

SCTCMG 2021**International Scientific Conference «Social and Cultural Transformations in the Context of Modern Globalism»****PATTERNS AND TRENDS IN THE SOCIAL AND ECONOMIC DEVELOPMENT OF REGIONAL ECONOMIES**

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Abstract

Modernization of the national economy is a complex process. Modernization of regional economies is crucial to ensure the sustainable growth and solve social, environmental, cultural and other problems. Regional government modernization is a new strategic vision that improves qualitative characteristics of the subject and object of management and integrates all innovations into a single system. The quality of life is one of the most important conditions for the socio-economic and political development. It has a major impact on the dynamics of socio-economic development of the territory. However, the quality of life as a synthetic concept has many facets and not all of its aspects stimulate the socio-economic development of the territory to the same extent. In other words, some aspects stimulate certain factors, others aspects stimulate other factors; as a result of a synthesis of factors, the general result of a positive impact of the quality of life on the socio-economic development of the territory is achieved. The per capita income or the structure of the population stimulates production activities in the regional economy; the state of culture, ecology, etc. stimulate the general orientation (humanization) of regional development. In addition, different aspects of the quality of life stimulate different aspects of the socio-economic system and, realize themselves through different sides of the regional system. Thus, it is necessary to analyze the impact of the quality of life on one of the important parameters of the regional system, the economic growth.

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Keywords: Economic growth, gross regional product, living standards, region, socio-economic system



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1. Introduction

An assessment of the regional economic growth is presented in many studies by Russian and foreign authors, and this aspect has been developed in theoretical and methodological terms. At the same time, the studies focus on the advanced or developed regions: Moscow, Tyumen region, Nizhny Novgorod, etc. Features of the moderate economies have not been studied. However, these regions constitute a huge array; studies of the architecture of their socio-economic development are required. In addition, the studies were conducted either on the data of the 1990s, or the first half of the 2000s. But during this time, the country went through another economic crisis, which has an ambiguous effect on the dynamics of regional economies. There is a need to study the reaction of regional economies to the global world crisis, and to determine the architecture and the development trajectory of regional systems in new economic conditions caused created by the modernization strategy.

2. Problem Statement

The article aims to identify factors influencing the formation of patterns and trends in the socio-economic development of regional economies in the republics of the North Caucasus Federal District.

3. Research Questions

A new approach to the category of quality of life as a criterion for the socio-economic development of a region has been proposed. The development of the regional government system is associated with the evolution of the category of quality of life, which forms the architecture of the regional socio-economic system.

4. Purpose of the Study

The aim of the study is to identify the relationship between the quality of life and the economic growth on the example of regional farms in the North Caucasus Federal District.

5. Research Methods

The study is based on the principles of the systematic and scenario approaches of model experiments. An analysis of empirical and sample data was carried out using the scientific methods: economic and mathematical modeling, econometric and regression modelling, comparison and generalization.

6. Findings

The per capita income of the population is one of the most important indicators of the quality of life. Cash income of the population includes the income of persons engaged in entrepreneurial activities, wages of employees, social benefits, property income in the form of interest on deposits, securities, dividends and other income (Armstrong & Taylor, 2003). There is no direct relationship between them,

but the level of per capita income can be a quality of life criterion. Let us consider the behavior of this indicator in the North Caucasus and its relationship with the level of economic development, the gross regional product. The available data allow us to identify a number of features. There is a widespread difference between the growth rates of per capita GRP and per capita incomes. These are temporal and spatial differences. In most regions of the North Caucasus Federal District, the growth rate of per capita income outpaced the growth rate of per capita GRP. In addition, they outstripped the average growth rates in the Russian Federation. In the Russian Federation the growth rate of per capita income outpaced the growth rate of per capita GRP by 0.43 points, while in the North Caucasus Federal District – by 2.39 points. In different regions of the North Caucasus Federal District, the value was as follows: the KBR (+4.01), the RI (+3.81), the RD (+3.51), Stavropol (+1.99), the KCR (+1.69), and the North Ossetia – Alanya (–0.11). The second is the spatial and temporal difference in the ratio between the per capita GRP and per capita incomes of the population. In the Russian Federation, this ratio is 7.6 to 10 (i.e., the level of per capita income in per capita GRP is 76.5 %), while the average for the North Caucasus Federal District is 121.1 %, and in the RD – 137.2 %, in the RI – 161.1 %, in the KBR – 114.4 %, in the KCR – 118.2 %, in the North Ossetia-Alania – 126.4 %, in Stavropol – 104.5 %. In other words, in all the regions of the North Caucasus Federal District, the volume of per capita income exceeds the volume of per capita GRP.

