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TO THE INSTITUTIONAL THEORY OF ECONOMIC GROWTH: PROBLEM OF MACRODISFUNCTION AND MONETARY RANGE.

Introduction

The article contains theoretical attempt to understand the modern economic growth processes, proceeding from the generalization of the institutional problems of economic systems transformation. In this article the concept of macroeconomic disfunction and monetary range of the institute function is developed and some principles of the institutional theory of economic growth and features of such a growth are concluded and settled according to this concept.

The used term "disfunction" is borrowed from biology and means a breach, functional disorder of any organ, system, mainly of qualitative character.

With the help of the quantitative estimation of the institutional changes potential, the description of economic development tendencies according to degree of aggregational disfunction of economic system is given in the article.

The trends of subsequent investigation of economic growth problems are concluded in the article according to the institutional and evolutional macroeconomics positions.

An important issue in the modern economic knowledge is "evaluation" of institutions, i.e. assessment of their efficiency. Economic systems and institutions tend to change or lose their qualitative characteristics with time. Why does this happen and, more important, what can be done to trace deterioration in system/institution quality (efficiency)? This issue acquires special importance in the time of controlled institutional modifications, reorganisation of Russian economy, when new rules affecting agent behaviour and dictating his choice of resources, products and technologies, come into play in the economic process. In the long run, it is the rules of behaviour and technological routines that influence competitiveness and economic development on the whole. It is important to understand that rivalry extends not only to products, technologies, information, companies and countries, but to individual institutions as well, i.e. the rules responsible for efficient – or inefficient – organization of economic life. Old and new (offered to society by certain political forces) institutions are also in competition with one another. These processes directly affect the economic development trends, but the relationship has been poorly studied in modern literature and there is a limited number of methodologies which can be used to evaluate the quality (efficiency)

of particular institutions or assess effectiveness of institution replacement. The North-Thomas[1] approach to determination of cross-sector behaviour of an economic system is based on the proportion of transaction and transformation expenses. However, this approach addresses neither assessment of the institutional structure nor the quality of institutions and loss of qualitative (efficiency) properties – the things that are discussed in this paper.

The author has tried to demonstrate application of the use value technique for evaluation of the quality (efficiency) of newly adopted institutions. Surely, this is an analytical approach based on expert assessment, which is, however, both its merit and shortcoming, especially considering that there are no precise models in this field; moreover, they can hardly exist at all.

The problem of institutional efficiency is discussed here as a problem of system quality, and institution is treated as a product created because it is needed.

1. THE CONCEPT OF MACROECONOMIC DISFUNCTION

Under institutes we shall further mean formed by the society rules and/or their structures which determine economic mechanism setting up, order of economic agents and organizations activities. Accepted by the economic theory instruments and models are also included in the mentioned above institutes, according to which the decisions at different levels of economic management are taken, among them: the rules of pricing, taxation, firm entry into some industry and leaving it, determination of amortization assignments, preferential crediting, antimonopoly regulation, declaration of bankruptcy, property possession, social insurance and extra charge of pension, placing in a job and dismissal, appeal to court and making contracts, applied methods of macro-economic regulation, etc.

The institutes are characterized by the following number of main parameters:

1) purpose of existence (purpose of the rules involved);
2) sphere of application;
3) functional filling;
4) period of time before changing;
5) functioning costs;
6) degree of reception or rejection of the introduced rule;
7) resistance to mutation (degree of the institute resistance to its transformation to any other form).

Change of one of these seven parameters of a functioning institute can have serious macroeconomic consequences for the economic system on the

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[1] D. North, R. Thomas. The Rise of the Western World. Cambridge University Press, 1973.

whole. It's known in the institutional economics that even inefficient norm can function very well. The examples of this phenomenon are non-payments, barter, corruption, tax evasion, investment crisis, vicious circle "inflation – devaluation". The presence of such phenomena indicates of economy disfunction to some extent. These processes can appear independently of each other or simultaneously. Non-payments usually result in barter (as in the Russian economy) and high taxes result in evasion of payment. Alongside with that, low level of income per capita, delay in payment of wages and barter as well as complexity of taxation and taxes themselves result in decrease of tax collection. Introduction of new institutes or prolongation of operation of old ones which interact with new ones often intensifies negative influence on the economy.

We consider a macroeconomic disfunction as a disbalanced dynamic state of economic system in which all the main parameters of the institutional elements of this system experience the loss of quality. Macroeconomic disfunction is a rare result of institutional dynamic when decreasing functional efficiency of institutes self-intensifies to such an extent that substitution of one or several institutional establishments determines nothing in the development of the economic system. It represents the lowest point of adaptive efficiency itself. (see the table 1).

Table 1.

The efficiency parameters of the functionating institutes.

N	Characteristic of institute	Adaptive efficiency (upper point)	Macroeconomic disfunction (lower point of adaptive efficiency)
1.	Purpose of existence	Specified and long-dated, interacted with other purposes	Uncertain and momentary with subordinated or forced meaning
2.	Sphere of application	Stable	Unstable
3.	Functional filling	High functional potential with certain set of functions	Functional potential is low or decreasing, set of functions varies spontaneously
4.	Period of time before change	Considerable	Short or permanent change
5.	Costs of action	Acceptable, relatively low	Unacceptably high
6.	Degree of scop	Low	High
7.	Resistance to mutation	High	Low

The adaptive efficiency in contrast to allocative efficiency represents the efficiency of the operational rules influencing the development of the economic system in the course of time. If at the upper point of adaptive efficiency, according to our concept, the purpose of existence of the institute is specified and long-dated, interacted with other purposes, sphere of application is stable, functional filling is high under certain set of functions, period of time before the change of the norm is considerable, the costs of action are acceptable and

relatively not high, degree of seizure is low, resistance to any accidental change (mutation) is high so for the macroeconomic disfunction or lower point of adaptive efficiency all the enumerated parameters have directly opposite meaning.

In fact adaptive efficiency characterizes the ability of society to learn, to stimulate innovations, to counteract risks and readiness for solving the occurring problems which impede the development. But in our opinion it may become possible only when allocative efficiency is achieved, i.e. we can't speak about increasing till industrial factors are used uneffectively, though it is necessary to understand, that the established rules and the operational social rules greatly determine the opportunity of allocation and its efficiency.

When the situation of macroeconomic disfunction occurs, some cardinal changes in the law area of economic interactions are required with the purpose of finding some principally new combination of economic and law order and economic policy measures.

In order to reach any aim, to fulfil certain function, to maintain institutes sphere of action – some money resources are needed. The required amount of money and its efficient application depend on the necessity of money and transformational opportunities of the institute or economic agent. Monetary range includes these opportunities, falling down below the certain point means the arising of the disfunction (decreasing the quality to some extent), the deviation to the left from the lower limit means the beginnings of the social institute macrodisfunction accompanying by the appearance of the deviational forms of economic agent behaviour (Fig.1). The achievement of the range upper limit is not good for every institutional complex (as it results in the necessity of some additional rules). So, for the institutional structures which make the substantional contribution to the acceleration of inflation the achievement of the monetary range upper limit means the increasing of the price growth rates.

<pre>
min r₁   r(t); M(t)   r₂ max
M₁ ─── M₂
</pre>

Fig.1. Parameters of monetary range.

Monetary mass M (t) and the quantity of monetary income of the j-institute per unit of the consumed monetary mass per unit of time – r(t) are changed within the monetary range limits. Besides, it is necessary to understand that in the course of time, the output which determines the process of transformation is changed according to the law of saturation, i.e. it can be described by the logistic function. The quantity of r (t)=F(M(t)) depends on the incoming monetary mass. Mathematically it may be expressed in the following way:

$$\frac{dr}{dt} = \alpha_r (r - r_1)(r_2 - r), \quad \frac{dM}{dt} = \alpha_m (M - M_1)(M_2 - M), \quad \frac{dr}{dM} = \alpha_1 M^{\alpha 2}(r - k_1)(k_2 - r) \quad (1)$$

Solution of the last expression is : $r(M) = k_1 + \dfrac{(k_2 - k_1)G(M)}{\eta + G(M)}$,

where $\quad \alpha_r, \alpha_m, \alpha_1, \alpha_2 > 0$; $k_2 > k_1 > 0$ and η is the arbitrary positive constant, $G(M) = \exp[(k_2 - k_1)\alpha_1 M^{\alpha 2 + 1}/\alpha_2]$.

