

Regional Science Association

European Congress

Dublin, Ireland

23 - 27 August 1999

Trofimov A.M., Kashbrasiev R.V.

Department of Economical Geography and Regional Analysis

Kazan State University. Kremliovskaya, 18. 420008

Kazan. Republic of Tatarstan. Russia

E-mail: Rinas.Kashbrasiev@ksu.ru

CONCEPTION OF SOCIAL - ECONOMICAL SITUATIONS
(ON THE EXAMPLE OF THE TATARSTAN REPUBLIC)

1999

Abstract.

Social - economical situations with different scales always follow a society's life and under certain conditions are able to alter its spatial configuration.

The geosituational concept, which we suggest, explains the spatial - temporal structure by means of the analysis of socio - ecologo - economical situations. The situations are movable formations. They are easy for alterations than stable geosystems. Thus the geosituational concept is the governing aspect of the environment modeling.

The analysis of socio - ecologo - economical situations may be a primary weighty reason to make governing decision.

Then was applied the method of Self - Reflexive Neural Networks which allowed to distinguish five special diagnostic types of social - economic situation in the territory of the Tatarstan Republic.

1. Introduction.

The profound substantiation of region's socio-economic development concept is connected to a research (as initial point of a research) of region's capacities, taking into account existence of close functional relations of productive forces' development and their location on the certain territory. In order to provide effective functioning of the territory deliberate examination of its potential, of its resource capacities as economy-geographical and socio-economic, as well of administrative - territorial structural unit is necessary.

In transition to market economy special aspects of socio-economic problems related to a new role of the regions have emerged. They are manifested as in growth of regions role and in regionalization of political and economic life, as well in new spatial economic processes induced by growth poles emergence and by interregional and interstate relations development. These

relations result in a system of interconnected and interdependent growth factors ensuring effective and progressive development of territory.

Modern geography considers the elements of space in their complicated interaction. Social, economical, infrastructural and other types of space are overlapped forming zones with different degree of stability.

Social - economical situation with different scales always follow a society's life and under certain conditions are able to alter its spatial configuration (Blayo,1997; Trofimov,1997).

There exist two concepts to explain the processes of spatial - temporal localization of geosituations (Thisse,1996). The equilibrium concept considers negligible in scale social - economical situations and explains their appearance under the action of factors of competition and demand. The external concept provides that technological and many factors influence on appearance and development of large scale situations. Social - economical space is formed in the struggle of these contrary factors.

The geosituational conception, which we suggest, explains the spatial - temporal structure by means of the analysis of socio - ecologo - economical situations. The situations are movable formations. They are easy for alterations than stable geosystems. Thus the geosituational concept is the governing aspect of the environment modelling.

2. Territorial socio-economic situations.

In socio-economic space each point has its own (quite often unique) socio-ecologo-economic characteristics, what leads to some complexities in reforming and further development of a national economy.

One of the most perspective approaches in creation of differentiated regional policy is a geosituational approach. It permits to allocate those sites on territory of region, that at present have similar interconnected characteristics, - socio-economic situations. There appears a special kind of the analysis – situational analysis. Distinctive features of situations are that they: a) have the certain spatial-temporal condition of all socio-ecologo-economic processes happening on a concrete site of territory; b) are stipulated by a formed socio-economic, cultural, ecological potential of the corresponding territory; c) dynamically change structure and functions; d) carry a potential of the future

condition rudiments.

The uniform technique of socio-economic situations selection has not been developed yet. The used earlier and widely promoted methods of fuzzy sets do not respond to these goals, as in the end any way it will turn necessary to address conditional introduction of threshold values for classifications. One of the most promising is the method of spatial mathematical statistics – a method of neuron webs that enables to build efficiently series of models reflecting state of economy, social sphere, ecology, territoriality etc., and also series of particular socio-economic maps as model expression of situations, states and ensuing development of regions. On a final stage of a research – on a stage of constructing generalized maps of socio-economic situations of territory – it is expedient to use analytical methods of evaluation.

As is known, in modern conditions for realizations of regional policy directed toward overcoming gaps in conditions and quality of life of the population, prior is a principle of territorial justice, which stands for the compromise between efficiency of national economy and social equality of regions. The realization of this principle is impossible without use of the situational analysis methods, because the subsequent are required: on the one hand - maximization of the national income, supposed to concentrate forces and means on the areas having the greatest potential efficiency, on the other - fair redistribution of some of the produced national income from the most developed regions to the least developed.

3. Analysis of socio - economical situations.

3.1. Some information about the economic of the RT.

Among the Russian Federation region of the Tatarstan Republic has a peculiar position. Many social - economical problems are being solved here more effectively. The reason is that the Territorial - Production Complex of the RT was formed within the borders of the autonomous republic. As an economical - geographical system it possessed virtues of unity: unified government system, variety of strengthening within - the - republic interbranch connection, etc. That's why the RT finds little difficulty in solving such economical problems as economical independence, regional sovereignty, formation of self - dependent regional resource base for social - economical development, ecological stability and other conditions for steady regional development.

