Interregional Cooperation in the Field of Infrastructural Arrangement of the Economic Space of the South of Russia as an Integration Form of the Manifestation of General Globalization Processes

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Abstract. Purpose: The article presents the results of the study of the main trends, factors and conditions of interregional interaction of the subjects of the federation in the field of infrastructure development of the economic space of the South of Russia, as one of the manifestations of general globalization processes.

The purpose of the article is to justify the need to rationalize the processes of interregional interaction for the qualitative improvement of the infrastructure of the South Russian macro-region, to stimulate the growth of its competitive advantages, formed through the effective interaction of the regions of the South of Russia.

Design/methodology/approach: The methodological basis of the article, based on the principles of a systemic approach, is formed on the basis of theories of regional reproduction and evolutionary development and it is specified using the approaches of the theory of managing the development of complex socio-economic systems, cluster theory, provisions of institutional regionalism, strategic management, concepts of economic globalism.

Findings: The results of the work are reflected in the conclusions presented in the article on the effectiveness of cooperation between neighboring regions based on the commonality of the natural conditions of the economic and geographical zone and their production and economic activities, nature management specialization and positioning in the system of social division of labor. Important results are: identification of promising areas of interregional cooperation in the infrastructure development of the economic space of the South of Russia and the design of adequate institutional mechanisms for its provision.

Originality/value: The scientific novelty obtained as a result of the study consists in identifying a sign of multidimensional morphology of the economic space and proving the provision that the economically motivating basis of partnership cooperation is the convergence of strategic interests on the idea of joint development of participating regions in the economic space of the macro-region. This was the basis for the search development of copyright recommendations for the use of: the advantages of the cluster model, the potential of

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the “power field” of market-gravitational attraction, as well as the scheme for the formation of division-network deployment of service objects, the idea of transforming the landscape and geo-economic terrain and the concept of the development of the socio-settlement network within the existing administrative-territorial division of the country.

**Keywords:** Infrastructural arrangement · Interregional interaction · General globalization processes · Economic interests · Integration · Economic space of the South of Russia

**JEL Code:** F01 · F15 · F63 · R11 · R58

1 Introduction

Global trends in the development of the world economy are manifested in integration processes at various levels of the hierarchical structure of the economic system.

In the macroeconomic format, this takes the form of interregional interaction between the constituent entities of the Russian Federation, uniting on the basis of the territorial and geographical integrity of the area, including their natural management systems, and the common economic interests of the participants in such macro-regions.

The existence of common integration features in these processes makes it necessary to identify them and study the economic nature, as well as implementation mechanisms.

Conceptual and methodological principles of interregional integration are presented in the works: Druzhinin, Izard, Kolesnikov, Kristaller, Lexin, Ovchinnikov, Shchedrovitsky, etc.

The properties of economic space were considered by Amin, Kavaratzis, Ketova, Muller, Perfiryev, Raymer.

The problems of market-infrastructure arrangement of the economic space were studied by: Kapoguzov, Kotler, Lösch, Chung, etc.

The natural basis for the integration of regions into interregional communities is the commonality of their natural and climatic characteristics, which determine the identity of the production and economic orientation of their activities, as well as the relative integrity of natural and territorial-ecological systems, which act as objective conditions for the formation of macro-regions. The integration platform is the common economic interests of the regions. Examples of such macro-regions are the South of Russia, Siberia, the Far East, the Volga region.

It seems that among the areas of constructive interaction of regions in an interregional format, first of all, is the subsystem of infrastructure support for the reproductive functioning of the macro-regional formation as a whole, and each of its regional participants. By the infrastructure arrangement of the economic space of the macro-region, the authors mean organizational and economic activities that cover the territorial and sectoral complexes of the real sector of the economy and services with service services, ensuring the creation of general conditions for reproduction in the macro-region format.
2 Results

Methodological approaches to the study of interregional cooperation in the field of infrastructure development are based on the concept of structural organization of the economic space of the macro-region and the possibilities of its development mechanism. Economic space is considered as a multidimensional continuum of the reproductive functioning of socio-economic processes, phenomena, relations and interactions between economic entities, as well as the scope of transactions of market exchange entities.

The methodology of the author's approach to the study of interregional interactions in the field of infrastructural arrangement of the economic space of the macro-region is oriented towards its development in the context of the imperatives of not only the third, but also the fourth industrial revolution - (Muller et al. 2018) and is based on the complementarity of the systemic, evolutionary and institutional paradigms of regional economic development and interregional interaction.