Monetary mass M means real money, i.e. the relation of any current index of monetary mass to the price level, for example $M = M_2/P$ (where M_2 is a monetary aggregation).

At the institute functioning or at the process of its disfunctioning the parameter r(t) in the space of time $[t_0, t_1]$ may be changed not only according to the logistic regularity. Different institutes and organisations experience different character of r(t) changing in economics. But institutional structure on the whole must ensure the highest possible increase of national income. Hence, task of optimization is formulated by the following way:

$r_j(t) = V_j(t)/x_j(t)$ and $\quad M_2 = \displaystyle\sum_{j=1}^{N} x_j$

(N – a number of institutional subsystems, M_2 – monetary mass in the economics), where $x_j(t)$ – volume of the monetary mass consumed by the institute or organisation form in the equal time intervals.

Three important conclusions may be formulated according to the carried out analysis:

1. Every institutional subsystem has its own monetary range, the limits of which are determined by a number of factors depending on the state of other institutes. So there are some problems connected with the calculation of r_1, r_2, M_1, M_2 parameters. If you single out the basis institutional structures, it will become possible to establish acceptable ranges of changing of mentioned above values by the estimation methods.

2. The emergence of new institutes demands the growth of monetary mass or speedup of money turnover without such currency issue as the institutes must fulfil the assigned functions which is not possible without monetary support. Hence, there appear the requirement for the work of bank system and other financial organisations responsible for the transference of money in the economics.

3. Logistic function describes the processes of economic dynamics occurring not only in a long period of time, but in a short one because many economic phenomena increased their speed abruptly for the last two decades owing to the emergence of new high technology-communication systems and it reduced the duration of the saturation effect itself.

There can be no doubt that the efficiency coefficient r(t) and monetary support drop up to the bottom limit of monetary range (min) results in the emergence of the opportunist models of economic agents behaviour as they stop to take the institutes as quality standards which are to be kept and begin to develop their own models of behaviour going out the sphere of official rules action.

Analysis from the points of macrodisfunction and monetary range allows to determine the common reasons of the lowering of economics quality, its functional potential, the development of crisis (slump) occurence and to formulate some offers and to estimate the possibilities of negative tendencies overcoming.

The ideal state of economics like Pareto-efficiency state or the conditions of maximal economic efficiency (equilibrium state) investigated in the works of marginalists is achieved under the condition of monetary support of every available and recently appeared social institute. As soon as economic policy provokes the creation of new institutes being directed to the monetary mass decreasing and money turnover braking – the effect of "contraction" of the quality parameters of these just created institutes takes place as he monetary support is not sufficient for their effective actions. If economics needs some institute greatly but is unable to provide the monetary support for its efficient work, it means that the economy gets no benefit independently of whether the institute is created or not. The problem comes to the detection of disproportions in the monetary range of different institutional subsystems of economics.

According to the concept of macrodisfunction the institutional expansion which takes a long period of time under ordinary conditions cannot be accompanied in no circumstances by the restrictive policy at the same interval. If the government carries out institutional transformation at a short time interval, it's necessary to put a question about bringing all the standard measures of macroeconomic policy in conformity with tasks of such transformations. At the same time new institutes must not do damage to the monetary support of other forms of economic organisation which have been existed before their occurence and play a very important role in the economy – so they cannot be removed. In case of breaking the bottom limit of monetary range the disfunction of such institutes takes place with evident consequences for the economics.

Consequently, at carrying of the institutional modifications it is necessary to ensure the other forms functioning within the monetary range limits, i.e. to maintain the stable functioning with flexible efficiency sufficient for the prevention of the development of deviation models of behaviour, disfunctions. As a matter of fact we speak about institutional homeostasis phenomena. Going out of the limits of homeostatic interval means the macrodisfunction for macroeconomics, the overcoming of which (or to be more exact the preventing) is the primary task of the government and the real problem of the economic policy. There are many questions of this aspect, concerning the development of system indices, indicators, standards according to which you may identify the beginning of macrodisfunction, statistic data accuracy, aggregation, etc.

Without these data, the present concept has the chance of being only the substantial analytical construction as the most concepts of the institutional theory representatives. Certainly, it is difficult to measure the quantity of monetary range for every institutional subsystem, but it is possible to estimate according to M_2 parameter changes and to measure the dynamics of transaction costs. Besides, the process of aim changing and functional diversity must be

described quantitatively. The implementation of such a research programme will permit to understand the dynamics of the current economic changes.

The macroeconomic disfuncion may be overcome by means of the appropriate improvements in the state management of economy. And it means that it is necessary to increase the load on the state segment, to improve the efficiency in the management of public property, to make the public and private investments more active, to intensify the participation of governmental structures in economic processes regulation.

The development and realization of the corresponding measures of economic policy, for example, industrial and investment, demands to take preliminary decisions in two directions.

The first. It is necessary to decide what standards you must follow at the development of proposed measures and to evaluate the variety of variants following these standards and ex ante arrangements.

The second. What criteria you must choose in selection one or several variants. The problem is that you may get an overstating efficiency of the measures of industrial policy even with strong criteria and it will not be adequate for the economics with appropriate system quality represented as macroeconomic disfunction.

Probably, it's necessary to look for the way out in incremental adjustment of changeable variants of economic policy to the rise (fall) of the efficiency of functioning of the economic forms working at every step of the economic dynamics.

2. ECONOMIC GROWTH AND ECONOMIC POLICY

Economic policy at any time and in any country has always been one of the main factors of the economic development but it had no proper reflection in the economic modeling. Of course, the leading part in the ensuring of the economic growth is played by the resource potential, access to the information - knowledge and technologies, national and cultural peculiarities, historical regularities of the development of some particular community, international relations, scale of economics – its share in the world economy, etc. But what is really important is what policy is chosen of all the possible variants proceeding from the formed structure of limitations and carried out by the government. This economic policy, in combination with objective tendencies of development of the economy and set of limitations, may favour or prevent the economic growth and stimulate stability or instability. The last characteristics of economic policy are not developed by the economic theory even in reference to the highly developed western democracies.

The influence of the economic policy on the development of the economy under conditions of reforming economy of the former socialist countries is very uncertain. For example, under conditions of transition from centralized planning

to decentralized market economy, the periodic fluctuations should occur, that was not typical for the former economics organization, when producers had no interests connected with private property and there were no markets of free capital movement. But at what moment the state of the macroeconomic disfunction will be overcome and Russian economics will enter a capitalist cycle of full value is still uncertain. For going out of the economic disfunction one kind of economic policy is needed and the entrance into the cycle requires elements of the anticyclic policy though the macrodisfunction as a special state of the economic system may be viewed as an intermediate result of the cyclic process.

Accuracy of the estimation of the pointed moment will determine the flexibility and the adequacy of the economic policy and its consequences for the development of the national economy. It's necessary to mention that the economic policy of the transformation of national economy influences not only the process of transformation itself but determines future conditions and opportunities of the economic growth. It raises the level of requirements to the right choice of the instruments of the state policy. As far as economic policy, introduced by the government, includes a great number of different measures, the problem of the political choice and efficiency of the economic policy becomes very important. In the present context two questions arise: the first concerns the theoretical foundation of the economic policy and its interaction with economic growth and instability; the second deals with neoclassic explanation of the economic growth and opportunities of the institutional theory as well as with the consideration of the economic growth from the position of the macroeconomic disfunction concept.