However, there is a number of problems as well. The political, juridical, national, ethnic and social problems are not yet solved. That's why the problem of structural

industrial reconstruction remains actual.

The problems of complex economical, social and ecologo - economical development gain utmost importance. During the process of formation of market relations the complex development can be ensured by balanced development of industrial, non - productive sphere and infrastructure, rational utilization of territorial potential; providing of favourable conditions for functioning of industrial subjects; providing of effective employment for population; rational regional combination of market and non - market structures, etc.

The complex ecologo - economical and social regional development is based on objectives regional aspects of social regeneration. The methodological principles of regional development investigations gain the leading role. They are based on the real socio - ecologo - economical situations.

3.2. Method. Approach. Results.

For study the socio - economical situations of the RT in the territory there were singled out 300 operational - territorial units (OTU) of an equal area. While investigating 59 indicators amalgamated into 17 groups were picked out.

These groups contained information about:

- 1) demography processes;
- 2) population setting system;
- 3) industrial enterprises amount;
- 4) agricultural enterprises amount;
- 5) major construction work;
- 6) housing fund;
- 7) social infrastructure;
- 8) trade;

- 9) transport complex;
- 10) road - building;
- 11) education system;
- 12) communication system;
- 13) health system;
- 14) privatization rate;
- 15) small business;
- 16) family's budget;
- 17) environment protection measures.

Initial information was organized into the matrix with the size $300 * 59$. With the help of statistical methods every element of the given matrix was exposed to a rate setting. As a result of this procedure the initial matrix become a matrix of sizeless value.

To distinguish social - economical situations in the territory of the RT to the matrix of sizeless indicators was applied the method of Self - Reflexive Neural Networks (Kazakov, 1979; Buscema, 1996) which allowed to distinguish five special diagnostic types of social - economic situation in the territory (social - economical syndrome of the territory) (Trofimov, Kashbrasiev, Piyanova, 1998).

The basis of this map is the map - sheme of complex potential of the territory (Trofimov, Khuseev, Rubtsov, 1998).

1. " The social - economic situation of depressive agricultural regions with uncertain tendency of a further development ".

Such a situation is typical to the majority of the Pre - Volga economic regions which are the more backward regions of the RT. The social - economical situation is characterized by the following peculiarities:

- the economics of the territory is oriented to agriculture;
- the industry is mainly connected with agriculture;
- the level of industrialization of economy is extremely low and has not dear tendencies to growth;
- unfavourable demographic processes: many years negative population growths, a constans outflow of the population to the more propitious regions.

Perspectives for development of the situations are unclear and depend upon the influence of inner factors (for instance, upon a regional policy orientation, upon

investment to the development industries and so on).

2. " The socio - economical situation of a " stable " depression (agro - industrial depressive situation) ". It is typical, mainly, to the Trans - Kama economical region and some other ones.

The main signs of the given situation are as follows:

- low rate of production growth;
- limited amount of industrial enterprises;
- use of traditional, in many cases outdated, technologies;
- absence of progressive development tendencies;
- satisfactory ecology state.

3. " The socio - economical situation of depressive agricultural regions " which have indistinct tendency to industrialization. This situation is typical to a number of regions of Pre - Kama economical region which form an integral agricultural area.

The main signs of the given situation:

- agrarian orientation of economy;
- availability only a small number of industrial enterprises;
- industrial enterprises as a rule have a small output;
- a low level of social infrastructure development;
- comparatively favourable ecology state.

4. " The socio - economical situation of stable industrial development " which in a number cases did not reach its limits.

The given situation takes place in the North - West (Prikazanski) economic region whose advantageous geographical location give certain possibilities to further economical development. Serious state of ecology being deterrent demands to make efficient decisions.

5. " The critical social - economical situation " which is caused by the intensive industry development is typical for the majority of regions in the South - East of the RT.

Such a situation is accompanied by the extremely unfavourable state of ecology, and in some cases by the exhaustion of natural resources.

For the given situation a number of negative social - economical processes are typical: availability of superlarge enterprises for which is difficult to meet the needs of a market, deterioration of the surroundings, including the conditions for the population rest, unemployment's increase and so on.

From this analysis we have the "Conceptual Models of the Regional Development" for the RT.

4. Interaction between socio-economic situations and growth poles.

The analysis of emergence and reproduction reasons of socio-economic situations allows to reveal and to some extent evaluate role of growth poles in regional development.

