

Human Resources and Entrepreneurship in Modern Models of Sustainable Social and Economic Development of the Satellite Territory of an Active Metropolis (On the Example of the Leningrad Region and the City of St. Petersburg)

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Abstract— In the article we consider specifics of development, in labor and entrepreneurship in particular, of the Leningrad Region of the Russian Federation, the territory of which is considered external for the second metropolis of Russia—St. Petersburg. The comparative analysis of the basic social and economic indicators and processes of development of two subjects of the Russian Federation is carried out, the basic historically and administratively caused social and economic relations are revealed. The phenomenology is considered and new scientific terms "territory-satellite of a metropolis", "active metropolis", "model of sustainable socio-economic development of the territory-satellite of a metropolis" are introduced. The typology of models of social and economic development of the territory-satellite of the metropolis in modern conditions taking into account the degree of openness of the economy is proposed, the most preferable of them for the Leningrad region in modern conditions are chosen. The peculiarities of human resources and entrepreneurial structures development for the selected models are determined.

Keywords: *entrepreneurship, human resources, sustainable development of the territory, metropolis, Russia*

I. INTRODUCTION

The Great Silk Road is a physical and at the same time a metaphysical reflection of the peaceful and joint development of civilizations, countries and peoples. The importance of developed social and economic ties between different states in the modern global world is so great and obvious that it does not require any proof.

However, the social and economic links between smaller social actors than States are less obvious, but no less important

to people's lives. Urbanization has led to the emergence of megacities or megalopolises, each of which has borders in which it coexists with territories of equal or subordinate order. The permanent and temporary population of megacities (more than 5 million people) is objectively heterogeneous, there is a significant, sometimes destructive, differentiation of living standards within the city [1, p. 107]. But there can be no less significant difference between the life of the city and the surrounding area. At the same time, both subjects can be neighboring (initial or final) links in the set of paths passing through them. The concept of sustainable development promoted by the United Nations implies the possibility of achieving relative homogeneity in the development of territories in terms of the standard of living and quality of life of the population, provided that the ecological and economic balance is maintained. In the conditions of significant differentiation of the life of the population inside and outside the metropolitan area, special efforts are required from the authorities of these territories to achieve the required homogeneous conditions, including the creation of interregional administrative and socio-economic ties.

In this regard, the study of the administrative-territorial phenomenon created by the existence of a metropolis as an independent administrative subject within the framework (boundaries) of another independent administrative subject with equal rights relative to a single state or international cooperation is of scientific and practical interest. In the Russian Federation, this phenomenon is represented by pairs of the following subjects: Moscow - Moscow region (closed agglomeration) and St. Petersburg - Leningrad region (incomplete agglomeration).

II. LITERATURE REVIEW AND RESEARCH METHODS

Over the past twenty years, domestic economic science has actively studied theoretical and practical issues of territorial development, entrepreneurship, human resources and labour relations. We can highlight the scientific issues of global development and changing the role of cities [2], urbanization processes [1; 3; 4] and socio-economic development of territories [5; 6; 7]; addressing issues of sustainable, strategic and socio-economic development of territories [8; 9; 10]; proposals for state support of entrepreneurship or population of the region, including the metropolis [9; 11; 12; 13; 14; 15]; analysis of the investment attractiveness of regions [16].

The Leningrad Region and St. Petersburg are independent or united objects of research on relatively few works equally devoted to the issues of social and economic development [17], labor, labor relations, human resources [8; 18; 19; 20; 21] or entrepreneurship [22; 23; 24; 25; 26].

The research methodology is topical and uses traditional approaches for domestic science, methods and tools of social and economic research, including system and process approaches, methods of forecasting, comparison, formal and logical and statistical analysis, systematization and modeling, as well as tools of included observation and scientific analysis of documents and results of activity.

III. THE RESULTS AND DISCUSSION

On the basis of comparative analysis of statistical indicators on the main parameters of labor and entrepreneurial activity the peculiarities of labor and business organization in the Leningrad region of the Russian Federation, the territory of which is external to the second largest city of Russia - St. Petersburg, have been determined. A comparative analysis of the main socio-economic indicators and development processes of the two constituent entities of the Russian Federation has been carried out, and the main, including historically and administratively conditioned, socio-economic relations have been identified. The phenomenology is considered and new scientific terms "territory-satellite of a metropolis", "active metropolis", "model of sustainable socio-economic development of the territory-satellite of a metropolis" are introduced. The typology of models of social and economic development of the territory-satellite of the metropolis in the modern conditions taking into account the degree of openness of the economy is proposed, the most preferable of them for the Leningrad region in the modern conditions are determined. The peculiarities of human

resources and entrepreneurial structures development for the selected models are determined.