The ascending development of the economics of the different countries of the world considers as the usual thing. Though during the crisis, not changing the long-term trend, the discussion is intensified concerning the opportunities for the economic growth supplying; the limiting factors which determine the definite rate of the economic development and economic policy of growth. In fact, we speak about the problem of the influence of the current political decisions on the economic indices in the nearest and remote future.

Undoubtedly, the factor basis of the economic growth is created by the institutional structures because they determine the coefficients $r_j(t)$, which are the institutional multipliers that characterize the transformational function of the current and changing rules. There are some investigations that confirm strong influence of the political structures on the economic growth rates. Open economies possessing pluralistic systems grow 3 times faster than societies without such political institutes, besides, the first ones are 2,5 times more efficient[2]. Though it is difficult to speak about the adequacy of such investigations and the reliability of the conclusions. It is evident, that not all possible effects are taken into consideration and above all – the historical conditions, that results in the overestimations. Though we must also take into

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[2] Scully G.W. The Institutional Framework and Economic Development / Journal of Political Economy, June, 1988, p. 651-653.

account the mentioned above factors because the Solow model gives rather a distored picture of the economic growth and the processes of growth in the course of the economic transformation (the transition from centralized to the market economy) – cannot be explained by this model up to the whole.

The most adequate theoretical explanation of the problems of transformation and economic growth was given by North D. and Thomas R., who singled out the technology and legislation of the proprietary rights institute as the main factors of growth. The effective economy organization results in adjusted functioning of all the institutional structures that ensures the proprietary rights and determines the incentives of individual preferences realization, resulting in drawing nearer of social and individual interests[3].

Their conclusions concerning the efficiency of the institutional structures and the incentives may be connected exclusively with the explanation of the initial point of the economic growth trajectory, rather with the right determination of the trajectory vector direction, but not of the growth itself, which is being under the influence of versatile factors and demonstrates the different dynamics at different historical intervals.

It is important to mention, that no separately chosen institute can completely determine the characteristics of the economic growth, because on the one hand it is correlated with and dependent on many other institutes and on the other hand it changes in the course of time and affects the growth indices. The economic growth is identified according to the changes of certain parameters, consequently, if we want to state that certain institute determines the growth, we should establish the influence of the institute changes on the change of the mentioned parameters.

According to the existent theoretical concept in the slump conditions the investment process is reduced, because the primary expectations of successful realization of these or those projects don't come true. It's considered that accumulation of some new ideas, technological and scientific knowledge, inventions take place in the lower point of the descending branch of the economic cycle which create the basis for a new rise. But the state of the Russian economy calls in question this point of view.

Firstly, the crisis results in the economic activity decrease, the unemployment increase; releasing of power and the growth of necessity to satisfy the primary needs.

Secondly, the efficiency of the economy decreases as well as of the institutes responsible for the innovations.

That's why in any case this stream in the phase of depression decreases, in addition to it, it is dynamically uninterrupted. If we don't admit that innovations are concentrated in the phase of depression, it is difficult to explain the ascending wave; and if we don't admit its concentrations in the extreme point of the raising phase it would be impossible to explain the descending wave of the economic cycle. The Russian economics of the 90-s of the XX century

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[3] North D., Thomas R. The Rise of the Western World. - Cambridge University Press, 1973. – P. 1-2.

displayed the decreasing tendency accompanied by decrease of innovations, cutting of the scientific schools and intellectual activity, reduction of investment – so no concentration of innovations took place.

The notion "concentration of innovations" is interesting because in the course of the slump developing and increasing the numbers of unprofitable enterprises, the share of innovations per unit of manufactured product really increases as the production decreases. It happens in the well-known classical variant of depression development, but under the modern conditions the stagnation assumes the state of the economic growth rate deceleration. For all this the quantity of innovations doesn't increase and even decrease slightly. Under the conditions of the crisis the demand of knowledge and skills decreases greatly, especialy in spheres of long-range researches, characterized by permanent recoupment and a great part of the state participation (the investments in research – and – development engineering and fundamental investigations).

When the effect of hysteresis which doesn't touch the innovation sphere comes into action, the general institutional conditions favouring the realization of innovations and investments are created, so that on a certain segment of the ascending wave the innovations, founding no implementation because of the crisis, are used and involve new ideas appearing before and at the moment of depression. This segment symbolizes the stage of the restoration economic growth, when economy is returning to the former norm. And at this stage it is important to provide the required level of investments, for example I_0, supporting the critical mass of innovations and overcoming of the investment trap (Fig.2).   Those innovation projects which are characterized by the greatest size of r_j will be realized in the period of crisis in the first place.
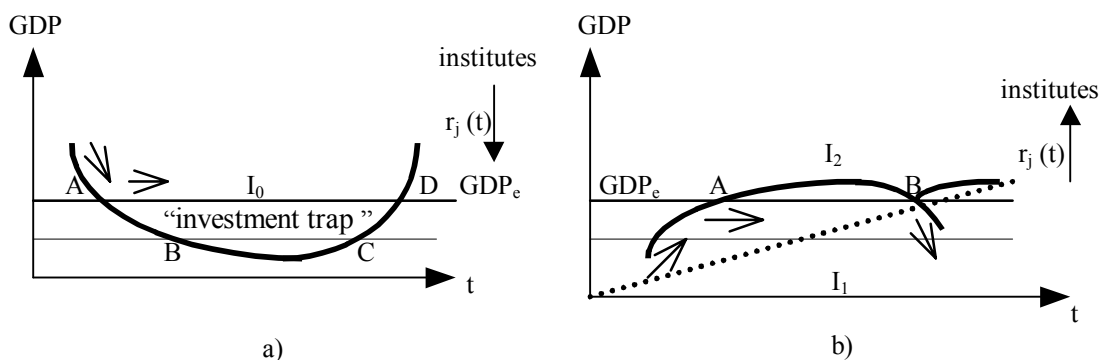

Fig. 2. The institutional explanation of the economic growth.

For the economic system at some moment of time t_0 the manufactured gross domestic product (GDP) may be beyond or beneath of the level expected by the government and the citizens of the country. Such a result appears at the institute disfunctions decreasing or increasing or when the macrodisfunction of the basic institutes – responsible for the functioning of the vital important spheres of the economic system – occurs. If at the initial point GDP>GDP_e and under the influence of different causes it is unpremeditatedly reduced or the rate

of the growth is slowing down (Fig. 2., a), so then the economy may get into investment trap ABCD for going out of which the volume of investments I_0 is needed, or at the point A the quantity of investment much less than I_0 will be wanted for the stabilization of the situation at the expected level AD. When such a stabilization is possible the size of GDP is determined by the investment change in the segment up to the point A and the institutional structure of the economy. If at the initial point GDP<GDP_e so the situation arises when the barrier AB is impossible to overcome at the investment level I_1. With the less volumes of investment the economy will not be able to reach the barrier AB, consequently going into the trap (Fig.2., b). For going out of the trap the quantity of the investment will be required when $I_2 > I_1$ and that must be provided either at the point A (that is rather difficult to do in a short period of time) or at the point B, only after passing the distance AB for not to get into a trap again.

The classification of investments results in the following:

I_0 – the investments of "break" of the economic growth (or mobilizationing strategy of the economic development);

I_1 – the investments for maintenance of the economy competitiveness;

I_2 – the investments of "the final jump" – going into the economic growth path.

The quantity of the investments less than I_1 may be called "investments of stagnation" which ensure some renewal of the basic capital though not sufficient for the introduction of the modern technique and organisation of the qualitative economic growth based on the investments into the human capital. It's quite evident from the offered schemes that the size of investments I_0 can't be equal to I_2 because these investments are functionally different. The situation when $I_0 = I_1 + I_2$ is more possible but I_2 may exceed the size of I_0 because the volumes of the investments depend on the depth of the quality trap into which the economy gets. This depth in its turn is determined by the institutional factors. Investments I_0 permits to take advantage of the outside investment effects presence of which favours the acceleration of the long-term rate of the economic growth.

