Analysis of the Living Standards in the Russian Regions

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Abstract – **The research deals with theoretical and methodological knowledge for assessing the living standards of Russian regions, supplementing the basis of economic laws of the region and its spatial development. The subject is the living standards of the Russian regions based on the interdependent set of nonlinear equations showing the real state and possibilities of its activation. The aim is to conduct a systematic analysis of the living standards of the Russian regions, taking into account the corresponding non-linear equations, determine the group of leaders with active, passive, and negative positions, as well as possibilities of its activation. The research methodology is based on the fundamental principles of the theory and practice of system analysis, economic laws, the results of scientific research in the field of equilibrium and nonequilibrium economic development. As a result of the systematic analysis of the dynamics of socio-economic indicators of the Russian regions based on the construction of an interdependent set of non-linear equations of the growth rate of the average annual population, the index of physical volume of investments in fixed assets, the industrial production index, the degree of depreciation of fixed assets, the share of unprofitable organizations, changes in the average annual number of employees, regions were identified. It is advisable to use the results in forming the state socio-economic policy in order to activate the life position of the regions, improve the mechanism for its implementation. The essence of the life position of the Russian regions is considered as a system structure, capable of filling the region's life, adapting to new challenges and forming an adaptive variety of self-reproducing complexes and reproductive processes. The criterion for classifying a region as a specific form of life position is the equilibrium paradigm realized through a combination of non-linear equations of growth rates of basic socio-economic indicators.**

Keywords – analysis, life position, region, system structure, growth rates, theoretical and methodological approach.

I. INTRODUCTION

At the present stage of the historical development of world economic relations, a group of developing regions has been identified. It includes about 140 countries and territories. Their main feature is a variety of social structures, as well as transitional forms of economic relations with a significant political role of the state. In many developing countries, the process of forming national economies has not yet been completed; an extensive type of economic development predominates.

The basic principles of economic growth are the essence of the prerequisites for the formation of the concept of effective socio-economic development. Firstly, developing and developed countries use limited resources to maintain their positions in the global economic system. They must overcome unemployment and underemployment, combine labor and capital resources to obtain knowledge-intensive, resource-saving production, distribute limited resources in an efficient way.

Secondly, the lack of economic growth cannot be explained only by economic reasons. To a significant extent, the economic growth is determined by social, institutional, national, cultural and many other factors. This situation is peculiar to developing countries because of the unstable (proportional) dynamics of the development of socio-economic segments.

Thirdly, in developing countries, usually democratic, it is very difficult to create conditions for the development of a single national economy. Adherence to the peculiarities of national ("tribal") traditions takes precedence over the desire for a national community, which leads to the spread of corruption as a result of "tribal" lobbying and bribery as an institutionalized norm of "gratitude".

Fourth, in order to create conditions for the transition from the category of a developing country to a highly developed

one, it is necessary to ensure the growth of incomes, savings, investments and labor productivity based on internal sources. This growth will cause a "chain reaction" of the growth of foreign investment and the expansion of the resource base.

In order to reach the level of highly developed countries, it is necessary to formulate the concept for assessing the standard of living of the Russian regions.

This concept is especially important for Russia in terms of ensuring high-quality economic growth, eliminating asymmetries in territorial development and maintaining the integrity of the national economy. The European Association of Regional Sciences has unique experience in the effective socio-economic development of the country and regions. In its composition, English, French, Dutch, German, Italian, Spanish, Swedish schools are successfully developing.

Developing the concept of the life position of the Russian regions – the economic, legal mechanisms for its implementation, much can be used from the experience gained by these countries. The European Association of Regional Sciences annually holds congresses, where one can get acquainted with world scientific and applied achievements, as well as test domestic developments in the field of regional development.

The list of issues that are usually discussed at congresses is of great interest to a wide range of scientists and specialists in Russia. Much of the market mechanisms for the effective socio-economic development of the regions have already been tested in a number of foreign.

To comprehend the nature of the life position of the Russian regions, it is necessary to understand their system structure. Adapting to new challenges, the system structure allows the Russian regions to form an adaptive variety of self-reproducing complexes and reproduction processes, taking into account existing and predicted changes.

