

Evolutionary Model of Labour Market of Specialists in Russia¹

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The processes taking place today in the majority of countries indicate the deep changes in different spheres of economic life. No matter how we look at this problem, one thing is clear that it is a part of fundamental research of today. No matter what country is under consideration, the gist of things is the same – the birth of new system qualities and the necessity to respond adequately to the new requirements of changing society.

UNCERTAINTY AND INSTABILITY OF LABOUR MARKET

Over the past decade Russia has changed rapidly. In this period traditional logic “reason-consequence”, “reason-result” often led to wrong conclusions and could not explain the situation. For instance, under the conditions of falling production by 40-60% and reducing of investment activity practically to zero, when unemployment among specialists with higher education is on the highest level, the demand for the educational services has grown rapidly. Statistical data indicate different consequences of reforms. They, sooner, tell about the variety of possibilities, which have appeared in Russia and that Russia is on the threshold of the moment of choice of the way of further development, allowing to realise the part of these possibilities.

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So, the analyses of modern state of matter on labour market of specialists in Russia, should include not only the revealed factors, but also the potential possibilities that are not defining today, but could assume a dominating role under the corresponding strategic course.

Today, regrettably, the intellectual resources in Russia, to a great extent, are not required. So, at present the readiness to sacrifice their own interests for the sake of earnings, to sacrifice the possibility for self-realisation for the sake of getting any work are saved at high level. Today according to the data of the State Committee of Statistics the distribution of vacancies is the following: 25% job vacancies is offered to “white collars” and 75% to workers. At the beginning of 2000 year 9,9% unemployed have higher education, 2,7% – unfinished high³. As it was noted in the report of Ministry of the labour in Russia the salary in budgetary sphere “is lower than living wage”. At the same time the most workman are ready to keep their working places even if the salary will not be paid in time and completely. As witness the last investigations only 20% of people adapted to market conditions, 25%- didn’t, because of different reasons (age, health, mentality). More than half (55%) are in expectation. The sociological poll, carried out among managers of Irkutsk enterprises, also proves the high level of uncertainty of the labour market. Every other respondent avoided an answer to the questions: “What specialists are today in demand at the labour market?”, “What specialists will be required through 5 years?”. Reason – instability of economy and uncertainty of the further development of enterprise.

So uncertainty is too great to be neglect. In conditions of such uncertainty the horizon of forecast is not great, and labour market is very sensitive to external influences. The extrapolation of the revealed trends for the future hardly can be considered as a reliable method of forecasting. In this case even small or casual external influences could bring to significant changes.

³ Magaril S. Civil Responsibility of Intelligentsia // Socis. – 2001. – N2. – P. 53.

In the situation of instability the problem of choice becomes particularly actual. According to the last year data of the Russian Centre for Public Opinion and Market Research the rates of those who are in favour and against reforms are nearly equal. Difference is less than 4%. However about 40% of people have no opinion about the future of market reforms⁴. This indicates that the society is at a loss in respect of the future of Russian economy.

METHODS OF LABOUR MARKET ANALYSIS

Over the past decade investigators in Russia have faced some problems, namely:

- interpretation of statistical data under the conditions of rapid changes;
- different consequences of the same reason;
- lack of valid information, lack of transparency of labour market;
- substantial errors of forecasting.

For example, economic forecasting of the Ministry of Economy exceeds real variables in 1992 in 2-10 times. In fact, today forecasting of labour market is based on classical methods of labour resources balance. This method works well in stable situation. But in the situation of instability, lack of valid information this reliable method becomes ineffective. Similarly, attempts to extrapolate the revealed trends for the future also lead to unfaithful conclusions. As a result, the majority of economic and social problems in Russia were unexpected. Moreover, many socio-economic parameters have felt below the critical values. The consequences

⁴ Rivkina R.V. What are the Possible Variants of the Future // Social Sciences and Contemporaneity. – 2001. – N1.

of such changes lead not only to the quantitative fluctuations but to the qualitatively new trends of development.

The idea of looking for a compromise solution to these problems has been debated in literature. Non-linear mathematical simulation could be considered as an example of such alternative method of research. The results of mathematical simulation in this case could reveal the consequences that are out of our common logic. This method seems more suitable for the investigation of complex systems under the conditions of uncertainty and instability.

THE MODELLING STRATEGY

Within the framework of this paper the concept specialist implies those employees who have higher education. As an example of non-linear mathematical modelling, the model of economic impact of higher education system could be considered. These model was suggested by the Keldysh Institute of Applied Mathematics (Moscow), Russian Academy of Sciences (Kapitza & Kurdyumov & Malinetskii, 1997). While modelling, the idea that the complex system has relatively small number of parameters (order parameters) that determine its evolution was taken for granted. This proposition made it possible to simplify mathematical formalisation of the dynamics of complex system that depends on infinite number of parameters. So, the only three factors were taken into consideration:

- ⇒ X – production;
- ⇒ R – volume of accessible resources;
- ⇒ A – intellectual resources.