As the economic system on the whole may follow the absolute or limited rational model of development so it's also possible to speak about the model of absolute and limited rational economic growth. In the first case the great rates of growth are achieved with disregard of its quality problems and with orientation mainly on the qualitative purposes. In the second case the purposes of the economy are of greater importance, the rate is rather temperate and qualitative purposes prevail. According to the first model of growth, the institutes possessing greater size of r_j don't leave monetary resources for the less efficient institutes, which are characterized by the reduced multiplier r_j , i.e. their transformation function is weakened. But they are full and equal members of the institutional matrix of the economic system and are characterized by some social purpose that's why their dystrophy negatively affects the economics and results in distant period in the slowing down of the economic growth owing to the appearing disfunctions and increasing loses.

In conformity with the second model, the inefficiency of institutes is not removed because financial feeding is preserved. Alongside with it, a bit less of deviation forms of behaviour appear, economical expenditure of resources is carried out, no blanks in the institutional matrix occur and as a consequence no sharp gap in the relations between institutional structures takes place. Computer modeling suggesting the stability of monetary mass and institutional multiplier r_j provides us with general picture of the economic growth and its losses represented in Fig. 3. When the value of the expected GDP (growth domestic product) – Fig.3. at the left – is not large that corresponds to the low rates of growth, the size of loses according to the model of the limited rational growth is less than according to the model of the absolute rational growth, therefore the economic purposes are achieved by means of slow growth.
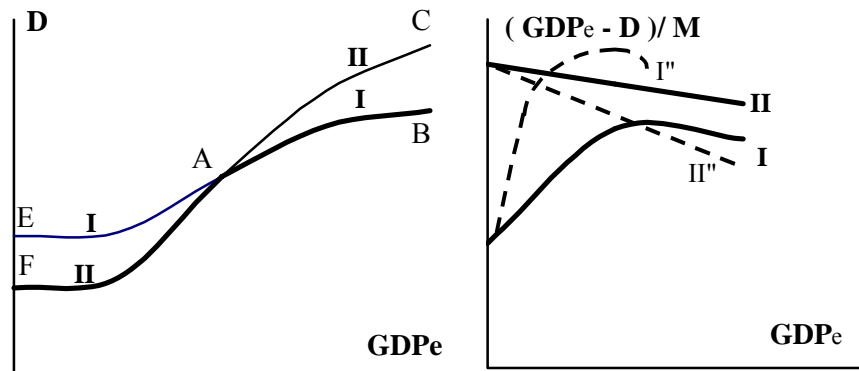

Fig.3. Dynamics of losses and relation of NNP (GDP$_e$ – D) to the monetary mass under the absolute (I) and limited (II) rational economic growth owing to the redistribution between institutional subsystems at stable M and rj .

The fast growth cannot last long – the growth enters the stage of the f losses saturation shown by the curve I-I. The slow growth is insidious because at the larger values of the expected GDP it ensures the greater values of the losses as the saturation effect is slurred over. It is profitable for the economy to take the FAB way, having changed one model of the growth to the other at the point A and having reduced its costs at the same value of the expected and realized GDP. The change of the development models means the institutional transformation through which practically all the economic systems go at different time. It is seen at the second part of Fig.3. (at the right) that the model of the absolute rational growth at the given monetary mass and the expected GDP secures lower level of NNP(net national product) in comparison with the second model. According to the second model the exceeding of GDP over the costs connected with its production constantly decreases; by the first model – the exceeding increases up to some point and then decreases, that exactly indicates of the institutes quiting at that point and increasing of the costs. Naturally, the given analytical conclusions are true for the institutional structures with unspecified parameters – r_j, the number of elements - N, monetary supply M and the time interval - T, used in the growth imitation.

It's impossible to exclude such an institutional system which would provide the combination of the curves I and II" or II and I". In the common case the aim of the economic policy of growth must turn into the provision of such a functioning of the existent institutional system and the introduction of new designed institutes at the time interval $[t_1, t_2]$ which would satisfy the following conditions:

$$Z(t) = GDP - D = \sum_{j=1}^{N} \mu_j x_j - x^T K x \rightarrow max \text{ with: } \sum_{j=1}^{N} x_j \leq M, \; x_j \geq 0, \; M_{1j} \leq x_j(t) \leq M_{2j},$$

$$\mu^T x \geq GDP_R, \; r_{1j} \leq r_j(t) \leq r_{2j}, \; r_j(t) = f(x_j(t)) = \frac{V_j}{x_j}, \; \mu_j = \frac{1}{T}\sum_{t=1}^{T} r_j(t). \tag{2}$$

It expresses that it's necessary to find a compromise between the policy of absolute and limited rational economic growth, the best result. It can be done by maximizing the difference between the fast growth of the national income and the costs accompanying its receipt presented by the function of dissipation. It is interesting from the point of view of the economic policy, what monetary support must have every j from N existing institutional subsystems, forming the basis of the economic growth.

In fact, the growth of these subsystems or, to be more precise, their multiplier r_j and monetary support x_j at permissible decrease of the given parameters for other institutes is the integral part not only of the dynamics of growth but its quality as well. Having received the picture of x_j and r_j, we'll possess the major information for the estimation of the political efficiency, different institutional confrontations, also we shall be able to draw conclusions concerning the depth of the disfunction of the concrete institute and economics on the whole. The further analysis in this direction provides with the possibilities of exploration the institute generation mechanism in the macroeconomics and the development of independent generations. Maximum of Z function will be reached, when:

$$\frac{dZ}{dt} = \sum_{j=1}^{N}[\frac{\partial \mu_j}{\partial t} x_j + \frac{\partial x_j}{\partial t} \mu_j] - \sum_{i=1}^{N}\sum_{j=1}^{N}\{\frac{\partial \sigma_{ij}^2}{\partial t} x_i x_j + \frac{\partial x_i}{\partial t} x_j \sigma_{ij}^2 + \frac{\partial x_j}{\partial t} x_i \sigma_{ij}^2\} = 0, \tag{3}$$

$$\text{and: } \frac{\partial \mu_j}{\partial t} = \frac{1}{T}\sum_{t=1}^{T} \frac{\partial r_j(t)}{\partial t}, \; \frac{\partial r_j}{\partial t} = \frac{\partial V_j}{\partial t}\frac{1}{x_j} - \frac{V_j}{x_j^2}\frac{\partial x_j}{\partial t}.$$

On inserting the values for μ_j and r_j into the expression (3), we'll have a system of N equations for N institutional subsystems. The quantity of x_j means the change of the monetary support of j-institute within the limits of monetary range. If the logistic character of x_j and r_j changes within the limits of range is confirmed empirically, so we should use an expression which describes the economic dynamics with the help of logistic functions and for the determination of the unknown coefficients – we should use the Lagrangian multiplier method and with collected statistic information – the method of the least squares. The

quantity $\dfrac{\partial V_j}{\partial t}$ enters into the system of equations (3) and represents the change of real income getting by j-structure of the institutes. The growth of this income is determined by the monetary support of the institutes, forming the system. So far as the monetary saturation directly depends on the economic policy and its organization structure, the difference between the monetary and fiscal policy comes to one point – what channel the monetary impulse goes through. The result of the growth process, especially of restoring one, which takes place in the crisis overcoming phase depends on how quickly the mentioned above channel can provide the saturation of monetary range of the corresponding economic institutes and on the expenses the economy undergoes because of the channel functioning. Consequently, for making the economic policy minimum efficient, the government is obliged to adjust the channels of transference and redistribution of monetary mass among the institutional structures.

Optimum monetary supply of institutional structures may be reached if we equate all the items of the expression (3) to zero but here appears the problem of the institutional choice. After that we may come to the appropriate institutional structure and distribution of monetary assets among monetary ranges.