From 1712 to 1918, St. Petersburg was the capital of the Russian Empire. The territory surrounding it became administratively separated only after the second stage of formation of provinces (1714) in tsarist Russia. During Soviet times, the Leningrad region and St. Petersburg (Soviet Leningrad) were one administrative entity of the RSFSR for a long time (1927-1992). Since the provincial division was not as rigid as in the planned economy, in the administrative context the pre-revolutionary (before 1917) period and the period before the formation of the region (1927) can be regarded as conventionally united. At the same time, in a historical context, it is important that at that time, direct social and economic ties were formed between the large city and the surrounding areas, which later became the Leningrad Region (with the regional center in Leningrad). Thus, on the basis of the specified dates it is possible to define identical periodization of administrative and economic conditions of two considered territories (amorphous association (1703-1714); unequal association (1714-1927), equal association (1927-1991), disconnection/separation/ equal division (1991 – present day)).

Currently, the Leningrad Region, as an independent subject of the Russian Federation, is administratively equal to St. Petersburg, but their political, economic and social weight is obviously not equal. Moreover, a number of key federal authorities have joint representations on the territory of the agglomeration (Federal Security Service, Ministry of Internal Affairs, Federal Statistics Service, etc.).

We will conduct a comparative analysis of the main socio-economic indicators and development processes of the two subjects of the Russian Federation.

The main social and economic indicators of the subjects of the Russian Federation under consideration are presented in Table I.

TABLE I. KEY SOCIO-ECONOMIC INDICATORS OF THE CITY OF SAINT-PETERSBURG AND THE LENINGRAD REGION FOR 2018

Indicator	Leningrad Region	St. Petersburg	Leningrad Region in % to St. Petersburg
Territory, thous. sq. km.	23.9	1.4	1707.0
Population, mln people	1.8	5.38	33.46
Population density, people per km ²	21.2	3600.0	0.59
Gross regional product, RUB bln / EUR bln	965.8 / 12.15 ^a	3866.2 / 48.65	24.98
Turnover of organizations (in current prices, RUB bln / EUR bln)	2538.8 / 31.95	13458.9 / 169.38	18.86
Investments in fixed assets, RUB bln / EUR bln	466.9 / 5.8	747.4 / 9.4	62.47
Average number of employees in the organizations, mln people	530.8	2082.7	25.49
Number of officially registered unemployed (at the end of the year), thous. persons	3.1	12.0	25.83
Number of people receiving pensions, mln people	502.0	1508.0	33.29
Cash income of population per capita per year, thous. rubles / thous. euros	354.4 / 4.46	513.9 / 6.46	68.96
Average monthly salary per employee, thous. rubles / thous. euros	43.6 / 0.548	60.4 / 0.76	72.18
Consumer spending per capita per year, thous. rubles / thous. euros	277.4 / 0.349	401.2 / 0.505	69.14
Minimum subsistence level (average per capita), rubles per month / euro	9.9 / 124	10.9 / 137	90.8
Average housing availability, m ² of total floor space per capita	29.0	25.4	114.17
Calculations were made at the exchange rate of the Central Bank of the Russian Federation as of 31.12.2018 (79.4605 RUB for 1 EUR)			

In terms of the structure of the share of different sectors in the economy and population employment, the Leningrad Region and St. Petersburg can be characterized as a region with a post-industrial/transition to a post-industrial economy (Table II).

TABLE II. CONTRIBUTION OF SECTORS OF THE ECONOMY TO THE GROSS REGIONAL PRODUCT (GRP) AND EMPLOYMENT OF THE POPULATION OF SAINT-PETERSBURG AND THE LENINGRAD REGION (PERCENTAGE)

Segment	Contribution of sectors of the economy to the gross regional product (GRP) (range of values for 2012-2018)		Population employment (range of values for 2012-2018)	
	Leningrad Region	St. Petersburg	Leningrad Region	St. Petersburg
Primary: Agriculture and fisheries, mineral extraction	6.7–5.4	0.0-0.5	8.5–8.7	0-0.05
Secondary: Manufacturing industry, construction, electricity, gas and water production	49.6–45.8	25.2-24.0	35.7–36.1	24.0-24.6
Tertiary: Trade, transport and communications, education and health, financial activities, public administration and other services	43.7–48.8	76.0-75.5	55.8–55.4	75.0-75.35