Some results of this simulation are schematically presented below (See Figs. 1 and 2). The first case describes the situation with insufficient production and scientific base but large amount of natural resources (See Fig. 1). At the first time

the production is growing rapidly. It exceeds approximately in 30 times for the 30 years. But intellectual resources are not being used effectively. As a result, the growing production leads to exhausting of natural resources. One can see collapse of production when parameter R becomes less than some critical value. Then the volume of production reduces in 5 times over 5 years and stabilises at the level of reproducible resources.

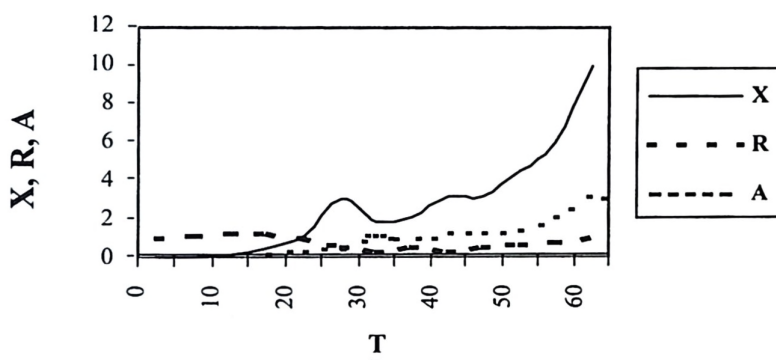


Figure 1 – Dynamics of production quantity (R), volume of natural resources and scientific potential, when economy is unreceptive to innovation. Finally, economy stabilises at the level of reproducible resources.

Healthy increase of parameter A leads to another stable situation in future, when natural resources are exhausted. After the period of digression, production rebuilds rapidly and stabilises at the steady grows trend. The fact is that the interchange of the main resources of economic development occurred. The further economic growth is provided by intellectual sphere (See Fig. 2).

Computer experiments with the model makes it possible to reveal the qualitatively different regimes of development and to predict the bifurcation points – the moments, when the system changes its regime of evolution. It shows when it is possible to change the process of development and when the situation becomes

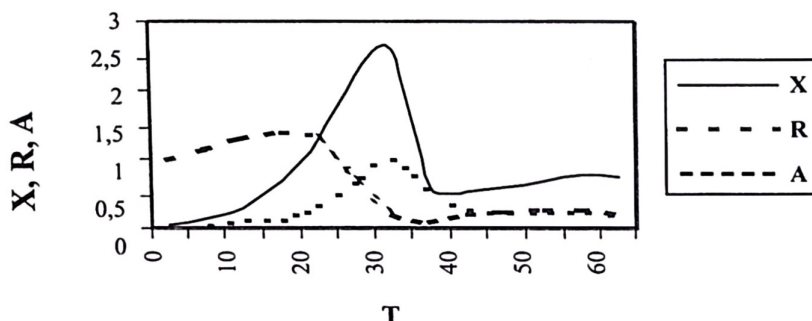
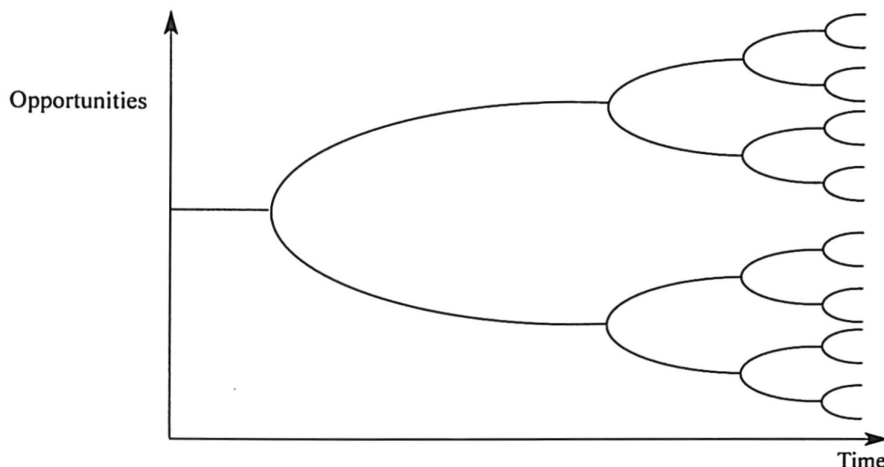


Figure 2.—Increase in innovation leads to the interchange of the main resources of economic development when natural resources are exhausted. The further economic growth is provided by intellectual sphere.

irreversible. It also permits us to evaluate the consequences of parameter changes. And finally, it allows us to see the invisible scenarios of development. The non-linear modelling seems to be reasonable economic analysis because economic development involves changes not only in the level of various variables but in an economy's structure, that is, changes in the way the economy works.