The basis of the regional system structure is a well-formed community of people united by a common goal.

II. METHODOLOGY

From an economic point of view, the criterion for classifying a region as a specific form of life position is the equilibrium paradigm that prevailed in the works by Adam Smith [1] (physiocrats) and Milton Friedman (Friedman) [2] (monetarists). The modern equilibrium paradigm is increasingly gravitating to the model of adaptation to equilibrium (Marshall's cross), finding its Pareto optimum associated with the depletion of resources.

The extremely rapid depletion of resources for the implementation of the life position of the Russian regions is due to the inconsistency of their growth rates (Growth Rate, GR), namely, the active life position (Active Position in Life of the Region, APLR), and the passive life position (Passive Position in Life of the Region, PPLR), Negative Position in Life of the Region (NPLR) – associated with: the duration of the transition from one socio-economic system to another [3], development instability [4], and the identity of the socio-economic system of a mixed state oligarch-market type and

[5], the inconsistency between the production and consumer sector and the credit and financial system [6], the raw material orientation of the economy with a prohibitive level of inequality of personal incomes [7], the absence of a balanced policy in the field of the use of natural resources, etc.

Currently, one of the main goals of economic development of most countries and their regions is to improve the quality of life of the population. Therefore, the process of socio-economic development should include: an increase in incomes, improvement of health of the population and the level of education; formation of social, political, economic and institutional systems oriented towards respect for human dignity; an increase in the degree of freedom of people, including their economic freedom.

The following provisions can be distinguished as long-term and short-term goals: the development of post-industrial society, reducing unemployment, improving skills of the workforce, improving the quality of life, including the level of healthcare, education and culture, increasing the rate of GDP growth (GRP), the balance of foreign trade due to the export of finished goods.

In analyzing the life position of the Russian region, it is necessary to take into account a number of system principles:

- consideration of the totality of elements of the system as a whole;

- properties of the system are not just the sum of the properties of its elements. The system has special properties that some elements may not have;

- maximum system efficiency. It has been theoretically proved that there always exists a function of the value of a system – in the form of a dependence of its effectiveness on the conditions of construction and functioning. In addition, this function is limited which means that you can and should look for its maximum;

- the obligation to take into account external relations, the requirement to consider the analyzed system as part (subsystem) of a more general system;

- the possibility of dividing this system into parts, subsystems.

Based on the above principles, it is possible to formulate a definition of the region's life position as a reflection of quality of the level design of interacting elements combined into several level subsystems to achieve a single goal – to improve the living standards of the population. At the same time, the standard of living of the population reflects the functionality of deeply integrated economic and social subsystems. Under certain conditions, the subsystems can be considered as a system, and the system – as an element of a more complex system.

Methodological aspects of the systematic approach to the concept of effective socio-economic development of the region are reduced to the study of territorial formation for the possibility of developing its emergent and synergetic qualities, to identify the diverse relationships and mechanisms that ensure these qualities.

Assessment of the standard of living (living position) of the region can be described using the requirements structure:

$$\text{Requirement} = F(P_1, P_2, ..., P_{13}) \ ,$$

where Requirement is a set of methodological requirements; P_1 – the goal of the region; P_2 – the definition of emergent qualities of the region; P_3 – morphologization of the region; P_4 – determination of the purpose of the subsystems of the region; P_5 – study of the mechanism for achieving goals; P_6 – analysis of the structure of the region, the study of its impact on emergent qualities; P_7 – determination of the level of the hierarchy of the region and its subsystems in the hierarchical structure; P_8 – the influence of the properties of some subsystems of the region on others; P_9 – determination of the degree of the environmental impact on the region; P_{10} – study of the influence of the environment on the region; P_{11} – analysis of the functions and development of the region; P_{12} – analysis of information flows circulating in the region and coming from outside; P_{13} – description of the principles of management, etc.

The structure of indicators reflecting the totality of the methodological requirements of a systematic approach is not final. In practice, you can use various additions or simplifications in accordance with the capabilities of the researcher, which will not change the requirements.

