural codes have been preserved (Figure 1).

The model of Euro-Atlantic civilization «mixed» with the Anglo-Saxon cultural code continues to demonstrate the greatest competitiveness.

The distribution of countries by Human Development Index (HDI) can be interpreted as an aggregate indicator of the competitiveness of socio-economic models because, in addition to living standards, it includes the level of education and life expectancy, and in 2020 — the amount of carbon dioxide emissions and resource consumption of countries as well, which is designed to adjust the HDI with the pressure of civilization on the planet. It was based on 2019 estimates and published in December 2020. We limited ourselves to the first thirty, in which about 80% of the countries develop according to the Anglo-Saxon cultural code (Table 1).

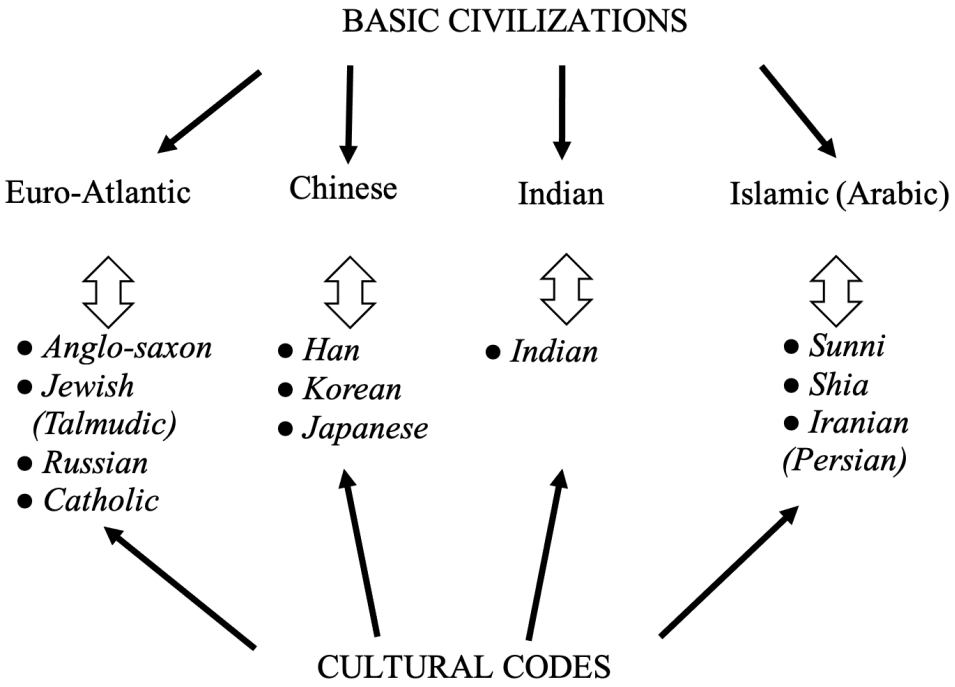

Figure 1. Scheme of cultural codes of modern basic civilizations

Source: Pereslegin, 2021

Table 1 — Distribution of countries by HDI in 2019

Rating	Country	Rating	Country	Rating	Country
1	Norway	11	Finland	21	Liechtenstein
2	Ireland	12	Singapore	22	Slovenia
3	Switzerland	13	United Kingdom	23	Republic of Korea
4	Hong Kong	14	Belgium	24	Luxembourg
5	Iceland	15	New Zealand	25	Spain
6	Germany	16	Canada	26	France

Rating	Country	Rating	Country	Rating	Country
7	Sweden	17	USA	27	Czech Republic
8	Australia	18	Austria	28	Malta Malta
9	Netherlands	19	Israel	29	Estonia
10	Denmark	20	Japan	30	Italy

Source: Human Development Report, 2020

We extend the Anglo-Saxon cultural code to Germany, Austria, and France, which have lost their national uniqueness in recent decades and whose cultural codes have lost competition to the more successful Anglo-Saxon one.