A greater number of the efficient institutes appear rather in a period of economic growth, but not in a period of its decrease. What is the potential of institutional changes, which we have introduced before? It is worth suggesting that this potential includes three parts: firstly, the possibility of new institutes introduction with determined parameters of efficiency and a set of necessary functions; secondly, the reorganization of the former institutes for their productivity improvement; thirdly, spontaneous modifications of the old or the emergence of new institutes, meeting the society demands, improving, not destroying or reducing the basic social structures functioning. The economic growth is a macrophenomenon, measuring with the help of macroindices. Therefore it's quite logical to show the institutional changes as a function of the changes of general price level, employment, technological level of economics and of information potential (the quality of information signals passage). This function may be expressed by the following way:

$$dI = [\frac{\partial I}{\partial p}\frac{\partial p}{\partial t} + \frac{\partial I}{\partial L}\frac{\partial L}{\partial t} + \frac{\partial I}{\partial T}\frac{\partial T}{\partial t} + \frac{\partial I}{\partial i}\frac{\partial i}{\partial t}]\,dt; \qquad (4)$$

With $\dfrac{\partial p}{\partial t} = \dfrac{\partial p}{\partial Y}\dfrac{\partial Y}{\partial t}$ and for *L, T* and *i* by analogy, substitution in (3) gives:

$$dI = [\frac{\partial I}{\partial p}\frac{\partial p}{\partial Y} + \frac{\partial I}{\partial L}\frac{\partial L}{\partial Y} + \frac{\partial I}{\partial T}\frac{\partial T}{\partial Y} + \frac{\partial I}{\partial i}\frac{\partial i}{\partial Y}]\,\frac{\partial Y}{\partial t}\,dt\,,$$

where Y is gross domestic product, then:

$$\frac{dI}{dY} = \frac{\partial I}{\partial p}\frac{\partial p}{\partial Y} + \frac{\partial I}{\partial L}\frac{\partial L}{\partial Y} + \frac{\partial I}{\partial T}\frac{\partial T}{\partial Y} + \frac{\partial I}{\partial i}\frac{\partial i}{\partial Y} \qquad (5)$$

Expression (4) shows the change of GDP share, which is being spent for a period of time for the institutional changes realization. If we consider GDP to be

a social welfare (institute) and a state is doing its best to maximize the benefit from its creation, in this case the price level is calculated from Eq. (2) and depends on the increase of GDP and the rates of costs changes. Similar estimation is necessary for the determination of the employment level, technological opportunities and information potential.

Parameters $\frac{\partial I}{\partial p}, \frac{\partial I}{\partial L}, \frac{\partial I}{\partial T}, \frac{\partial I}{\partial i}$ characterize the relationship between new institutes or the modified ones and the price dynamics, their matching with the work of the existent labour market, technological structure of economy and their influence on the information passage from one agent to another. Correspondingly, $\frac{\partial p}{\partial t}, \frac{\partial L}{\partial t}, \frac{\partial T}{\partial t}, \frac{\partial i}{\partial t}$ are the values of price changes (inflation), employment, technological renewal and economic signals rates, a_i – weighty coefficients. The function I=F(p, L, T, i) is the institutional production function (by analogy with Cobb-Douglas). The planning of this function is rather a difficult task, assuming the merging of the following models: political-legal process, economic policy and changes of macroeconomic indicators. Proceeding from Eq.(3), the value of the institutional changes potential in the period $[t_1, t_2]$ assumes the following aspect:

$$I = \int_{t_1}^{t_2} [\frac{\partial I}{\partial p} \frac{\partial p}{\partial t} + \frac{\partial I}{\partial L} \frac{\partial L}{\partial t} + \frac{\partial I}{\partial T} \frac{\partial T}{\partial t} + \frac{\partial I}{\partial i} \frac{\partial i}{\partial t}] dt \qquad (6)$$

There is no use in maximizing the institutional potential, because the society with stable growth of economy needs deliberate change of rules and only when the crisis occurs or rates of growth become considerably slower the concentration of efforts in this direction may be required. However, such efforts will depend on the parameters of the crisis economy and the potential of institutional changes will correspond to the given economic state (Table 2). When I<0 the productive institutional changes are hardly possible. They can be directed only to the improvement of the appearing disfunctions and overcoming of macrodisfunction.

Table 2.

**Tendencies of economy development in accordance with
its institutional potential.**

I>0		I<0		I=0
$\frac{dI}{dt} > 0$	$\frac{dI}{dt} < 0$	$\frac{dI}{dt} > 0$	$\frac{dI}{dt} < 0$	$\frac{dI}{dt} = 0$
The economy with stable development	Retardation growth. Economics losses the mechanisms of disfunctions overcoming.	Critical mass of disfunctions with perspective of their overcoming.	Macrodisfunction stabilizing the economic retardation.	Transitional state. Instability.

So, the potential of institutional changes with the opportunities of economic transformations – introduction of institutes as social welfare but not the investment traps is expressed by the integral of the final sum of parameters (6). The mathematical formalization of the regularity of the monetary mass M(t) change may be designated as a function Z(t) , or mutatis mutandis, for example,

at iterative simulation of the growth process you may take Z(t) fo it. In this case the potential of the institutional changes will be determined by the rates of the increase of the pure product or to be more exact, by the structure of the monetary usage of the institutes producing NNP.

The institutional changes in a year t+1 will be determined by the changes of the price, employment, technological equipment, information potential, i.e. potential dI in a year t, as well as by the economic policy in a year t and t+1 and besides by the history of the economics development at semi period – from the latest crisis (decrease of growth rates) up to the rise. Here the cumulative effect is reflected. If we neglect it, then $dI_{t+1} = dI_t + \dfrac{\partial I}{\partial (EP)} \dfrac{\partial (EP)}{\partial t}$, where $\dfrac{\partial I}{\partial (EP)}$ is a change of the introduced institutes number depending on the transmission mechanism of the economic policy (EP), and $\dfrac{\partial (EP)}{\partial t}$ is an average speed of the government perturbation of the current rules structure.

The economy develops according to the method of groping, it means that the whole complex of decisions and ways of their optimal realization are being searched for. Therefore, the process of the mathematical formalization must represent the global process of optimization with permanent internal changing of the searching algorithm and purposes with uncertain concept of the extremum. The models of the artificial intellect satisfy it best of all.

Certainly, one of the main problems of the modern reforming economy is the problem of the economic growth organization combined with the solution of the main tasks of economic reconstruction. The problem of compatibility is the point of thorough theoretical investigations. One may state beforehand that a part of the growth energy is spent on the implementation of the institutional reforms, that's why the rate of the economic growth is likely to be lower than the expected ones. But in a long term period new institutes can create extremely favourable conditions for the next turn of the economic growth and social well-being. This problem troubles the governments of many countries, which intensify their efforts in investment of informational infrastructure forming the basis of the future economics more active. Economic growth of the most developing countries and even in periphery becomes informational as the peripheral social-economic areas are also being involved into the process of telecommunicational globalization which is the main source of the economic growth of this kind.

With economic growth based on the information technologies, the expenses of the business activities depend on the time spending on its implementation, the number of those who are engaged in this activities, the rate of signal passage and making bargains. Online economy reminds the centralized type more than the market economy according to Smith conception. Server as a communication net represents a center where the information is collected.

Online economy represents the complex of such centres by means of which it is being managed, the bargains and contracts are being made, the process of material welfare production is being carried out. The problem of

competition between these centres will turn in due time into one of the most important problems for the economic policy as well as for the economic theory which will have to discover new mechanism and to find the explanation of the informational economy distinctive features. Only some fundamental social laws will preserve their actuality in such type of economy. Consequently, it would be necessary to determine their place in new coordinate system of economic knowledge, in a new reality. It is especially interesting how they will harmonize with the appeared new effects and how it will affect the economic growth and its describing models.