Particular place in regional development belongs to processes of economic development impulses distribution on uneven and non-commonplace genesis of various technological, social and other innovations. If some of the socio-economic situations are being centers of innovations generation, other serve as an environment of their distribution. The velocity of the latter depends as on a closeness of connection between provinces and the center, as well on intensity of activity kinds, administrative hierarchy of territories and on a level of their development as a whole.

The character of interrelations among territorial socio-economic situations is defined by constant qualitative transformations of organizational-economic relations within the limits of high level socio-economic situations, where along with advances in science and technology new functions come into being, the recent technologies and information-intensive industries concentrate, new connections generate and, hence, permanent structural reorganization of economic basis is going on. The latter is accompanied by shifts in qualifying staff of the able-bodied population and in social structure of the population as a whole. At the same time transmission of growth impulses from innovation centers to the provinces occurs, facilitating development of the latter, though fixing thereby its rigid subordination to the center.

The interaction model of growth poles and socio-economic situations may become quite effective means for socio-economic and regional development policy adoption. The major factor of GNP growth is development of interregional relations, the integration of economy. Nowadays the leading trend is regionalization of economy which is conditioned by increase of regions' political role. However from the economic perspective speaking about a new qualitative state of regions would be still premature.

Determining parameter of a production efficiency and productivity of a social labor is the parameter of gross added cost. In production made in Republic of Tatarstan (RT), gross added cost makes just 30 % (Economic modei of Tatarstan..., 1997), the rest part of a cumulative public

product is paid by republic to other regions and countries. In economy of developed countries gross added cost reaches 70-75 % of a cumulative product.

One of the main reasons of low added cost of the regional gross product is close technological interregional connection among processes of production in terms of wasteful administrative-command economy. The national economy of RT is deeply integrated into economy of Russian Federation and CIS. With transition to the new economic relations a problem of analyzing productions ties by expenses and their "natural selection" rises. Optimization of productions ties structure, replacement of deliveries by the internal production in such conditions are thought of as quite justified. As to the processes of interregional economic integration, they on their part should serve as the major factor of a pure regional product growth. The use of interregional division of labor advantages should have multiplicative effect. In this connection, let's analyze export of Tatarstan's goods in republic of Belarus. The analysis shows that at first, the stable growth of export is observed, secondly, in a documentary structure of export the significant share is made by products of petrochemistry and machine engineering, equipment, instruments and means of transport - that is production of a manufacturing industry with a high share of added cost and having multiplicative effect.

According to available official figures (Business in Russia.- March 1998), in 1997 in Byelorussia the gain of industry has made 17,5%. This rise has positive effect on economy of regions interacting with it. By orders from Byelorussia grows industrial production of RT. Thus, for January-February 1998 the export of Tatarstan's goods in republic of Belarus by direct ties in respect to the similar period of the previous year has increased by 38,8 % and was evaluated as 7,3 million \$. At the time the share of export on the account of barter exchange fell to 17,1% (for January-February 1997 – 17,9% - that's not much either). In commodity section delivery gains of standard items are as follows: (January - February, 1998 against 1997) products of organic chemistry - 154,3 %, plastic and its products - 2,6 times, machines, equipment, gears and their parts - 105,6% (According to RT state statistics bureau, 1998).

Stable partner relations have developed between Tatarstan and Ukraine. In particular, there was organized a joint venture "Ukrtatnafta", which into is an oil refinery processing high-sulfured oils included. Neither in Russia, nor in other countries of CIS there are no enterprises of alike profile. These economic relations are mutually advantageous (Business in Russia.- February 1998).

Nowadays main problems of RT economy are: stabilization of economy, ensuring stable socio-economic development, accelerating institutional reforms, speeding up investment

processes.

The important place is given to state regulation of region economy, use of internal reserves, industrial policy adoption. According to the latter, each enterprise should have carefully worked out financial stabilization programs, business plan to competitive products production. The state support of the enterprises policy will be realized through a myriad of ways. They are: organization of a public contract, granting the tax credits for raw materials seasonal purchase to the enterprises of light and textile industry. Here as well support in oil extraction increase program is concerned. It is developed by the experts from "Tatneft" joint-stock company and provides wide use of possibilities that are stipulated in the law of RT "About production share". All these measures will encourage intensification of cooperation within republic.

At the same time considerable attention is given to development of interstate connections. As it was told above, the processes of economy regionalization and integration are interconnected. This tendency is related with the concept of RT foreign trade activities, the main problems of which are seen as follows:

- Increase of an economic potential of RT with the aid of external economic means, increase of RT economy competitiveness on account of specialization on production of information-intensive, resource-saving and ecologically pure goods and services;
- Assistance to the investment programs and structural reorganization of republic economy on the account of wide drawing of the investments for realization of the industrial and R&D projects;
- Development of scientific and technical cooperation, industrial cooperation, engineering, leasing, other forms of relations;
- Organization of the export structure with significant increase of the goods with high degree of processing.