The following value orientations conditioned this success:

1. Power can rest on the physical, spiritual, or other superiority of the individual over another individual.

2. Politics is a type of conflicting social activity that is built on the principles of fair play and equality of citizens before the law.

3. Recognition of the individual as the main subject and source of politics, the attitude to the state as an institution dependent on civil society, the guarantor of individual rights and freedoms.

4. Individuals' preference for multiple forms of political life, an adversarial type of participation in power, pluralism, and democracy; preference for a complex organization of power (presence of parties, pressure groups, etc.)

5. The primacy of general State laws (codified law) over private rules and regulations of conduct.

6. Understanding freedom as a «perceived necessity», i.e. the power of the law.

7. Liberal-market orientation as the most organic form of the listed values, declared universal and in this sense common for the humanity (Rodina, 2008b).

These meanings allowed the carriers of the Anglo-Saxon cultural code to become the beneficiaries of the liberal model of globalization, which still follows the principle «the rich get richer, the poor get poorer», which resulted in the increased differentiation in the world economy and the elimination of almost all competing cultural codes (Rodina, 2020).

In other words, the Anglo-Saxon cultural code provided its bearers with power over the world.

Will the models of Euro-Atlantic civilization in the Anglo-Saxon version retain their competitiveness in the face of new challenges associated with digitalization and exacerbated by the COVID-19 pandemic? Or will other socio-economic models prove to be objectively more suitable for the solution of urgent problems, and other cultural codes become the drivers of global growth? They should not only prepare the transition to the sixth technological mode, but also provide conscious management of the development of society, because it is now obvious: the only way to deal with threats such as the COVID pandemic is by working together.

The new world economy should be based on the mechanisms of personal responsibility of citizens for the improvement of society's well-being. S.Yu. Glazyev believes that this requires a transition from the Anglo-Saxon cultural code to an Eastern one, with China and India as the core (Glazyev, 2020, p. 15, 17).

Eastern models have a unique set of values:

1. The divine origin of power, unrelated to any human merit.

2. Politics is an ascetic, inaccessible activity, subject to a code of heroic conduct and to the principles of divine government.

3. Recognition of the primacy of elites and the state in politics, preference for state patronage over the individual; recognition of the priority of community and group leaders over the individual; the dominance of the values of corporatism.

4. The individual prefers executive functions in political life and collective forms of political participation devoid of individual responsibility; they gravitate towards an authoritarian type of government, simplified forms of power organization, and the search for a charismatic leader.

5. Priority of local rules and customs (local law) over formal state regulations.

For a long time it was believed that the «rice culture» countries, precisely because of their cultural

code, would not integrate into the sixth technological mode, because they lacked creativity and personal responsibility (moreover, the manifestation of individuality was considered indecent).

But when Chinese goods filled the world, it turned out that rice culture is the same as assembly production. That is, modern assembly production has laid down the traditional patterns that existed in the rice culture.

And it also turned out that tapping into the innovative development potential depends not so much on the culture as such, as on the directional shift of socio-cultural characteristics, which can be done through educational and cultural policy. That's where the Eastern cult of education comes in handy!

Unexpectedly in demand was the focus on improving the well-being of society, traditionally inherent in Eastern cultural codes, but injected with personal responsibility of citizens for the growth of this well-being in the form of the social control system implemented in the PRC since 2014. A person builds their own reputation throughout their life by ensuring a positive balance of good deeds.

«The social credit system includes: compliance with the country's laws and traffic regulations; credit history; tax payments; human behavior at home; his social media activity; structure of consumption of goods and services. Eventually, the deeds of the Chinese inhabitant are formalized and become calculable, which is able to create convenience and organization in human life» (Yudina & Sulemonova, 2021). The digitization of Chinese behavior takes the form of rating points, which is not perceived by citizens as a «digital concentration camp» or a «violation of their privacy» because the cultural code prescribes the evaluation of the individual by society (as opposed to the Anglo-Saxon cultural code, which is based on the evaluation of the individual by themselves). Social Credit categorizes residents into five categories (from «AA» to «D»), similar to Standard & Poor's 10-tier credit rating scale (from AAA to default). High scorers can count on various benefits, while low scorers are subject to various kinds of restrictions (Table 2).