As a result we formulate the main directions of the research efforts for the investigation of the modern economic growth problems:

a) establishment and optimization of the global connections with the help of online economy, resulting in structural changes and competitive zone characteristics;

b) change of social standards, spare time usage, virtual agreements contraction, corresponding decisions acceptance – the computer makes an individual more rational, - all that must be taken into consideration in the economic models;

c) determination of new methods of labour productivity increasing due to the informational component, changes of the corporation structure and resources and income distribution system, transformation of the structures with high expenses, important for the economy;

d) promotion of information technology investments as a factor increasing the economic growth, reducing unemployment and expansion of industrial potentials;

e) establishment of interaction of social institutes, information and technological changes, explanation of the economic growth according to the institutional concept of macrodisfunction and monetary range.

Following the directions mentioned above, the economists-theorists can greatly advance in understanding of the internal and external sources of the economic growth and closely approach to the discovery of the mysteries of its institutional nature.

3. EVOLUTION FEATURES
   OF "INNOVATOR-CONSERVATIVE" SYSTEM
   IN ECONOMIC POLICY

It is accepted in economic science to attach the utmost importance to "innovators" and accentuate the negative influence of "conservatives" on the economy development. This tradition goes back to Joseph A. Schumpeter and has penetrated through the logic of economic analysis so hard, that the following generations of economists, including modern representatives of mainstream and evolutionary economics have no doubts about such approach.

As it was mentioned above the orthodox economic theories does not give the profound explanation of the process of innovator emergence.

The evolutionary economics suggests such mechanism – evolutionary inflation   (Mayevsky V., Kazhdan M., 1998) by means of which the redistribution of resources between (macrogenerations) "conservatives" and "innovators" occurs. However, such decision results in the following problems.

First of all, the use of theoretical basis of evolutionary economics in such aspect leads to the differentiation in description of inflation as the macroeconomic phenomenon which is in evident conflict with cholistical approach to the economic processes (evolution). In particular, the inflation may be expressed as non-linear sum of the so-called evolutionary and non-evolutionary inflation, the latter has the destructive influence upon the economy and is solely connected supposedly with "conservatives" activities. At this, the evolutionary inflation and emission, provoking the inflation, become the mechanism for resources redistribution for "innovators" benefit at which the economic area of "conservatives" is being narrowed. Hence, the force of "economic self-expansion" is not taken into account when the emergence of new agents occurs not in consequence of "destruction" of "conservatives", but owing to technological development and exploiting resources base.

It is important there to consider three varieties of "conservatives" removal: because of "natural" aging and death, in the process of competition with other "conservatives" and "innovators". Besides, "innovator" can also sustain a defeat because of the greater activities of other "innovators". Therefore, from the theoretical stand point it is highly incorrectly to identify the evolutionary inflation with only "innovators" activities with admittance at the same time of the government expenses for the management of non-evolutionary inflation factor, because it is impossible to throw out the whole group of other agents from the economic evolution as well the government, which is nearly the central link of the evolution process. It is necessary to speak only about some range of price-level change that is the merit of "innovators" activities in the economy.

Secondly, all is not clear with the problem of "creative destruction", considered to be substantial ex ante. This circumstance depends again on the Schumpeterian approach to economic evolution which is the result of "innovators" and "conservatives" fighting. From my point of view, it is not quite correctly to consider that the innovators appear only in the phase of recession of GDP volume of business cycle, and only they provide the crisis overcoming and further economical growth.

In this case the following logical paradox arises. If the "innovators" in their activities, presenting the demands for the resources and pushing the prices up, destroy the economic chains of "conservatives" just provoking the recession of production (the idea of "creative destruction"), so the question arises: how and on what base in the phase of crisis they have succeeded to appear and owing to what sources they have managed to organize the growth of economy, if according to the idea of "creative destruction", this process occurs because of the lowering of economic activities of "the conservatives".

In the phase of settled crisis the activities of "conservative" – according to the theoretical approaches mentioned above, which are as if being provided with the model testing,- have been already reduced and for that reason it is not clear how significant is the reserve for the further reduction of "conservatives" economic chains at the "innovators" emergence. To consider the growth delay and/or recession only through "the conservative" fault is not to take into account "the innovators" role which may be significant in the development of this process. It is clear that without the discussion of the conformity to the natural laws in the conversion of "conservatives-innovators" system, it is difficult to give the convincing explanation of the cyclic dynamics. From the analysis mentioned above it may be concluded that the Schumpeter's theory of economic development (evolution) [Schumpeter, 1969] has at least one weak link – it is the idea of "creative destruction" demanding not only the additional verification, but also the significant theoretical modification.

Thirdly, the economic policy with the aim of "innovators" support is one-sided instrument of political influence, which promote the monetary emission called the evolutionary by analogy with the inflation.

The innovation is being realized only when it has been advanced - supplied with sufficient credit. But not only the cash inflow to "innovators" is significant, but also its outflow (similar to input and output of the funds of production) – the further turnover, as this cash may be used for prolongation of economic activities of insufficient agents or for lock-in effect actions, that means the fixation of ineffective system of rules which continues to function "successfully".

Therefore, the economic policy should proceed not from the formal monetary support of "innovators", but solve the problem of economic development management by expedient instruments: to countenance of innovation activities in economy, to facilitate the process of "conservatives" conversion into "innovators", to regulate the ratio between the representatives of mentioned above two groups of agents, to provide monetary support of the activities of "innovators" and, especially, "conservatives" at different state of economic situation.

Both "innovators" and "conservatives" perform the positive function in the economy conditions. The presence of "conservatives" helps to identify "the innovation", to organize correctly the functions of the institutes of estimation. Besides, they provide the saturation of the formed social standards up to the moment when under the influence of "innovators", the reorientation begins and the new standards appear and gradually become more winning. It is only important that the ratio between "innovators" and "conservatives" should be optimum and there should not be unjustified privileges of any group and consequently the excessive increase in their number of representatives.

The significant privileges in the economy for the "conservatives", the same as for "the innovators" in conditions, when there is a sharp shortage of resources needed for their potential disclosure, may be ruinous for the economy development and result in the crisis or may substantially lower the pace of the

growth and the level of social development. The quantitative estimation of the indicated ratio is rather complicated scientific problem as well as the realization of economic policy which influence and change this ratio in one or other side.

If we adopt as a norm the priority of "innovators" in the "innovator-conservative" dichotomy – and evidently it is difficult to argue against this thesis because "the innovators" come out as the generator of economic progress – so the economic policy should be realized in such a way, that to provide not only the emergence of new "innovators", i.e. to create incentives for innovations, but also to encourage this model of behaviour. Table 1 contains the description of "innovators" and "conservatives" behaviour model according to the selected parameters, identifying the varieties of economic system disfunction.

It is clear from the Table 3, that "the innovator" shows significantly high adaptive efficiency thanks to immanent easiness in getting over the emerged disfunctions. If it were not so, the innovations would be impossible. It is clearly expressed in the economics with prevailing number of disfunctions: even with the emergence of new ideas, which are especially deficient in contemporary world, it is very difficult to realize them in practice, if it is possible at all.

In such economy "the conservatives" play the leading role thus hampering everything new and as regards to their behaviour the model of redistribution and retention of current positions is prevailed. This economy is characterized by the very high level of inner conflicts, transaction expenses and the significant intensity of disfunctions is the distinctive feature of such economy, so that its conditions may be approaching the macrodisfunction.

Table 3- The Models of Agents Behaviour in Economical Evolution.

Parameter	Innovators	Conservatives
Purpose of existence	Realization of new ideas, technologies, products.	Retention the former positions, concerning the ideas, technologies, products.
Spheres of applications	New directions of the activities.	Exploitation of old forms, methods, spheres of activities.
Functional filling	Substantial and constantly extending at the expense of new functions.	Stable or being decreased in the process of competition with "the innovators".
Interval of functioning	1. Up to the change into "conservative". 2. Up to sudden bankruptcy in the process of competition with "innovators" and "conservatives"	1. Up to leaving the economic field of interactions and the change of activities (after the bankruptcy). 2. Up to the conversion into "innovator".