SYNERGETIC APPROACH TO THE DEVELOPMENT

The initial statement for the analysis of complex systems is that they have different ways of evolution. There are many forms of future organisation (named as attractors) and the set of possible ways to the future (basin of attraction). As a consequence, the final stable goal of the development of complex system is replaced by the tree of opportunities (See Fig. 3).



From a synergetic point of view, the process of development is not a planned movement to the purpose, but an iterative process, at each stage of which the choice, determining the way of further development, is executed.

In short, the development of social system as a non-linear system passes two stages: evolutionary stage and bifurcation. A distinctive feature of the evolutionary stage is the constancy of system quality. This is the period with well-predicted linear changes. But just here the increase of internal non-equilibrium occurs. It is felt as an approach of crisis. The system comes to the point of bifurcation. At this point the evolutionary path of the system is branched out. A synergistic minded economist would evaluate present decision not by comparing present and previous states, but by comparing current state with probable situation under alternative ways of development. So, the future can be seen as the space of opportunities, and present – as an intensive process of choice.

EVOLUTIONARY DEVELOPMENT OF LABOUR MARKET

As it was stated above, the characteristic features of labour market of specialists in Russia now are instability and uncertainty. As a complex system labour market is at the point of bifurcation. At present the idea of evolutionary development is very popular in Russia. However the standpoints what must be a push for leaving this point of bifurcation differ very much. It would be soft economic, cultural mechanisms, but it would be rigid political methods.

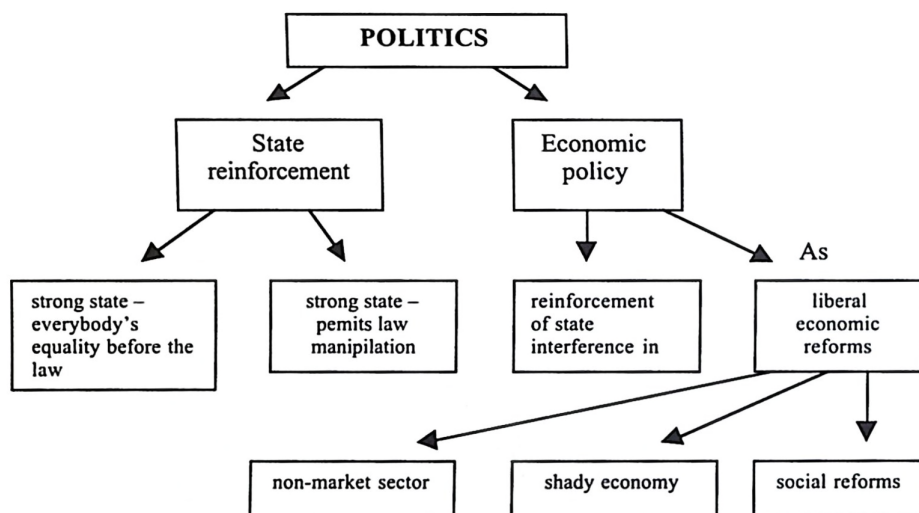


Figure 4 – Variants of political choice in Russia

As to the political influences, it should be noted that political power in Russia traditionally was determinative. Today this tree of possibilities is considered by Russian specialists (See Fig. 4) ⁵.

⁵ Iasin E. New Epoch, Old Worries // Questions of Economics, 2001. – N1.

The choice of one or another way in the point of bifurcation depends on the activity of a concrete person. Choice of the President Putin would be determinative. What potential possibilities available today would be in demand in future depends on this choice. It also determines the spectrum of possibilities for self-realisation that will open before each specialist. So far the spectrum of possibilities was very narrow. Under the socialism there were largely two possibilities: full conformity with the state will or social rejection. In the last ten years under the conditions of formation of market relations, in general, there were also two alternatives, because of severe conditions of physical survival as is clear from social-demographic statistics. Will Russian labour market of specialists have more alternatives, to a large extent, depends on the forthcoming choice of President.

Undoubtedly, economical, cultural, educational influences as the drivers of economic development are more preferable than rigid political methods. They could give more possibilities for economic self-organisation and sustainable development.