3 Results

The economic space in the normative state is characterized by a number of properties: unity (commonality, integrity), continuity (in the format of a measure of qualitative certainty of the system), homogeneity, uniformity, density, equal level of the tone of production and economic activity, the possibility of free, unhindered movement of labor resources, capital (investment flows), technologies, innovations, goods and services, lack of lacunae and fluctuations, administrative and bureaucratic barriers, infrastructure deficits, investment traps, etc. At the same time, the capacity of market space is determined by the size of consumer demand, stimulating the actions of manufacturers, emphasize (Chung and Kim 2003).

The economic space of any country implies the presence in the format of state borders of the unity of market, currency, customs, institutional-legal, tax space, while acting as a macro-level subsystem of the economic space.

The economic space of the macro-region in the present study is presented as a multivariate continuum having a corresponding number of projections. For a simplified illustration, it can be represented in the form of a three-dimensional (volumetric) space, on the axes of coordinates of which you can arrange the ranks (by specific weight) of social and economic types, production and technological structures and spheres of natural resource management.

With respect to the D3 format, the poly-system structure of the economic space structure of the macro-region can be a stereoscopic pattern of three-dimensional volume. Each of the planar faces of such a cubic design will characterize the socioeconomic, technological and natural-resource projections of morphological architectonics of the macro-regional economic space (Kolesnikov et al. 2019).

Such a modular interpretation of these projections of the economic space allows us to track changes in economic specialization and position in the system of social division of labor. An example of a technological adjustment of the traditional agro-industrial specialization of the Republic of Adygea is the creation of a wind farm in the region, which began to operate in the spring of 2020. Today it is the largest wind farm
in the Russian Federation at the moment. Annually, it will generate an average of 354 million kWh, supplying electricity not only to Adygea, but also to the Krasnodar Territory.

Examples of zonal and functional specialization in the recreational form of summer recreation, determined by favorable climatic factors, are the natural conditions of the Black Sea coast of the Krasnodar Territory and the southern coast of Crimea. The active development of the advantages of Crimea for tourism is confirmed by a number of investment projects in this region that is super-promising for Russia. Since 2021, a project will be implemented to create the Golden Coast gambling zone in the Yalta municipal district with a hotel complex, restaurants, cafes, summer theater, parking lots, etc.

The model representation of the structural organization of the economic space of the macro-region in the format of 3D only illustrated its capabilities from the point of view of identifying options for combinatory of element-by-element combination and functional correspondence of components of its various sections-subsystems. In fact, the author's structural construct of the economic space of the macro-region is multidimensional.

Along with its above subsystems, as specific modules of the structure of the economic space of the meta-region in the standard model, it is legitimate to distinguish spherical, cluster, market-gravitational, division-network, relief-landscape-geologic and socio-settlement subsystems, as well as a model of administrative-territorial organization.

The cluster formation process is largely due to the action of the forces of attraction of the market-gravitational field of exchange transactions carried out in specialized (respectively, the production and economic profile of regions and subregional localities) transregional and domestic: regional and local wholesale markets. Initially, the classification of markets by their potential capacity (scale of the service area) was given by Izard (1966), and later clarified taking into account the degree of their influence on the structure and pace of the economy (Kotler et al. 2010).

Markets, “pulling and compacting” the economic space of the macro-region, form the knot structure of its territorial and economic framework. In the consistency core of such nodes, Lösch (1954) pointed out, there are cluster-forming production and economic corporate structures that form a market offer and determine the profile of economic specialization. They appear, according to Shchedrovitsky (2018), in the corresponding projection of the n-dimensional model of the structural organization of the economic space of the macro-region in the form of knot structures (ties) of the power frame of its economic system, which is consistent with the conceptual model of Kristaller. Markets have the potential for gravitational attraction of economic activity actors, investors, capital, innovative technologies, skilled labor and creative personnel of specialists (Reimer et al. 2014).

A promising direction for the development of interregional cooperation in the field of infrastructural arrangement is the implementation of cluster projects under the State Paternalism scenario, emphasize Kapoguzov and his co-authors (Kapoguzov et al. 2019).