Expenses of the behaviour model	Not high when the monetary mechanism has been regulated.	Substantial or constantly increasing.
The degree of turning down.	Low, when the institutional surroundings are effective. High, in the economy with predominant number of disfunctions.	High, when the system of the institutions has been regulated. Low, in the disfunctioning economy.
Resistance to changes	High – owing to the newness of the realizing projects.	Low – owing to the growth of expenses.

The change of the economic model of the behaviour of agent – who may be represented as "innovator" or "conservative" or combines the features of both depending on the established circumstances – is first of all the psychological change occurring in consequence of the individual perception by the fellow of the current social – economic parameters significant for him and determinative for his decision; the change may also occur owing to genetic predisposition to the transformations of this kind. Besides the mentioned above factors regulating the number of "innovators" and "conservatives" in the economy, the unpredictable (unexpected) changes in the institutional structure and economic policy measures have the great influence on this process.

It is interesting to analyze the behaviour of "innovator"-agent in the economy with absolute slump of GDP comparing it with the behaviour of the analogical subject in the growing economy, also in the conditions of slowing pace of growth. The latter is typical for the developed West countries. If we proceed from the hypothesis that the considerable number of "innovators" appear in the phase of business cycle depression, then for West countries this problem obtains the entirely different sense: what should happen with "the innovators" in the phase of slower economic growth?

The decrease, but not increase, of «innovations» and «innovators» number characterizes this stage, then the number of "innovators" is being restored and may continue to increase up to some value. Thus, the neoclassical theory of cyclic dynamics gives the unsatisfactory explanation in this trend.

There is no doubt that in mentioned above three cases we speak about the agent-innovators, but one can say with certainty that these economical subjects differ substantially in its behaviour model ,as well as in qualitative indices of generated and realized innovations; in other words in economy at different stages of its development there are different innovators and innovations, to say nothing of comparison of this model of subject behaviour belonging to economic systems of various countries.

Basic to mentioned divergences is not only the quality of developed innovatory ideas, projects technologies, products, but also the existent resources and adaptive potentialities of its practical realization. In this connection one and the same innovation is effective under existing conditions, i.e. may be successfully realized, but under another conditions it may become disfunctional, i.e. may not be completely realized or may be realized partially with high portion of functional losses, resulting in considerable lowering of its

effectiveness. Then, the investments are not compensated and the economical subject sustains absolute expenses.

If we introduce the notion: "the monetary range" of the economic agent behaviour and consider it to be defined by the upper and lower limits of monetary supply for the concrete (specific) subject functioning in the unit of time, then "the conservative" model will correspond to the lower limit and "the innovator" model – to the upper limit of this range. Certainly, the limits of range for every agent during relatively long periods of time are dynamically variable parameters.

There we observe the evident prerequisites for the fact, that the innovation and the model of "innovator" behaviour require the great monetary supply in comparison with the adaptation and the conservative model. The "innovator" expenses include the expenses for information search and processing; contract concluding; the development of new ideas; new market development;

 the introduction (if necessary) of new organizational forms; product manufacturing and its movement to the market. The "conservative" expenses include some of the mentioned above, in particular, the expenses for the product manufacturing; the maintenance of the market niche which resemble the advertisement; law expenses are also possible, but total expenses, as it is evident from the ordinary comparison, is lower than the expenses of the "innovator". That is the reason why the innovator needs more investment volume. It follows from the psychological features of the indicated models of the agent behaviour. The "innovator" seeks to develop a new market (product), and the "conservative" – to retain the market share.

Hence, the "conservative" goes in loss-free direction through the possible falling-off sales and the accelerated growth of the resources prices in comparison with the prices of stereotyped products.

As far as the "innovator" is concerned, he as a rule has no profit at the initial stage and goes in loss-free direction by gain in sales and market niche expansion.
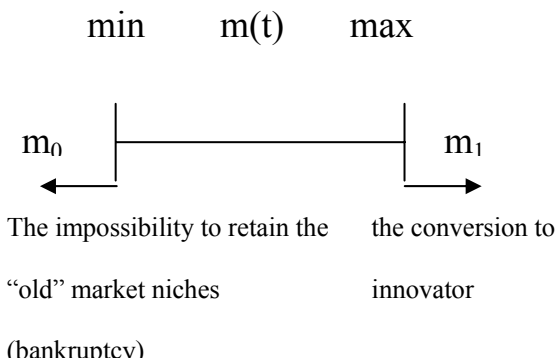
The "conservative" has two perspectives: to change into the "innovator" or to keep his conservative model. The "innovator" has another aims – to change into "conservative" (and it may be associated with long-expected rest) or to reveal the innovatory potential in the adjacent areas.

In case when the "innovator" and the "conservative" in the moment of t_0 time are two different subjects, each of them has its own monetary range of existence in the social-economic and investment area (Fig.1).
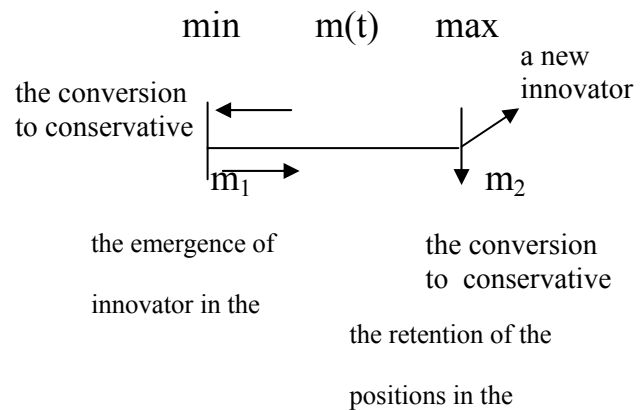
For one and the same subject changing the behaviour model from conservative to innovatory and in reverse, the left and the right side of the Fig.4 are coincided at the m_1 bound; then m_0 has become the lower bound and m_2 – the upper bound. But in the m_1 area from both sides there is χ value of monetary support which must be interpreted as the expenses of the conversion to the "innovator" and the "conservative" correspondingly (by analogy with the expenses of price mechanism functioning in the market economy).

On the microlevel the problem of the evolution of "innovator-conservative" system comes to the coexistence of the given agent groups within the bounds of the same economic organization - the company which has both the "innovators" and the "conservatives". The new products and markets are being developed and at the same time the "old" products are being manufactured. Such a combination creates a certain reserve of company strength, provides the effective redistribution of the resources and, in the end, has a positive influence on the organization development.

THE MONETARY RANGE RANGE OF THE "CONSERVATIVE"

THE MONETARY OF THE "INNOVATOR"

min   m(t)   max

min   m(t)   max

m_0 m_1

the conversion to conservative

a new innovator

m_1 m_2

The impossibility to retain the   the conversion to

"old" market niches   innovator

(bankruptcy)

the emergence of

innovator in the

the conversion to conservative

the retention of the

positions in the

Fig.4. The monetary range of " innovator-conservative " system

On the economy macrolevel the question comes to the searching for the most effectual combination of the innovators and conservatives number. On the whole the "conservative" does not aim at the profit maximization, it is important for him to be in the range: $m_0 < m_k < m_1$. The aim of the "innovator" is to achieve the supply level of m_2, taking into account its potential dynamic development, i. e. $m_n \rightarrow m_2$, with $m_n > m_1$. It follows that the dichotomy "innovator-conservative" breaks down into three states- the models of n economic agent existence (where the bounds of ranges in the common aspect are the time functions), that is :

-   $m(t) < m_0$ - the unemployed
-   $m(o) < m_t < (m_1 - \chi)$ - the conservative
-   $(m_1 + \chi) < m(t) < m_2$ - the innovator

Hence, a very interesting result has been obtained, so that the unemployed who is a sluggish agent from the positions of economic functions, is unable to realize the model of "conservative" and the "innovator" all the more, without the change of monetary supply value, necessary for him to acquire knowledge, business activity, starting capital, to enter the markets at least already known. Such structurization of the models of agent behaviour, changes radically the conclusions of the evolutionary economists, concerning the arrangements of

macroeconomic policy directed to stimulate only the innovator activity by the mechanism of evolutionary inflation, which is recognized to be effectual only because of this stimulation. But the fact is that depending on the current state of economy, the political decisions must be, if possible, directed to the encouragement of the conversion from the model of "unemployed" to the model of "conservative" – the real working agent, or from the model of "innovator" to the model of "conservative", or on the contrary it is necessary to prevent such a conversion. The other version is also possible, when the efforts of the government must be differential, i.e. directed to find a compromise between the first and the second, the second and the third models of economic subjects behaviour. In practice, just the latter approach owing to its flexibility and adequacy must become the heart of the economic policy, its driving gear.