In accordance with the totality of methodological requirements, the process of assessing the standard of living is carried out at three stages:

1) problem statement which includes the following steps:

- the stage of the meaningful problem statement – definition of the problem, its formulation. Objects related to the problem and the situation are determined;

- system analysis of the problem, as a result of which the object is presented in the form of a system. Complex objects are divided into parts (elements), the relationships of these elements, their properties, quantitative and qualitative values of the properties, quantitative and logical relationships between them, expressed in the form of equations, inequalities, etc.;

- system synthesis (mathematical formulation) of the problem, during which the mathematical model of the object is built and the methods (algorithms) for obtaining the solution to the problem are determined. It should be noted that it may turn out that the earlier system analysis leads to such a set of elements, properties and relationships for which there is no acceptable method for solving the problem; as a result, we have to return to the stage of system analysis;

2) development of a program for solving the problem;

3) implementation of the model and obtaining results. In analyzing the life position of the region, the need arises to search for an adequate model, application of the modeling method. The necessity of applying the modeling method is determined by the fact that many objects of the socio-economic system of the region (or problems related to these objects) cannot be directly investigated, or this study requires a lot of time and money.

Thus, in modern conditions, there is an objective need to implement a systematic approach in assessing the standard of living of a region which will take into account all available information (statistical, expert, etc.).

III. ANALYSIS

The main indicator of APLR, PPLR, NPLR is a high GR of the social community, as well as its dynamic growth. As a result of assessing APLR, PPLR, NPLR by the GR of the average annual population, the groups of leading regions were identified:

- APLR: cities – Moscow (1.3), St. Petersburg (1.3) and Sevastopol (4.6), Krasnodar Territory (1.0), regions – Tyumen (1.2), Moscow (0.7), Kaliningrad (0.7), Leningrad (0.70) and Novosibirsk region (0.7), republics – Ingushetia (2.4), Chechen (1.8), Dagestan (0.8), Altai (0.8), Crimea (0.7);

- PPLR: Perm Territory (0), regions – Voronezh (0), Kaluga (0), Omsk (0), Kursk (–0.1), Yaroslavl (–0.1) and Samara (–0.1), republics – Bashkortostan (0) and Udmurtia (–0.1);

- NPLR: regions – Magadan (–1.3), Jewish Autonomous (–1.1), Kurgan (–1.0), Pskov (–0.8), Murmansk (–0.8), Arkhangelsk (–0.8), Tambov (–0.8), Bryansk (–0.8), Oryol (–0.7) and Tverskaya (–0.7), Komi Republic (–1.0).

The resulting indicators of APLR, PPLR, NPLR by the GR of the average annual population show the subsidizing policy (including new regions – Sevastopol and the Republic of Crimea) which resulted in targeted reallocation of investment resources (the GR index of physical volume of investments in fixed assets). At the same time, this provision does not reduce the possibility of the transition of the group of regions from PPLR, NPLR to APLR, and does not contradict the established principles of sustainable development [9, 10].

The analysis of APLR, PPLR, NPLR by the GR index of the physical volume of investments in fixed assets. As a result of the assessment of APLR, PPLR, NPLR by the GR index of the physical volume of investments in fixed assets, groups of leading regions were identified:

- APLR: Sevastopol (16.82), Kamchatka Territory (5.72), Chukotka Autonomous Okrug (70.6), regions – Vologda (13.83) and Kurgan (8.7), republics – Ingushetia (25.77), Sakha (Yakutia) (19.5), Kalmykia (6.74), Altai (6.0) and Karachay-Cherkess (5.74);

- PPLR: Perm Territory (0.18), regions – Leningrad (0.99), Novgorod (0.96), Tomsk (0.72), Kursk (0.68), Pskov (0.53), Volgograd (0.5) and Oryol (0.37), Republic of Bashkortostan (0.94)) and Kabardino-Balkarian (0.76);

- NPLR: territories – Krasnodar (–9.93) and Khabarovsk (–6.52), regions – Samara (–8.18), Sverdlovsk (–5.27), Penza (–4.77) and Omsk (–4.61), republics – Mari El (–9.26), Tuva (–8.41), Buryatia (–8.3), Chuvash (–5.23), Khakassia (–4.89).