The trend was observed in the North Caucasus Federal District in the early 2010s. However, in Stavropol, only in 2015, the 100 % threshold was exceeded, and in the KBR this threshold was exceeded in 2014. The reason for this dynamics is the uneven growth of the indicators compared. The growth rates of per capita income in the North Caucasus Federal District outstripped the growth rates of per capita GRP. From an economic point of view, this situation can mean that the produced product is consumed to a greater extent than it is created, or that the inflow of basic income is not of an internal nature.

The dependence of the dynamics of GRP on the dynamics of per capita income was calculated. The calculations were carried out according to the procedure generally accepted in the economic studies. The resulting equations were systematized in Table 01.

Table 1. Comparative assessment of the correlation and regression coefficients between per capita income and per capita GRP in the North Caucasus Federal District

	RF	NCFD	RD	RI	KBR	KCR	RNO-Alania	SR
multiple R	0.999	0.999	0.997	0.976	0.993	0.997	0.986	0.999
R-square	0.997	0.998	0.994	0.953	0.985	0.993	0.972	0.997
Normalized R-square	0.997	0.997	0.993	0.946	0.983	0.992	0.968	0.997
Standard error	4044.4	6630.5	1942.9	2690.6	2143.6	2049.8	4563.1	1530.0
A0 regression coefficient	-2109.	34291.1	5759.8	845.6	11948.7	3090.4	3909.6	7738.2
A1 regression coefficient	1.33	0.66	0.55	0.57	0.54	0.75	0.71	0.77

The above data show that there is a strong correlation between per capita income and per capita GRP (for all regions, the paired partial correlation coefficient between per capita GRP and per capita income exceeds 0.95; moreover, in four regions it exceeds 0.99, in the RI, it is 0.976, and in the RNO-Alania it is 0.986). The growth of per capita income stimulates the growth of population's expenditures, the growing expenditures stimulate the growth of the production of goods and services, which, in turn, the inflow of investment along the chain of economic and institutional relationships. All the regions have

positive regression coefficients. This means that with the growth of per capita income, there is an increase in per capita GRP; or the growth of per capita GRP is determined by the growth of per capita income.

Consider the behavior of the population's per capita income and factors that influence it. To assess the influence of factors, we divided the regions of the North Caucasus Federal District into three groups: rapidly developing – the regions whose growth rates have remained stably high over the past three to five years, moderately developing and stagnating (regions where economic growth rates are unstable and the average annual growth rates are lower than the average annual growth rates in the Russian Federation, and growth rates are lower than the average for the aggregate (NCFD).

All factors were divided into three groups: economic, infrastructural and social ones.

Thus, for each object, three tables were compiled, and the dynamics of per capita income of the population was analyzed.

Table 2. The value of correlation coefficients between per capita income and production and economic factors of regional economies

	Rapidly developing	Moderately developing	Stagnating
Average per capita cash income of the population per month, rub.	1	1	1
GRP per capita, rubles	0.998	0.995	0.995
Consolidated budget revenues; million rubles	0.992	0.993	0.992
Average annual number of people employed, thousand people.	0.972	0.965	-0.811
The level of economic activity of the population; %	0.810	0.769	0.126
Cost of fixed assets, million rubles	0.996	0.995	0.985
Agricultural production, million rubles	0.981	0.964	0.980
Volume of construction works, mln. Rub.	0.997	0.932	0.964
Volume of paid services to the population, million rubles	0.995	0.997	0.988
Fixed capital investments, mln. rub.	0.995	0.986	0.930