The key branch in the primary sector of the Leningrad Region's economy is agriculture, which serves St. Petersburg, developing fish farming, while the extractive industry gives about 1% of the WFD [28, p. 126]. There is no primary sector in St. Petersburg. Among the secondary sector of the Leningrad Region's economy, processing industries, construction, electricity, gas and water production occupy an important place. In St. Petersburg, the secondary sector is represented by the widest range of manufacturers (different industries), energy and other industries serving the city. In the tertiary sector (services) of the economy of the Leningrad Region it is necessary to emphasize construction, transport and communication services, wholesale trade, etc., real estate operations. The same structure of the service sector is in St. Petersburg, the difference is only in volumes.

It should be noted that the development of the Euro-Asian transport corridors does not include the Russian North-West, while the users of internal transport corridors, on the contrary, still see here the points of convenient access not only to the European, but also to the world economic space [29, p. 93]. At the same time, there is an active pendulum migration of workers between the two entities. This creates the specificity of both traffic flows and the transport industry in the territory of this agglomeration.

The process of urbanization, which became more active in Russia in the 1950s (when the next population census was conducted), led to the fact that by 1989, the share of the urban population in the total number of the country was 73.4% and has remained at approximately the same level to the present day (74% in 2018). The situation is aggravated by the continuing migration outflow of the population from the

peripheral territories to the central part of the country. In the North-Western Federal District, the share of urban residents was slightly higher (84% in 2018), while in the Leningrad Region it was slightly lower than the specified average Russian level (64% in 2018). Statistical agencies regularly record the depopulation of villages during the population census (2002, 2010), but the last major abolishment of villages in the Leningrad Region (23 settlements) took place in 2004. In the zero and tenth years of our century in the Leningrad region the population was actively congregating to the borders with St. Petersburg (Vsevolozhsky district), and the farther from St. Petersburg municipal areas (Boksitogorsky, Volkhovskiy) gradually reduced the population indicators. This is due to the high volume of construction of relatively inexpensive housing in the hourly availability of urban transport. However, this housing is actively purchased by residents of St. Petersburg, residents of the Leningrad region, and newcomers. The demographic future of the Leningrad Region is assessed today with controversy because of the migration of the region's population closer to St. Petersburg. The problem of insufficient population growth in the region is solved through migration, although natural growth would be preferable. In any case, the Leningrad Region benefits more than other subjects of the Russian Federation in the North-West from the proximity to St. Petersburg.

Philip Morris Izhora, Nokian Shina, Gestamp Automocion and Caterpillar plants owned by foreign investors have become key enterprises located in the Leningrad Region due to the region's proximity to St. Petersburg and the high quality investment climate created by the region's authorities. The same is true of domestic investors, and the port of Ust-Luga is an example of this. It is not without reason that the National Rating Agency's investment attractiveness rating for the region was raised from IC3 to IC2 (top ten) in November 2017. In turn, significant projects implemented by investors change the parameters and characteristics of both entrepreneurship and human resources balance in the region.

Thus, the peculiarities of the organization of labor and entrepreneurship in the Leningrad region of the Russian Federation, the territory of which is external to the second metropolis of Russia - St. Petersburg, in many respects, although not in all, are now directly determined:

1. functions that the region performs for the city, either voluntarily (supply of goods and services) or forcibly (maintenance of entrance and exit infrastructure, recreation of citizens, etc.);
2. economic activities, which in the framework of the adopted development strategy of the region are actively developed by the regional administration (industry, catering, transport, education, health care).

At the same time, all implemented regional programs in one way or another affect the issues of labor and entrepreneurship. The result of targeted efforts of the Leningrad Region's regional authorities is a qualitative change in labor and entrepreneurship parameters in the region.

The Expert rating agency's methodology for calculating the economic "health" index of the regions can be used for rapid assessment of the overall current state of the region under study. This index, calculated by RA "Expert", is used to assess the current level of development of Russian regions (map of states) and to assess changes in the regional economy (map of dynamics). Both maps show the Leningrad Region and St. Petersburg in a green (healthy) zone. The index value is 60 (region) and 70 (city), respectively, places in the rating of 9 and 6. At the same time, the economic health of the Oblast's population is much worse than that of the city (according to the indicator "Purchasing power of average per capita income of the population" - 7th place in the city, and the Oblast is in the top ten), and the economic health of regional business is vice versa (according to the indicator "Investments in fixed capital per capita" - 7th place in the Oblast, while the city is in the top ten).