The resulting APLR, PPLR, NPLR indicators for the GR index of a physical volume of investments in fixed assets reflect the priority areas in the oil and gas and subsidized regions of the North Caucasus. The Government support for the subsidized regions brought stability to the dynamics of the GR index of industrial production.

Significantly decreased the possibility of the transition of the group of regions PPLR, NPLR to APLR, associated with the remaining priorities for the extraction and sale of energy raw materials [11].

The APLR, PPLR, NPLR by the GR index decreased in the following groups of leading regions:

- APLR: Kamchatka Territory (2.0), Chukotka Autonomous Okrug (2.85), regions – Rostov (1.92), Saratov (1.32), Moscow (1.3), Arkhangelsk (1.07) and Sakhalin (1.04), republics – Dagestan (10.29), Altai (8.01), Khakassia (2.44), Chechen (1.24), Ingushetia (1.04);

- PPLR: Moscow (0.88), territories – Stavropol (0.79) and Krasnodar (0.16), regions – Murmansk (0.61), Tula (0.49), Tambov (0.36), Ivanovo (0.28), Tyumen (0.27) and Voronezh (0.23), republics – Kalmykia (0.46) and Udmurtia (0.19);

- NPLR: Sevastopol (–67.73), territories – Krasnoyarsk (–4.93), Altai (–2.69) and Primorsky (–2.31), regions – Kaluga (–3.11), Oryol (–2.83), Samara (–2.33) and Chelyabinsk (–2.27), republics – Crimea (–13.17), Buryatia (–4.86), Sakha (Yakutia) (–3.04) and Mari El (–2.62),

The potential for the transition of the group of regions PPLR, NPLR to APLR has grown due to the possibility of updating fixed assets, i.e. GR reduction of depreciation of fixed assets.

The potential for increasing the GR index of industrial production is the full development of the developed advanced production technologies [12–16] whose value exceeds almost twice its actual use. GR investments in fixed assets at have not reached the threshold values required for the modernization (reindustrialization) of the economy of the Russian regions [17–20].

As a result of the assessment of APLR, PPLR, NPLR by GR, the degree of depreciation of fixed assets revealed the groups of leader regions:

- APLR: St. Petersburg (–0.9), the regions – Krasnodar (–1.78) and Kamchatka (–0.65), the regions – Magadan (–3.68), Kurgan (–1.43), Penza (–1.09) and Bryansk (– 1.05), republics – Chechen (–2.42) and Ingushetia (–0.85);

- PPLR: Moscow (1.97), Khabarovsk Territory (2.32), regions – Vladimir (2.28), Jewish Autonomous (2.26), Astrakhan (2.17), Vologda (2.16), Kemerovo (2.11), Chelyabinsk (1.98), Moscow (1.79), Saratov (1.78), Novgorod (1.69) and Yaroslavl (1.61), republics – Chuvash (2.34), Sakha (Yakutia) (2.06) and Udmurtia (1.71);

- NPLR: Sevastopol (31.56), Altai Territory (4.91), Chukotka Autonomous Okrug (6.65), regions – Sakhalin (14.07), Irkutsk (8.99), Amur (7.9), Belgorod (4.72), Kaliningrad (4.45), Arkhangelsk (4.39), Kostroma (4.33) and Tomsk (4.16), republics – Crimea (7.66), Buryatia (7.55), Altai (6.47), Karelia (5.91), Khakassia (5.78), North Ossetia–Alania (4.74).

The potential for the transition of the group of regions from PPLR, NPLR to APLR has grown, due to the possibility of updating fixed assets.

