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PROPORTIONALITY'S ANALYSIS OF REGIONAL DEVELOPMENT

Statement of the problem. A characteristic feature of the most national economies at the end of XX – in the beginning of XXI century it has increased of inequality, which manifests itself at different levels – international, within individual countries for specific regions. The territorial inequality is a powerful factor that causes significant changes in the development of all spheres of life, it essentially weights with significantly affects the function's efficiency of the national economy in general and with the conformation of international economic relations. As a result of economic development's inequality is often a violation of proportionality and the emergence of problematic situations in parts (regions) of the national economy, for characteristic estimation with of them at the scientific literature which has been actively used like "regional disparities" lately. However, unfortunately, it has not received a detailed interpretation and correct definition by this time.

Ambiguous interpretation and understanding of regional disparities complicates the identification of the causes that contribute to their occurrence in real life. In consequence of this limited capabilities about realizing of classification and quantitative assessment of disproportionate development of the national economy and, the most of all, inhibited the process of developing guidelines and measures concerning reducing their negative impact.

Analysis of recent research and publications. The genesis of regional economic research' methods observed in scientific studies of foreign and domestic scholars. Among them, in particular, can be identified works of N. Baransky, H. Boss, J. Budvilya, N. Bunkinoyi, Z. Varnaliya, V. Vorotin, Z. Gerasymchuk, M. Nether, W. Izard, V. Leksina, O. Meadow, A. Marshall, K. Pavlov, F. Perry, M. Porter, P. Potier, J. Stolyarchuk, J. Friedman, P. Hagget, J. Harveya, T. Heherstranda, V. Chuzhikov, A. Shvetsov and others. In most publications reveal general theoretical and methodological foundations of proportionality and balanced of regional development. And publications of the application points considered deficiently.

The purpose of the article. To analyze the proportionality of regional development in terms of Luhansk region.

The main material. One of the requirements for sustainable development of the region is its proportionality. The concept of "proportionality" is close in to the concept of "balance". Thus, when the balance is understood like poise and balance of the economic system, for example, is treated as a state system, characterized by equality of demand and proportion of all resources [4].

During the control of region we want to eliminate all formed and projected "imbalances", but because of resources' deficit we have to select specific priorities of development, the trigger imbalance. In other words, a certain imbalance inherent in any model of regional development, and therefore it does not seem quite right to bring reques about the balance for the character of regional development.

In general, the ratio – is proportionality, certain balance of relationship's parts between themself. As regards to regional economic definition of proportionality was given by E. B. Alayev: "Spatial social and economic proportions should characterize a dynamic balance between social, economic and natural elements of the area, which eliminates genesis of inconsistencies that lead to a decrease in labor productivity (or tempo of this performance's growing), decrease living standards of population, environmental degradation" [1].

This definition needs to be clarified.

Firstly, it had to consider the scope of regional management. Practice shows convincingly that the various imbalances inside this area (e.g., lack of skilled management that can effectively address a wide range of issues of social and economic development in the contemporary economy) and intersectorse character hamper the regional development.

Secondly, it does not take into account interregional – relationships definition, which is an important factor of regional development.

Thirdly, as shown above, ensuring of dynamic equilibrium or balance in regional development in principle achievable.

And finally, fourth, it should be emphasized that the emergence of imbalances leads to additional difficulties in achieving the strategic objectives of socio-economic development.

Given the considerations expressed by the proportionality of regional development means achieving certain relationships between:

– Main areas such complex socio-economic system region;

– Elements that make up each of the areas;

– Regions of different ranks that interact with this region in the process of socio-economic development.

Imbalance suggests an imbalance in development sectors. Thus the development of certain economic processes at the expense of others. Throughout the economy it may appear that a violation of proportionality within a given region is the accelerated development of the other (for example, on account of cross-flow of labor or capital). A characteristic feature of disruption of natural proportionality is usually an active response from the population as a change of residence and work, political speeches, etc., negative dynamic of social indicators is reduced of birthrate and span of life, decline of demographics situation, rising of crime and so on.

Today, the most quantity of factors that cause regional disparities are classified as follows [9]:

– Natural : geopolitical location, climatic conditions, the presence and level of development of natural resources, environmental condition.

– Production : cyclical economic processes, the structure of production and the level of innovation, the level of development of industrial infrastructure, the concentration of production and economies of scale; domestically competition; imbalance of certain activities.

– Institutional: action of economic laws, the organization of the government and the system of relations between its different branches, strategy and tactics of implementation of economic policy, national cultural and historical traditions.