Table 2 — Distribution of preferences and sanctions according to the social control system in the PRC

Preferences	Sanctions
• Lending at preferential rates. • Leasing goods and services without collateral. • Hospitalization in a hospital without bail. • Placement of photos on billboards. • Praise.	• Deprivation of the right to hold positions in state and municipal service bodies. • Refusal to apply for any job. • Denial of social security. • Biased inspection at customs. • Denial of air tickets and berths on night trains. • Denial of seats in luxury hotels and restaurants. • A ban on the education of children in expensive private schools.

Source: Galiullina et al., 2018

In other words, the Chinese (Han) cultural code gives its bearers power over forms of organization and activity.

Since the experience of applying the system of social control has not yet been accumulated, the attitude to this system is ambiguous. People feel mostly neutral or negative. We see Social Credit as the implementation of a global trend towards an increasing role of the state in all spheres of human life, which is likely to generate a conflict between the state and the individual. Nevertheless, we are inclined to qualify the system of social control as an infant of a new competitiveness of socio-economic models, taking into account the transition from an industrial society to a digital one, prosperity of which, as we noted above, depends on the creation and development of mechanisms of personal responsibility of citizens for the improvement of the welfare of society. It is worth to note that the success of any model is determined by two main factors: the ability, first, to fit into the main trends of technological development and, second, to use one's own cultural code for mastering these trends (or, at a minimum, to «negotiate» with it so that it does not block the aforementioned course).

It is difficult to imagine the implementation of a social control system in today's Euro-Atlantic civilization,

which means that the Chinese socio-economic model acquires additional competitiveness on the way to the social state. It has already manifested itself in an effective program to combat the COVID pandemic and its consequences: the Chinese economy, virtually the only one among the major economies, ended 2020 in the black. According to China's National Bureau of Statistics, the country's GDP grew by 2.3% last year (National Economy Recovered Steadily in 2020 with Main Goals Accomplished Better Than Expectation, 2021).

Of course, we are most interested in the prospects of Russia's inclusion/exclusion in the ongoing socio-economic transformation. To do this, it is necessary to define the specifics of the Russian cultural code:

1. «Russia is a game of nature, not of reason,» wrote F.M. Dostoyevsky in Demons. Our cultural code is more predetermined by geographical and climatic factors than others:

— large chronotopos, predominance of risky farming zones with low productivity and insignificant surplus product, which results in disregard of material benefits and orientation to minimize risk rather than to maximize the result;

— strong dependence on weather conditions, which are unpredictable, creating a weak link between labor efforts and the end result, but often requiring short-term extra efforts to overcome unforeseen circumstances; hence the desperate creativity and «ability to rise to his feet after a fall» (Kliuchevskii, 1990, p. 65);

— expectation of sudden and abrupt changes, combined with the belief in a miracle, and hence a preference for contemplation instead of activity (this is where the famous Russian 'avos' (counting on a miracle) comes from);

— the «boundary» between Europe and Asia (West and East), between sedentarization and nomadism, which is fraught either with the ultimate synthesis of disconnected extremes («omnipresence»), or with the ultimate polarization of the whole, i.e. split, which gives the mentality itself a stable quality of «semantic indeterminacy» (Kondakov, 2003, p. 542).

2. The duality of the Russian cultural code follows from this «boundary» and extremity: a system of checks and balances, giving rise to «mutual support» with a very fragile balance, which constantly keeps society on the verge of disruption, and often even explosion (Lotman, 2002). Such a society is set up for expectation of sudden and abrupt changes, readiness for the forthcoming change of way of life and world outlook.

3. Communitarianism: values go back to communal collectivism and impose the priority of group justice over the principles of individual freedom, and, ultimately, the dominance of the state in the regulation of social life over the mechanisms of self-organization of society (Rodina, 2017).

4. It is not just the state with a preference for state patronage over the individual that is recognized as primary in politics, but a tightly centralized state, where there is not only no political freedoms, but no need for them.