The calculations showed that per capita incomes of the population of a growing economy (the RD's economy) correlate positively and strongly (only one parameter turned out to be below 0.9 – the level of economic activity of the population was 0.81) with production and economic factors of the economic system (Gurtuev et al., 2020). The greatest influence on the dynamics of per capita income was exerted by the per capita GRP (0.998), the volume of paid services provided to the population (0.997), the cost of fixed assets (0.996), the volume of construction works (0.995), investment in fixed assets (0.995), and consolidated budget revenues (0.992), agricultural products (0.981), the average annual number of people employed in the economy (0.972) and the level of economic activity of the population (0.81). All sectors of the national economy work in unison (Makhosheva et al., 2018). The population is employed in the service sector and therefore, the basis for the growth of per capita income of the population is formed in the service sector. The influence of the fixed assets is great, which entails the active modernization of the production and economic infrastructure of the regional economy. The regional economy is using the consolidated budget revenues to increase the per capita income of the population (Tumenova et al., 2018). The volume of construction works and investment also influences the dynamics of per capita income of the population through the employment.

In moderate economies, per capita incomes showed a similar response to the main parameters of production factors. For all the parameters, except for the volume of paid services to the population, the

correlation coefficient turned out to be lower in these economies than in the developing ones; although these differences were not significant, they turned out to be noticeable. A completely different trend was observed for the per capita incomes in the stagnating economies. The average annual number of people employed in the stagnating economies had a negative correlation with the per capita income of the population. In the stagnating economies, the volume of investment in the fixed assets turned out to be lower than in the rapidly and moderately developing ones. Thirdly, many parameters demonstrated behaviors similar to the ones in the developing economies, but at the same time, their opposite effect was observed (at the level of economic and social infrastructures) (Table 02, 03).

However, more details about the factors shaping the dynamics of per capita income of the population can be obtained from the assessment of the state of production, economic and social infrastructures of the regional economy.

Table 3. The value of the correlation coefficients between per capita income and factors of the production and economic infrastructure of regional economies

	Rapidly developing	Moderately developing	Stagnating
Average per capita monetary income of the population per month, rubles	1	1	1
Share of urban population, %	-0.609	0.993	-0.228
Economic activity of the population; %	0.810	0.769	0.126
Number of enterprises, units	-0.791	-0.598	0.905
Sown area under agricultural crops, thousand hectares	-0.759	0.690	-0.551
Density of railways for general use, per 10,000 sq. km of territory	-0.676	-0.788	-0.607
Density of public roads with hard surface; per 1000 sq. km	0.897	0.725	0.898
Volume of communication services provided, per inhabitant, rubles	0.975	0.970	0.989
Retail trade turnover per capita, rubles	0.975	0.998	0.999
Public catering turnover, million rubles	0.999	0.991	0.979
Volume of paid services provided to the population, million rubles	0.982	0.997	0.988
Volume of paid services per capita, rubles.	0.997	0.987	0.989

The calculations showed an ambiguous and contradictory influence of individual production and economic factors on the dynamics of per capita income of the population. In particular, such factors as the level of economic activity, the number of own cars, the density of highways per 1000 sq. km, the volume of communication services per capita, investment in fixed assets, registered subscriber terminals of cellular communications, the volume of retail trade and public catering, the volume of paid services to the population had a positive, albeit unequal, correlation with the per capita income of the population. But such parameters of the industrial and economic infrastructure as the share of the urban population, the number of enterprises, the size of the cultivated area, and the density of railways had a negative correlation with the per capita income of the population. This position of the production and economic infrastructures means that these parameters are not included in the existing architecture of the regional economy (Ovchinnikov, 2010). The old and new industrial and economic infrastructures coexist. As a result, there are constant collisions between the named sectors and industries.

The calculations showed that moderately developing economies had opposite directions and the value of correlation coefficients with the share of the urban population, the sown area; the value for such parameters as the number of cars per 1000 people, the retail trade turnover, the volume of paid services to

the population, as well as the number of enterprises turned out to be higher than those in the developing economies; in terms of the level of economic activity of the population, the density of highways, the volume of communication services provided, the number of subscriber terminals of cellular communication, the coefficients turned out to be lower than in the developing economies.