Thus, according to the above indicators, the Leningrad Region, as well as St. Petersburg, fits into the "portrait of a successful region" proposed by the Expert RA methodology, which assumes "the availability of raw material or institutional rent, in some cases supplemented by a highly diversified manufacturing sector (including those processing raw materials extracted in the region)".

In this connection it is possible to predict the necessity and possibility of greater cooperation of the Leningrad Region with St. Petersburg, including in the field of labor and entrepreneurship.

In this context, we propose to introduce new scientific terms into the theory and practice: The satellite territory of a metropolis is an administratively allocated territory surrounding the metropolis, which has a legal status equal to that of a metropolis (a subject of the Federation).

An active metropolis is a metropolis at the stage of [life cycle] of active growth and development.

The model of sustainable social and economic development of a metropolis satellite territory is a long-term (permanent) system of main and auxiliary directions of social and economic activities of a metropolis satellite territory, taking into account the needs of the metropolis and the corresponding relations between the metropolis and the satellite territory.

In such a context, we propose a common typology of models of socio-economic development of the satellite territory of a metropolis. Depending on the type of model chosen by both actors of interaction, different scenarios for the development of the territory surrounding the metropolis can be constructed.

The main types of such models in modern science, in our opinion, can be singled out as widely as possible, taking into account all possible variants of social relations, including the relationship "power-subordination": vassal, servicing, partnership, symbiotic, competitive, predatory, neutral, remote (detached), isolationistic, parasitic, asphyxiating.

Characteristics of the models of sustainable socio-economic development of the metropolis satellite area and examples are presented in Table III.

TABLE III. GENERAL TYPOLOGY OF MODELS OF SOCIO-ECONOMIC DEVELOPMENT OF THE MEGAPOLIS SATELLITE TERRITORY

Type of model	Characteristics of the model taking into account labour and entrepreneurship parameters	Case studies (illustrative material)
Vassal	The metropolis satellite area is completely dependent on the metropolis for freedom of decision-making and management of all resources, including human and entrepreneurial resources; the area is actively exploited by the inhabitants and management bodies of the metropolis exclusively for their own benefit; the internal boundaries are conventionally permeable only in the interests of the metropolis	It is realized in a situation of huge difference in the level of development of the reproduction base of subjects (metropolis - prosperity, territory - decline) and administrative resources
Servicing	The territory-satellite of the metropolis assumes the functions of full resource maintenance of the metropolis without alternative; supplies the city with foodstuffs, products of harmful and hazardous industries, carries out the export and further processing of wastes of the city's vital functions and industries; provides its territory for the citizens' rest and recreation, including on a temporary and permanent basis, forming the necessary infrastructure at its own expense	It is realized in the situation of significant difference in the level of development of the reproduction base of the subjects
Partnership	The satellite area of a metropolis and a metropolis recognise itself and are equal partners at the level of production and exchange of benefits and resources; controlled exchange of resources and products, support and assistance; borders are open; residents of the territory and a metropolis as citizens, workers and entrepreneurs are equal in their social, economic and labour rights in each other's territories within the framework established by agreements; borders are open and verifiable	Has variations: Formal and genuine. Formal (situation-matryoshka) - a partnership form without the partnership content of the relationship. Genuine - the situation of the maximum possible satisfaction of the needs of subjects while maintaining the necessary level of independence and sovereignty
Symbiotic	The satellite area of the metropolis and the metropolis serve, enrich and develop each other, creating a common autonomous system of production of the goods necessary for life on the basis of the division and cooperation of labour; the inhabitants of the territory and the metropolis, as citizens, workers and	Identical to the relations within the "Leningrad Region - Leningrad Region Center" system