– Social: income level, the level and quality of life, level of social infrastructure, demographic factors, migration of labor.

In the economy of each country, region, region of the world there are two functionally heterogeneous group of fields: the field of industrial specialization and industry serving.

Industry specialization played a leading role in regional economic structure, determine their place in the territorial (interregional) division of labor. Because of this area of specialization is also called like profiling fields, the fieldsof regional importance.

The fields of specialism are due the main role in the production and export of goods, and the impact on the distribution of productive forces (the fields' function about formation of region), as these sectors perform in the role of the region's core, which attracts support, serving the industry.

By way of the eduction the industrial specialization of Luhansk region we avail of statistics data of Central Statistical Office in the Luhansk region and data of the State Statistics Service of Ukraine concerning the volume of sold industrial products (works, services) for 2011 – 2012.

Calculate the coefficient of specialization in the Luhansk region for each industrial sector separately. Therefore we avail of the following formula:

$$K_C = \frac{Q_{ij}/Q_j}{Q_i/Q} \qquad (1)$$

where Q – the total volume of sold industrial production in the country; Q_i – the total volume of sold products and the i-th field in the country; Q_j – the total volume of sold industrial production in region j; Q_{ij} – total volume of sold products the i-th sector in region j.

The results of the calculation of specialization for 2011 are shown in Table 1.

The fields of industrial specialization of the region are the fields which specialization's coefficient greater than one. Thus Lugansk region has the following fields

Table 1

The coefficient of sectoral specialization of Lugansk region

Field of industry	Coefficient of specialization
Mining industry	1,246
Food, beverages and tobacco products	3,680
Light industry	0,539
Processing of timber and wood products, except furniture	0,083
Pulp and paper industry and publishing activities	0,767
Manufacture of coke and oil refining	3,496
Chemical and petrochemical industry	1,416
Manufacture of other non-metallic mineral products	0,439
Metallurgy and manufacture of fabricated metal products	1,388
Engineering	1,009
Electricity, gas and water	0,558

of specialization: mining industry (1,246), manufacture of food products, beverages and tobacco (3,680), manufacture of coke and oil refining (3,496), chemical and petrochemical industry (1,416), metallurgy and metal products (1,388), machinery (1,009). So, Lugansk region is poly specialized region as the number of specialized fields in it more than one.

For further analysis we shall calculate the actual sectoral shifts in the Luhansk region.

Actually sectoral shift is a shift that takes place within a particular of field in the industrial structure of the region, excluding changes in other areas. It shows the relative increase in the proportion of the field relative to the base period and it is calculated as follows:

$$K_Y = \frac{Y_2 - Y_1}{Y_1} * 100\% \qquad (2)$$

where Y_1 – volume of industrial output in the base year; Y_2 – volume of industrial production in the current year.

From Table. 2 it shows that major changes have occurred in the following areas: processing of timber and wood products except furniture, manufacture of other non metallic mineral products, metal production and metal products. Most of the industries has reduced the volume of sales. That is actually the biggest industry changes have occurred in areas that are not specialized

in the Luhansk region, and they were in a negative direction, while minor changes in the areas of production specialization took place in a positive direction.

Thus, at this stage, the region is increased production specialization in intensive changes in the position of complementing areas. But in order to make more detailed conclusions, we need to analyze how intensively in the Luhansk region occurring cross-shift criterion and construct interval.

To enhance objectivity determine the intensity of industry structure change and neutralize possible variations introduced by manufacturing field, the latter exclude from the industry in assessing inter-change. We shall calculate the quadratic coefficient of relative structural changes to all areas of the region to complement we shall use the formula:

$$d_{y_2/y_1} = \sqrt{\sum_{i=1}^{n} \frac{(Y_2 - Y_1)}{Y_1} * 100\%} \qquad (3)$$

The calculation results are presented in Table. 3.

Thus the quadratic coefficient of relative structural changes is. This ratio shows that the average share of each industry change (upward or downward) of 1,6%. We get criterian interval [0; 1; 6]. Coefficient of specialization not all specialized fields included in the criteria range, which means that no significant changes occurred densities of complementary industries.