5. Understanding freedom as will, i.e. of arbitrariness.

6. Features of the Russian language:

— the breadth of the semantic spectrum of language, which makes it possible to connect the unconnected (Nalimov, 1989). Again, this brings us to the point of meaninglessness, indiscipline, and creativity;

— lack of differentiation between Perfect and Continuous tenses, which results in «unfinished» thinking, projecting, and reforming.

7. Setting the course to extremity and mobilization efforts together with communitarianism, spatial extent, predominance of cold temperatures, domination of intangible values over material consumption conditioned the image of the Russian as a human pioneer (this is where Russian cosmism came from). Yes to discoveries, no to harnessing. There is a widely spread phrase attributed to an American manager: «If you need one unique thing, order from the Russians, if you need 10 identical ones, order from anyone but the Russians.»

In other words, the Russian cultural code gives its bearers power over space.

Indeed, the duality of the Russian cultural code contains the potential for both forward movement and a transition to stagnation. The extent to which our society today is prepared to meet the challenges of the 2020s can be judged by the Future Readiness Index, which was explored twice — in 2017 and 2019. This is an

assessment of the competitiveness of 20 countries according to 10 criteria based on statistical indicators and expert opinion (Table 3).

Table 3 — Country ranking (based on the results of the readiness index calculation), points

Rank	Countries	2019 year	2017 year
1	USA	1.00	0.96
2	Germany	0.93	1.00
3	United Kingdom	0.88	0.94
4	Japan	0.87	0.90
5	Republic of Korea	0.74	0.75
6	EU	0.74	0.75
7	Canada	0.71	0.71
8	France	0.70	0.62
9	Australia	0.66	0.68
10	China	0.63	0.57
11	Italy	0.48	0.45
12	Russia	0.38	0.33
13	Turkey	0.23	0.14
14	Argentina	0.18	0.10
15	Brazil	0.17	0.10
16	Saudi Arabia	0.16	0.11
17	India	0.15	0.17
18	Indonesia	0.13	0.00
19	Mexico	0.12	0.16
20	South Africa	0.00	0.07

Source: Future Readiness Index Report. September 2019

Russia is not in the top ten countries, it took the 12th place (and even that at the expense of security, but not at all economy, resources, and ecology that advance the development), which makes us question the competitiveness of the Russian socio-economic model.

Can certain features of the cultural code be «replaced» or «adjusted» to the urgent needs of social development? Attempts to install cultural codes alien to us were made repeatedly (take, for example, Gorbachev's Perestroika), but invariably ended in fiasco. Much more constructive is a different approach, the essence of which can be described by the legendary Pele: «Why are you berating our defense? Our offense will score more goals anyway.» You have to make your strengths work. «The best and most lasting changes are those that come from improving morals, without any violent upheaval,» were the words written by A.S. Pushkin in The Captain's Daughter, «And those who are plotting impossible coups in our country are either young and do not know our people, or they are hard-hearted people, for whom another man's head is half a kopeck, and their own neck is a kopeck.» It means that the most urgent task of reforming the Russian state and society is the powerful development of national and historical consciousness by strengthening the processes of production and circulation of all kinds of socially significant information, which should bring the educational and cultural policy from the «residual» to the priority position. Only this way can provide radical changes in the core of our culture without the devastating consequences necessary to «launch» the mechanisms of competitive restructuring of society.

Conclusion

The third decade of the 21st century is a time of testing and possible revision of existing socio-economic

models for their competitiveness.

We consider the main criterion of the new competitiveness to be the ability of cultural codes to «open the way» to the formation of mechanisms of personal responsibility of citizens for the improvement of society's well-being in the conditions of digitalization.

This makes the problem of transformation of socio-economic models relevant and opens prospects for the formation of a new competitive leader.

We predict, on the one hand, a decline in the leadership of the Anglo-Saxon cultural code and models based on it; on the other hand, the increase of the competitiveness of the Han cultural code.

The Russian cultural code has a good chance to implement the strategy of advanced development, if it is possible to activate its strengths

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