In this concept the large significance belongs to a problem of growth points emergence, where the new structural formations of a socio-economic landscape originate. It is they that determine what the character of socio-ecologo-economic development of territory will be.

With GIS MOE (modeling of an environment) system the number of model representation charts of main characteristics of territory (on a model of RT) was obtained.

By the way it is necessary to specify that the GIS MOE system has two major properties for electronic maps construction:

- First, capacious and complete description of information features of each point (not only those characteristics reflected on a map, but also block of additional information data for every point);

- Second, fractal model, that lets find a self-similarity moving from one scale to another. In particular, when the scale is magnified and all points may be “deployed in space”, the latter is not empty and is being filled with information from the block of additional information. Thus the sequence is realized: when the scale is diminished – information folds; when it is magnified – information unfolds.

Chart of growth poles and socio-ecologo-economic situations of Republic of Tatarstan grows out of the analysis of correlation between territorial socio-ecologo-economic situations and points of growth in region economy. On the map it is well visible, that the existing growth poles correspond to reality of economic organization of territory. On the map the selected (with use of neuron webs method) on territory of republic situations are shown as: stable, critical and depressive. These characteristics of the territory should be thought of when locating industries, realizing new investment programs. The major growth trend is interregional and interstate economic ties development as realization of geographical division of labor advantages.

The largest investment projects and programs that are being realized in RT:

1. Construction of the bridge through Kama
2. Reconstruction of the Kazan airport
3. Construction of infrastructure objects
4. Development of oil industry
5. Formation of a petrochemical and oil processing complex
6. Continuation of ELAZ construction
7. Restructuring KamAZ
8. Conversion of the military industrial complex enterprises (Kazan-Zelenodolsk industrial group)

RT government preserves its strong economic monitoring as a whole. Though resources are spent mainly on short-term stability support, a policy on economic growth is accepted. A number of programs and projects capable of becoming growth poles is being realized. The growth poles got organized (actually) themselves or were generated intentionally as a whole with taking into consideration the realities of economic organization of territory. A major trend of growth is the use of geographical division of labor advantages, including use of the multiplicative mechanism.

5. Conclusion.

The concept of balanced socio - economical regional development comes to the forefront as far as the states with special status within Russia concerned. The main principles of its realization are:

- adequate interconnection between social, economical, ecological development programs in all levels;
- evaluation of correlation between the demands of society and industry and the capabilities of natural environment and the shaped condition of social infrastructure.

These principles orient one towards the investigation of the regional policy peculiarities (socio - ecologo - economical regulation, development, government and informational activity of the society), and projects of reseach in the sphere of integral territorial potential. The latter characteristics present a qualitatively new formation and includes such aspects as planning and environmental (education, politics, agglomeration, reconstruction, etc.), quality of life and its change in postreconstruction regions, regeneration of peripheral regions, etc.

The analysis of socio - ecologo - economical situations may be a primary weight reason to make governing decision.

References.

- Blayo F. Application of Self - Organizing Maps to the Analysis of Economic Situation // IOP Publishing Ltd and Oxford University Press, 1997. - Gb. 1:1 - Gb. 1:5.
Business in Russia. ¹ 86, February 1998.

Business in Russia. ¹ 87, march 1998.

Buscema M. The Neural Vision of a Competitive City: an Exploration on the Urban Winning Assets in the European Context // Simeon - Centro Ricerche di Scienze della Comunicazione. Viale di Val Fiorita, 86, 1996. - 00144 Roma. - 24 p.

Economic model of Tatarstan: concepts and reality.- Kazan, 1997. - p. 22 - 26. (in Russian).

Kazakov A.I. O mere sformirovannosti podmnozestv v neiropodobnih setiah // Neiropodobni seti v robototechnike. Kiev: Inst. Ciberneniky, 1979. - p. 43 -51 (in Russian).

Thisse J-F. Economics Matter for Geographers . . . and Vice Versa // Universite de Paris I-Sorbonne and CERAS - ENPC (URA 2036 - CNRC), 1995. - 22 p.

Trofimov A.M. Geosystem modelling (conseptual aspect). - Kazan: Ecocentre, 1997. - 146 p. (in Russian).

Trofimov A.M., Kashbrasiev R.V., Piyanova O.V. Social - economical situational concept // European Regional Science Association. 38th Congress. Vienna, Austria. 28 Aug. - 1 Sept., 1998. Abstracts.- Vienna, 1998. - P.103 -104.

Trofimov A.M., Khuzeev R.G., Rubtsov V.A. Dynamic Models of Economical - Ecological Development of the Region Conceptual Approach to Regional Analysis of Potential of the Republic of Tatarstan // Environ. Radioecol. and Appl. Ecology: Vol. 4, No. 1, - 1998. - p.3-12.