The result of involving the above-mentioned elements in the general design will be the formation of a clearly pronounced relief of the geologic profile of the landscape of the economic space of the macro-region, visually represented on the corresponding
projection of the model of structural organization of its economic space in the form of a combination of bulges ("hills") in nodal points of high density of objects (structures) of the territorial-economic framework (Ovchinnikov et al. 2019) with low-density territorial areas (localities) of spatial resolution.

Smoothing such fluctuations in the density of the economic space of the megaregion can be facilitated by the formation of a division-network subsystem for the placement of objects of production and economic activity and the service sector, as if "smoothing" the irregularity of its geological terrain and contributing to the diffusion of investment and innovation, the uniformity of economic development and use of the resource potential of the territory of the macro-region and the spatial and territorial accessibility of socially important objects of life support for its population (Amin 1999).

In such a way, the multidimensional system-profile model of the structural organization of the economic space of the macro-region is the result of the aggregation of its 10 profiles-projections, each of which characterizes a particular cut (projection) of the morphological structure of the macro-regional socioeconomic system. The volumetric-spatial analogue of such a structure of economic space can be the image of the multifaceted football ball.

The presented approach to modeling the volume-matrix representation of the morphological structure of the economic space of the macro-region seems constructive, since it allows each of its modules to be positioned with a combination of key properties (characteristics): socioeconomic structures, the technological system of production, natural-environmental conditions, spherical or other certainty, which correlates with the version of Lexin and Perfiryev (2018). It also allows you to draw up a three-dimensional mosaic picture of the entire economic space of the macro-region with its unique specifics.

The institutional "bonds" of the holistic framework of the macro-region's economy are the industries of its infrastructure subsystem: transport and logistics, nature management, environmental-medium-life support, information and communication, scientific and educational. Indeed, the cooperation of the regions in these areas of infrastructural arrangement of the economic space of the macro-region is based on the commonality of their interests.

An important area of such cooperation is the project for the development of the transport and logistics system of the South of Russia.

Being a subsystem of the backbone level of the transport and logistics system of Russia, the network of transport corridors, intermodal nodes, terminals of seaports, pipelines, power lines of logistics centers of the South of the country serves reproduction processes, connecting in space and time the reproductive activities of regional production and economic systems and their functional and specialized links.

The improvement of the transport and logistics network of the South of Russia is relevant and economically beneficial to all subjects of the federation that are part of the Southern and North Caucasus federal districts, and, above all, for Crimea and Sevastopol. It is on the basis of the commonality of their interests in improving the transport and logistics network of the South of Russia that it is advisable to organize partnership forms of interaction.
It should be noted that the solution of this problem at the interregional level in the format of the South of Russia will contribute to the development of production and economic activities in the regions, improve the socio-economic conditions of their population and ensure freedom and increase the mobility of the cross-border movement of production resources of the macro-region.

Joint production and economic management of the environment and environmental protection are vital and extremely relevant areas of interregional cooperation. Growing competition encourages regions and urban agglomerations to form unique proposals for partnership cooperation, using all available resources and opportunities for this (Kavaratzis 2004). Such interaction is urgent, since the boundaries of the natural ecosystem do not coincide with the formats of administrative and territorial division of the subjects of the federation that are part of the macroregion of the South of Russia.

Uniting the efforts of subjects of regional socio-economic systems to ensure general environmentally favorable living conditions for the population of the regions of the South of Russia is a primary task. It is important to use tested forms of such interaction, accumulated by the practice of cooperation between the regions of the South of Russia in the form of the North Caucasus Association Institute, which existed in the 90s, which regulated the joint actions of the subjects of the federation in the South of Russia in various areas of their activities.

Objectively, the formed taxonomic units of natural management systems are the river basins of the Volga, Don, Kuban, Terek and other rivers, geographically uniting several adjacent constituent entities of the federation, jointly using the natural resources of river basin systems. Programs of joint actions of interested regions (according to the experience of the USSR) may be projects of ecological rehabilitation of their river basins.

The subsystems of the infrastructure of nature management and environmental protection activities include treatment facilities of production enterprises and settlement structures, technological devices that prevent pollution of the atmosphere, lithosphere and hydrosphere, natural parks, reserves, biosphere reserves, conservation ("green") zones around urbanized structures, etc.