As a result of evaluating APLR, PPLR, NPLR by the GR index, the proportion of unprofitable organizations revealed the groups of leader regions:

- APLR: Sevastopol (–17.47), regions – Kostroma (–5.3), Tomsk (–5.24), Omsk (–3.5), Arkhangelsk (–3.34), Leningrad (–3.32), Kurgan (–2.99), Lipetsk (–2.9), Tambov (–2.89), Jewish Autonomous (–2.63), Sakhalin (–2.54) and Moscow (–2.33), republics – Crimea (–11.74), Chechen (–8.05), Karachay–Cherkess (–3.4);

- PPLR: Moscow (0.98), territories – Krasnoyarsk (0.95) and Krasnodar (0.15), Chukotka Autonomous Okrug (0.52), regions – Ivanovo (0.96), Ryazan (0.78), Novgorod (0.69), Vologda (0.23) Sverdlovsk (0.22) and Chelyabinsk (0.18), Chuvash Republic (0.82);

- NPLR: St. Petersburg (3.39), regions – Altai (6.84), Perm (4.16), Trans–Baikal (3.54) and Primorsky (3.19), regions – Ulyanovsk (5.35), Amur (4.76), Bryansk (4.08) , Murmansk (3.2), Orenburg (3.14), Novosibirsk (3.08), republics – Kalmykia (8.43), Buryatia (5.52), Bashkortostan (5.32), Mordovia (4.5), Khakassia (3.42) and Mari El (3.07).

The GR borders of the share of unprofitable organizations have been smoothed, which contributes to the transition of the group of regions from PPLR, NPLR to APLR.

As a result of the assessment of APLR, PPLR, NPLR by the GR index, changes in the average annual number of employees revealed the groups of leading regions:

- APLR: Moscow (0.16), Territories – Primorsky (0.34) and Perm (0.18), Regions – Tomsk Region (0.47), Vologda (0.27), Kaliningrad (0.22), Rostov (0.22), Amur (0.22) and Kursk (0.21), republics – Tuva (0.69), Ingushetia (0.33), Karelia (0.24), Kalmykia (0.12) and Kabardino–Balkaria (0.1);

- PPLR: – St. Petersburg (0), territories – Belgorod (0.05), Krasnodar (0.02), Stavropol (0.01) and Zabaykalsky (0), regions – Voronezh (0.05), Lipetsk (0.05), Penza (0.02)), Orenburg (0.01) and Ulyanovsk (0.01);

- NPLR: – regions: Kamchatka (–0.5) and Altai (–0.71), regions – Novosibirsk (–0.68), Smolensk (–0.65), Kostroma (–0.56), Tula (–0.43), Vladimir (–0.43) and Leningrad (–0.45), republics – Chechen (–1.43), Buryatia (–0.89), Komi (–0.6), North Ossetia–Alania (–0.49) and Chuvash (–0.44).

The alignment of the GR index of industrial production had a positive impact on GR changes in the average annual number of employees and became a key moment in the transition of the PPLR, NPLR group of regions to APLR.

IV. DISCUSSION OF RESULTS

The theoretical and methodological approach to the assessment and systematic analysis of the life position of the Russian regions allows us to supplement the basis of scientific knowledge of the economic nature of the region associated with the territorial development of production forces and production relations [21], status outlines of the diversity of interdisciplinary knowledge [22, 23]: the physico-geographical structure of the region [24], economic [25, 26], political and administrative [27], socio-cultural [28, 29], political [30]. The proposed approach complements modern foreign research in the field of the theory and practice of quantitative spatial development [31–34], the formation of a competitive paradigm in spatial economics [35], as well as Russian studies on the innovative development of territories [36–38].

V. CONCLUSION

As a result of the systematic analysis of the life position of the Russian, the following indicators were determined: the average annual population of the volume of investments in fixed assets, the industrial production index, the degree of depreciation of fixed assets, the proportion of unprofitable organizations, changes in the average number of employees, etc. The following leading regions were identified:

- APLR: Sevastopol, Kamchatka Territory, Kurgan and Moscow regions, Altai, Ingushetia, Crimea and Chechen republics;

- PPLR: Moscow, Krasnodar Territory, Volgograd, Voronezh and Novgorod regions, Udmurtia and Chuvash republic;

- NPLR: Altai and Primorsky krais, Kostroma, Murmansk, Oryol and Samara regions, Buryatia, Mari El and Khakassia.

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