As mentioned previously, synergetic management implies the transition from one qualitative state to another that better corresponds to the managerial goals. According to synergetics it is possible to change the attractor (future) transforming the basin of attraction (social environment). In other words, the future is probabilistic and it is not unique. At the same time it can not be "anything". The task of the state government in the situation of instability is to try to save the system stability and at the same time to stimulate the search for new alternatives. Management based on the principle "the stronger the managing efforts the better the result" suits the systems being in the equilibrium state. If the system is in situation of instability it complies with another laws, the laws of non-linear dynamics. In non-linear systems the phenomena, known as resonance, is possible. It means that even slight resonance influence has more effects than strong impacts that is inconsistent

with the whole system. In other words, managerial solutions should be aimed not at the resonance with the outmoded traditions. It should be aimed at the stimulation of new social forces activity, new principles of organisation, new values that provide the evolution of the society in the changed world.

So, labour market formation should be implemented on the basis of the spectrum of possibilities, opening before the country at a given historical moment. Transformation of existing intellectual potential in accordance with the image of future is expected to be done not by rigid management with defined purposes, but by shaping the new canons in the evaluation of intellectual resources. In turn, according to the synergetic methodology, small influences in science, education could influence upon the social evolution more strong, than strong, but not co-ordinated with the system, influences.

At least, two things are very important: choice of the variant of future economic development and managerial policy. Unfortunately, for many times Russia faced the situation when the chosen goals were not achieved. Moreover, the result of economic development was directly the opposite to one envisaged. Maybe, it is because these goals could not be achieved in principle, or because the chosen way of development could not lead to such goals.

Mathematical modelling makes it possible to experiment with the model, not with the real system. This idea has been already formulated as scientific problem. For example, one of the last research projects of the Keldysh Institute of Applied Mathematics, Russian Academy of Sciences, is devoted to the finding of the order parameters – a set of quantities which determine the social dynamics and its stability. These will offer the way to evaluate the possibilities to affect social evolution through small controlling actions – minor changes in educational, scientific, information technologies and related politics. Development of this approach is of great importance for Russia, which is now in a transition state, when non-traditional strategies are of particular value.

In addition, to make the process of economic evolution sustainable, the transformations in organisations and management should take place [Merry, 1995]. Novel forms of organisation, different organisational cultures and new ways of leadership should be developed. These changes imply, at least, the following transformations:

- ⇒ from rigid structures to changing structures;
- ⇒ from one right way of organising to many varied forms of organisation;
- ⇒ from competitiveness or co-operation to new combinations of both;
- ⇒ from a control dominator approach to a self-organising approach;
- ⇒ from always maintaining linear order to knowing when to encourage fluctuations and transformations;
- ⇒ from preserving regularity and certainty to encouraging non-linear forms of creativity and novelty;
- ⇒ from striving to maintain linear stability to functioning at the edge of chaos;
- ⇒ from strategic planning to evolutionary system design;
- ⇒ from striving to attain objectives and goals to creating an evolutionary vision of the future;
- ⇒ from focusing on economic competence to focusing on evolutionary competence.

RUSSIAN LABOUR MARKET AND LABOUR MARKET IN EUROPEAN COUNTRIES

The fact is that the system changes problems to a great or lesser extent are actual to all countries. Today there are some tendencies at world labour market that qualitatively change the classical concepts of employment, occupation, wealth,

etc. New forms of work (e.g. temporary work, unpaid work, voluntary work, self-employment) makes the situation at labour market more flexible, but at the same time more complex and unstable. The impact of new patterns of work shifts the boundaries between work and private life and generate new social problems.

The old approach to find the optimal way of development seems to be fruitless. In the situation when there are many variants of development, maybe, it would be more reasonable to analyse different scenarios and to look for sustainable way of evolution. There is a general feeling that the industrial era has reached a point where it is no longer sustainable. A number of major areas of life, including labour market, are fluctuating near their bifurcation points. These areas are in need of a transformative qualitative change as they have reached the limits of their present form. Perhaps, it is the historical moment when humanity for the first time in its evolution can be aware of evolution and can guide itself into the future.

No doubt, that we are living in a world that is becoming more and more complex. And it is increasingly difficult to cope with a world that daily

becomes more complex and uncertain. Despite of many specific differences, one thing is clear that the situation at labour market both in Russia and European countries is increasingly turbulent. All this leads to the same question of how people will be able to live in such a changing world and what possibilities are open to them under these complex conditions.

Generally speaking, the serious problem of our days is the threat of society atomisation that comes from the new relationship between independence of individuals and societies and integrity of society in whole. In such a situation the role of values and ethical preferences is of special importance. To some extent, they play the same role in social self-organisation as physical laws in nature.

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