In the stagnating economies, the trends observed in the developing economies repeated but with lower (or higher) values of the correlation coefficients.

An important criterion for assessing the dynamics of per capita income and the quality of life is the state of social infrastructure (Shnyper, 1993). Social infrastructure creates conditions for people; it acts as a factor shaping the best or worst living conditions. Therefore, it is important to assess its impact on the main indicators of quality of life. The per capita income of the population was used. The calculations revealed the following trends for the three specified types of regional economies (Table 04).

Table 4. Correlation coefficients for per capita income and factors of the social infrastructure of regional economies

	Rapidly developing	Moderately developing	Stagnating
Average per capita monetary income of the population per month, rubles	1	1	1
Volume of gratuitous transfers to the consolidated budget; million rubles	0.990	0.976	0.993
Average annual population, thousand people	0.902	-0.885	0.018
Natural increase rate per 1000 people	0.898	0.935	0.912
Migration growth rate per 10,000 people.	-0.662	-0.306	-0.676
Number of unemployed, thousand people	-0.735	-0.520	-0.195
Number of employees of regional government bodies and local self-government bodies, people	0.903	0.972	0.917
Average monthly nominal wages; rubles	0.996	0.997	0.998
Population with income below the subsistence level; %	-0.856	-0.903	-0.845
Average consumer spending per capita, rubles.	0.999	0.999	0.999
Retail trade and catering turnover per capita, rubles	0.046	0.998	0.999
Consumer price index; %	0.999	-0.645	-0.400

The greatest differences in the types of economies were observed in the third group of factors and conditions: production, economic and social infrastructures. The purchasing power (per capita income) of the population in the developing economies strongly correlated with the volume of consumer spending, the consumer price index, the average monthly wages, the volume of gratuitous transfers from the federal budget, the size of housing areas per capita, etc. The purchasing power of the population in the moderate economies was most dependent on the volume of consumer spending, the retail and catering turnover, the average annual wages, the living space per capita, the volume of gratuitous transfers from the federal budget, the rate of natural growth, the number of employees in regional and municipal bodies, etc. As for the purchasing power of the population in the stagnating economies, their value depended on the following factors: the volume of gratuitous transfers from the federal budget, the average monthly wages, the volume of consumer spending, the turnover of public catering and retail trade, etc.

7. Conclusion

The analysis of the ratio and relationship between the quality of life and regional economic growth showed that there is a direct, but not linear, relationship between these phenomena: in the regions with a high quality of life, high or moderate economic growth is observed; in the regions with a low quality of life, the economic growth is unstable; production, economic and social factors that shape the economic growth determine the quality of life. They are not identical, with a certain level of quality of life, its factors and parameters of influence on economic growth are structured. The factors and parameters of the quality of life that determined the economic growth in the previous structure either start to slow it down or turn out to be indifferent to it.

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References

- Armstrong, N., & Taylor, J. (2003). *Regional Economics and Policy*. Harvester Wheatsheaf.
- Gurtuev, A., Derkach, E., Makhosheva, S., & Ivanov, Z. (2020). A Bayesian approach to investment in innovation projects with the presence of fake innovators. *Heliyon*, 6(11).
- Makhosheva, S. A., Rud, N. Y., Kandrokova, M. M., Israilov, M. V., & Shinahova, F. B. (2018). The paradigm of sustainable development and innovation in the region. *Revista Espacios*, 39(47), 28.
- Ovchinnikov, V. N. (2010). Socio-economic problems and resources for stabilizing the situation in the North Caucasus in a new geo-economic format. *Strategic priorities for modernizing the economy of Russian regions: North Caucasian vector. Materials of the All-Russian Scientific Conference (IV Dombai Readings)*. Dombai.
- Shnyper, R. I. (1993). *Region: economic management methods*. Novosibirsk: Science, Siberian Branch.
- Tumenova, S. A., Kandrokova, M. M., Makhosheva, S. A., Batov, G. H., & Galachieva, S. V. (2018). Organizational Knowledge and its Role in Ensuring Competitiveness of Modern Socio-Economic Systems. *Revista Espacios*, 39(26), 12.