Table 2

Actually sectoral shifts in Luhansk region

Branch	Volume of sold industrial production (works, services) on the main activities for 2011 (Y_1)	Volume of sold industrial production (works, services) on the main activities for 2012 (Y_2)	$(Y_2 - Y_1)$	Actually sectoral shifts
Mining industry	13379954,6	13646801,9	266847,3	1,99
Food, beverages and tobacco products	2682519,2	2720235,6	37716,4	1,41
Light industry	393554,6	399774,2	6219,6	1,58
Processing of timber and wood products, except furniture	52854,6	30166,3	-22688,3	-42,93
Pulp and paper industry and publishing activities	1588093,7	1426894,6	-161199,1	-10,15
Manufacture of coke, refined petroleum products	19298984,5	–	–	–
Chemical and petrochemical industry	9161221,1	8636776,1	-524445	-5,72
Manufacture of other non-metallic mineral products	1130756,2	720634,5	-410121,7	-36,27
Metallurgy and manufacture of fabricated metal product	24464467,1	19172296,5	-5292170,6	-21,63
Engineering	11375358	10309648,2	-1065709,8	-9,37
Electricity, gas and water	12296440,8	12831865,4	535424,6	4,35

Table 3

Intersectoral shifts in Luhansk region

	$Y_2 - Y_1 (\%)$	$(Y_2 - Y_1)^2$	$\dfrac{(Y_2 - Y_1)^2}{Y_1}$
Light industry	0,16	0,03	0,06
Processing of timber and wood products, except furniture	0,02	0,00	0,00
Pulp and paper industry and publishing activities	0,38	0,15	0,09
Manufacture of other non-metallic mineral products	0,15	0,02	0,02
Electricity, gas and water	5,53	30,57	2,38
Amount			2,56

To eliminate the regional disparities , it is necessary to select criteria that will identify and assess regional disparities.

These criteria are:

1) the relation between the dynamics of the gross regional product and dynamics of indicators of utilization that characterize using of production's factors in the region (fixed assets, number of employees);

2) the relation between the dynamics of investment (including foreign) in the region and the volume of gross regional product;

3) the relation between the dynamics of the gross regional product and income dynamics in the region;

4) the relation between the amount of taxes collected in the region, and level of income;

5) the relation between the dynamics of the gross regional product and the dynamics of the cost of social development (industry);

6) the relation between revenues and expenditures of the population in the region;

7) the relation between the level of wages and migration to other regions of the country or abroad;

8) the relation between the level of spending on measures to protect the environment and indicators of ecological conditions in the region;

9) the relation between the cost of medical progress and the level of morbidity;

10) the relation between the level of income and the amount of deposits in the banking system.

Conclusions. Regional disparities are discrepancy between the operation of the individual components of the economic system of the region and its level of social development, including the standard of living . The state should try to eliminate regional disparities , but to provide a fully balanced development of the region, it will fail because of limited resources and the need to select priority areas for development.

Calculation the coefficient of specialization for Luhansk region showed that the region has six areas of specialization. Lugansk region is poly specialized region. Moreover, the region is increased production specialization in intensive changes in the position of complementary industries.

For the evaluation of regional disparities used criteria for determining the proportionality of regional development, by which is meant the ratio of steel formed between two (or more) of interconnected indicators, which change causes adverse effects (distortions) in the socio-economic system of the region, it is impossible to proper functioning and self-healing, and to a significant deterioration in living standards.

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Спорняк С. О., Вольвак Ю. С. Аналіз пропорційності регіонального розвитку

У цій статті розкрито сутність понять пропорційність регіонального розвитку та поняття регіональної диспропорції. Визначені галузі спеціалізації Луганської області. Показані основні фактори, що спричиняють регіональні диспропорції та критерії, за якими можна визначити ступінь пропорційності розвитку регіону.

Ключові слова: пропорційність регіонального розвитку, збалансованість регіонального розвитку, регіональна диспропорція, спеціалізація.

Спорняк С. А., Вольвак Ю. С. Анализ пропорциональности регионального развития

В этой статье раскрыта сущность понятий пропорциональность регионального развития и понятие региональной диспропорции. Определены области специализации Луганской области. Показаны основные факторы, вызывающие региональные диспропорции и критерии, по которым можно определить степень пропорциональности развития региона.

Ключевые слова: пропорциональность регионального развития, сбалансированность регионального развития, региональная диспропорция, специализация.

Spornyak S. O., Volvak Yu. S. Proportionality's Analysis of Regional Development

This article reveals the concepts' essence of regional development's proportionality and the concept of regional disparities. Identified specialization' fields of Lugansk region. There are shown the main factors that cause regional disparities and the criteria by which to determine the degree of the region's proportionality.

Key words: proportionality regional development, balanced regional development, regional disparities, specialization.