	entrepreneurs, are fully equal in their social, economic and labour rights in each other's territories; the free and controlled exchange of resources and products, support and assistance; and the free ways and points of entry and exit at the internal borders of the association.	
Competitive	The satellite area of the metropolis competes with the metropolis for investors, resources and state support, adhering to certain (varying degrees of rigidity) rules of organization of competitive interaction; all elements of the current interaction are changing in order to achieve competitive advantage	The model may have variations in rigidity. "Soft" is a civilized and even noble rivalry. "Medium" is compliance with certain rules. "Tough" - all means are good
Predatory	The territory-satellite of a metropolis, manipulating the "openness" of the city's borders, closes the ways and points of entry from its territory to the metropolis for third-party suppliers and free exit from it; uses the metropolis as a resource of its own life support and growth (exploits the opportunities, resources and residents of the metropolis); does not have the purpose of ultimate destruction	The situation is practically impossible in a stable rule of law state, but it is very likely in the conditions of social chaos of a larger (collapse of the state) or smaller (prevalence of shadow economy) scale
Neutral	The metropolis satellite area is information, economic and social self-sufficient; has a limited (forced) exchange of resources and products with the metropolis, does not provide and does not accept support and assistance; does not provide the metropolis with preferences, but does not close the ways and points of entry from its territory to the metropolis for third-party suppliers	Restricted to apply in situations of conflict in the governing bodies of entities
Remote (detached)	The satellite territory of a metropolis develops completely independently, with an extensive system of contacts beyond the metropolis; information and social ignorance of the metropolis and its inhabitants, does not exchange resources and products with it (with them), does not provide and does not accept assistance; does not provide the metropolis with preferences, but does not close the ways and points of entry from its territory to the metropolis for outside suppliers, deriving a moderate benefit	Restricted to apply in situations of conflict of the subjects' governing bodies or in situations of conditionally negative impact of the metropolitan area
Isolationistic	The metropolis satellite territory informationally and socially ignores the metropolis and its residents; does not exchange resources and products with it (with them), does not provide or	Applicable to situations of absolutely negative influence of the metropolis. Implemented in the

	accept assistance, does not provide preferences to the metropolis; closes the ways and points of entry from its territory to the metropolis for third-party suppliers	context of the full coverage of the boundaries of the metropolitan area in a situation such as a local epidemic of deadly disease developing in the metropolitan area
Parasitic	The satellite territory of a metropolis, ignoring the interests of the metropolis, limits the ways and points of entry from its territory to the metropolis for suppliers and exits; uses the metropolis (its capabilities, resources and residents) as a resource of its own life support and growth	The model is limited (in the case of super-parasiticism) and unlimited if it implies a permanent donation of the metropolis
Asphyxiating	The territory-satellite of a metropolis, having the purpose of final destruction of a metropolis, closes ways and points of entrance from the territory to a metropolis for suppliers and an exit from it; uses a metropolis as a resource of own life support and growth (mercilessly exploits possibilities, resources and inhabitants of a metropolis)	The model is limited in its application because it does not require the continued donation of the city being destroyed. The situation is almost impossible in a rule of law state, but very likely in a social chaos

It is clear that the choice of any particular model, except for a truly partner model, cannot be verbalized in the social and political space of any state, especially the social or developed one. In this regard, the type of model of sustainable socio-economic development of the satellite area of a metropolis can be determined by researchers on the basis of indirect features as a result of included observations, analysis of statistical data, scientific analysis of documents and results of activities.

IV. CONCLUSION

On the basis of the results of the analysis of interrelations between St. Petersburg and the Leningrad Region within the framework of the proposed typology of models of sustainable socio-economic development of the metropolis satellite area, it is possible to determine the most preferable types of models of sustainable development for the Leningrad Region.

In modern conditions, taking into account the degree of openness of the economy, these are partnership and symbiotic types.

Previously (until the early 2000s), in the opinion of the authors, it was an average competitive type, and now it is a service type, although with the current composition of administrations of the subjects of the federation, some efforts are made to develop relations between the two subjects of the federation to at least formally partnership.

The peculiarities of human resources and entrepreneurial structures development in the Leningrad Region for the selected models of sustainable social and economic

development of the metropolis satellite territory can be described as follows:

1. *Human resources.* The symbiotic type will be characterized by the connection between the sites forming human resources and capital (medicine, education, culture, science) and the interests of both territories, while the population settling and employment will have a free interpenetrating character. For a partnership type, such a relationship may be administratively limited on both sides in order to achieve the goals of saving resources and the population of each entity.

2. *Entrepreneurship.* The symbiotic type will be characterized by a close coordination of entrepreneurial activity for the needs of both regions, in which the leading role will be played by the production capacity of St. Petersburg, and the regional initiative entrepreneurship of the secondary and especially tertiary sectors will work in the remaining segments of the common market. At the same time, large business structures may have full freedom of accommodation and registration in the territory of the agglomeration. For the partnership type, such relations will be more structured and dosed in order not to reduce the tax base and meet the needs of each constituent entity of the Russian Federation.

It is necessary to understand that the specified features of development of human resources and enterprise structures in the Leningrad region are simultaneously both result, and means of achievement of the administrative purposes regarding formation of demanded parameters of administrative and social and economic interaction between a megacity and its territory-satellite.

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