Only coordinated and regulated joint actions of neighboring subjects of the federation that are part of the South of Russia can lead to the desired result: the preservation of a favorable environment for the life of their population as a categorical imperative of the moral and ethical type (character), which determines the responsibility of the current generation to the future.

Another important area of cooperation between the regions of the South of Russia in the field of infrastructural arrangement of its economic space is their scientific and educational activities. In the "education-science-innovation" system formed today in the format of the economic space of the South of Russia, it is important to establish functional interaction between various levels of higher education institutions: world-class innovation and scientific centers, federal universities, regional reference universities, research universities and other universities, providing that peripheral universities will be focused mainly on the preparation of bachelors, and it is advisable to concentrate the training of undergraduates, graduate students, and doctoral students Given the global trend towards diversifying the activities of universities in the fields: education, science, innovation and production, it is important to develop the infrastructure
of this ladder system: training institutions, research institutions, experimental production, small enterprises, market commercialization services for innovation, etc.

In the field of “scientific development-innovation-production,” it is important to ensure continuity between basic research and applied developments, development solutions, engineering developments, prototyping, small-scale production and mass replication of innovations.

The important, from the point of view of feeling the degree of comfort of the living conditions of the population, the sphere of social and household services needs to be developed by the joint efforts of the regions. In the meso-economics format, it is represented by cellular networks of a number of large operators (Megafon, Beeline, MTS) operating in the South of Russia.

In the context of digitalization, the Wi-Fi network for business is in demand. It is one of their types of digital services that significantly consolidate and improve the business environment of the South of Russia. Therefore, Rostelecom, Russia’s largest provider of digital services and solutions, is constantly increasing the number of customers from various groups of business partners in the South Russian regions, creating an increasingly dense and developed digital environment. The formation of a single business, financial and commercial space in the South of Russia is served by the network structures of large trading organizations (Magnit, Metro, Lenta, Gloria Jeans, etc.), as well as a branch network of credit and financial institutions (for example, the interregional bank Center-Invest), insurance companies, pharmacy network and healthcare institutions. Among the latter, at the interregional level of interaction, we are talking about large specialized scientific and medical centers of the South of Russia (cardiac surgery, burn, oncological, perinatal, infectious (urgently sought after during the pandemic of coronavirus).

Another relevant and promising sphere of interregional interaction in the multinational palette of the South of Russia is the field of ethno-confessional relations. Based on centuries-old traditions of joint friendly residence of many ethnic groups and representatives of various religious denominations in the South of Russia, it is important to jointly support the established mentality of good-neighborly understanding and partnership support. The fundamental principles of ensuring the ethno-national community of peoples are respect for national dignity and respect for the traditions of domestic life. The cultural heritage of peoples, their history, language, customs and rites.

The unifying “bondes” of the good-neighborly interaction of the peoples of the South of Russia is a system of general civilization values, which is enshrined in confessional attitudes in the form of religious commandments and in the code of ethics of a citizen of the Russian Federation. At the same time, it is absolutely unacceptable to assert the idea of national-ethnic superiority of one people over another, inevitably leading to nationalism, chauvinism, racism. The decisive role in this mission belongs to the family, school, institutions of higher education, public organizations and civil society institutions. From the point of view of the temporal and ethical imperatives of social development and the moral duties of the current generation before the subsequent ones, it is important to observe socio-centric guidelines in the field of determining the goals and forms of implementing youth policy.
These are the main directions of interregional cooperation in the field of implementation of infrastructure development projects of the socioeconomic space of the South of Russia.

4 Conclusion

The unity of mutual interests of the joint development of the regions of the South of Russia determines the formation of their socio-partnership mentality in the field of infrastructural arrangement of the common market and economic space as a continuum of the deployment of objects in the field of material production and social services, the implementation of transactions in order to transform the landscape and economic terrain and the settlement network of the macroregion. This creates the unity of the economic environment of the macroregion as an integrated system of interregional interactions, activates the reproductive cycles of economic development of the regions, synchronizing the actions of market entities.

The improvement of the economic space is influenced by the activities of functioning business actors and innovative breakthrough information technologies that motivate market entities of neighboring regions to interact, and increase participation in joint development programs.

Therefore, from the point of view of scientific novelty, the article carried out multidimensional modeling of the morphological structure of the economic space of the region, determined the economic nature of the processes of interregional interaction and proposed mechanisms for their practical implementation in the field of infrastructural arrangement of the economic space of the South of Russia.

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