In order to find any acceptable decision of this problem it is necessary to represent the economy macrolevel in the shape of three sectors consisting of the unemployed, conservatives and innovators. Then the index configuration of the economic subjects will be written as follows:

$$X(t) = [N(t) – K(t)] / \{N(t)+K(t)+U(t)\}; \qquad (6)$$
$$S(t) = N(t) + K(t) + U(t);$$
$$n = N/S , \quad k = K/S , \quad u = U/S, \quad n+k+u=1$$

where: $X(t)$ – the index of configuration; $N(t)$ – the number of "innovators"; $K(t)$ – the number of "conservatives"; $U(t)$ – the number of the unemployed; $S(t)$ – the agents able to work;

n, k, u – correspondingly the share of "innovators", "conservatives" and the unemployed in the total number of the agents able to work.

The substitution of the rations for (6) gives the following:

$$X(t) = n – k ;$$
$$dX(t)/dt = dn/dt – dk/dt ;$$
$$dX(t)/dt = d [2n – 1+ u]/dt ;$$
$$dX(t)/dt = 2 \, dn/dt + du/dt = f(n(t), m_1, m_2, m(t));$$
$$dY(t) = F (n/k, M, u-u^*).$$

The index of configuration is written through the change of the number of "conservatives" and "innovators" in the economy. When the employment (unemployment) is stable in the long period of time the ratio du/dt may be accepted to be equal to zero. The dynamics of gross domestic product Y (t) may be expressed by the function of the "innovators" – "conservatives" ratio, the change of monetary mass M (t) and exceeding of the level of natural norm of factual unemployment; the index of configuration may be expressed by the function of the number of "innovators", the switches of the model of behaviour m_1 and m_2 – the bounds of the monetary range and the current amount of monetary supply m(t). This function should be called the function of the forced development of economic structure. The connection between GDP dynamics and the index of configuration is evident.

Thus, we succeeded in displaying the directions of further searching for the model "innovator – conservative" application in order to obtain new formula in the sphere of economic system macromanagement on the basis of

evolutionary conception according to Schumpeterian model with substantial modification of this approach.

The emergence of new combination, that Schumpeter had spoken about, not at all guarantees the economic development. Such economic evolution may contain the negative results and besides possesses the feature of irreversibility. As to the term of "economic development", it is associated with the achievement of positive result, though under the term of "evolution" it is often understood the development in the wrong way round. This important conclusion, obtained in the course of analysis which have been done in the article, may consider to be anti - Schumpeterian as it is based on the elimination equilibrium from the very scheme of "innovator – conservative" and disclaims the "linearity" of interactions between these subjects of the economy, taking into account the non – linear dynamics of conversions occurred within the bounds of analyzed system.

4. ECONOMIC GROWTH AND DEVELOPMENT OF INSTITUTIONS

In Western economies, national wealth consists of the natural resources, physical and human capital[4], in the proportion 20%, 16% and 64%[5] respectively. Russian economy features an exactly opposite proportion, having predominant capital of natural resources (60%). Because of this, the problem of implementing a long-term "structural maneuver" should be formulated proceeding from the need in the controlled modification of the basic macroeconomic proportions. An economic growth cannot resolve the problem on its own, being the result of a positive trend in the existing institutional structure. It seems worthwhile to mention similar cases: in the last 25 years, the organized outlawry has been gaining in size and power in the world economy, and as we know from biology, tumors growing in a human body, are lethal. An economic growth may rest upon a high accident rate, due to the lower reliability of various subsystems, greater inequality and poorer social setting. Nevertheless, even today, the growth rate of the national product and the estimated level of unemployment serve as a measure of effectiveness of the state policy and of social achievements, though the so-called "non-economic" targets, indicative of the social life of citizens in any country, ought to have been used as such measures since the time of G. C. Galbrait's criticism of the "cult of the gross domestic product"[6].

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[4] Normally, in the context of wealth, "human capital" covers existing knowledge, skills (education and qualifications potential), physical and psychological ripeness for working, society morale (socio-cultural potential, health fund, upbringing, investments in people).
[5] Expanding the Measure of Wealth. Washington, World Bank, 1997. 10 p.
[6] G.C. Galbrait. New Industrial Society. AST, Moscow, 2004, 602 p.

Amarty Sen[7] made an original remark concerning assessment of the results of the economic growth and institution development. Destitute countries with per capita income lower than that in the more affluent economies, have nevertheless a greater social wealth owing to a more uniform distribution of incomes. A more uniform income distribution may be attained, in particular, through a sound system of social welfare and insurance. As a result, a poorer country with a small per capita income may have greater life expectancy and higher literacy rate. Needless to say, a crucial condition for such behaviour is availability of a proper institutional structure of the economy and efficient economic policy implemented in the country.

"The national economic growth can be defined as continued consolidation of the faculty to satisfy the increasingly diverse demands of population for the products of economic activity. This growing faculty is based on the development of engineering and technologies, and on appropriate changes in the institutional structure and ideology. All three components of the definition are essential. The continuously growing supply of goods is the result of the economic growth, which is dependent on the former"[8].

In the 20th century, the economic growth, as a phenomenon, was characterized by the following immanent features: a) a high growth rate of per capita production, efficiency, restructuring of economy, changes in society and ideology; b) qualitative characteristics – an expansion trend due to transfer of technologies across the borders, and limitations when as a result of such growth, ¾ of the population of Earth still find themselves below the minimum life standards afforded by modern technologies.

A very important characteristic of the economic growth in the 20th century is the "Kuznetz effect" depicted by a curve with the same name[9]. According to this effect, in the initial point of the economic growth under investigation, the income and wealth are distributed in such a way that the economic growth is accompanied by deepening inequality. Then, as time passes, inequality eases a little, plateauing on a certain level. A lot of evidence has validated this effect for various economic systems[10]. However, an obvious exception to this are the countries of the South-East Asia, where impressive economic growth goes hand in hand with diminishing social stratification. In fact, Russia in 1991-2004 is another exception to the rule. In the first nine years, the GDP was going downhill under the accompaniment of mounting inequality which, however, diminished a little during the period of the economic growth of 2000-2004. The "Kuznetz effect" rationale is simple enough: existing institutions of wealth

[7] A. Sen. Growth as Freedom. Novoie izdatelstvo, Moscow, 2004, pp. 23-24.
[8] S. Kuznetz. Modern Economic Growth: Findings of the Studies and Deliberations/ Noble Prize Winners: View from Russia. Gumanistika, St. Petersburg, 2003, 104 p.
[9] S. Kuznets. Economic Growth and Income Inequality. In: "American Economic Review", 1955, XLV.
[10] P. Berger. Capitalist Revolution. Progress, Moscow, 1994, pp. 56-57.

accumulation and distribution are such that they stimulate capital concentration in the hands of the most affluent people who, in turn, provide for appropriate rate of the economic growth by investing in the economy. Exceptions from the "Kuznetz effect" can be explained in the following way: deepening inequality is accounted for by *continued* economic growth afforded by relevant technological and demographic changes, rather than by the economic growth itself or by capital distribution institutions. Thus, Jen Tinbergen believes differential for skill[11] to be the main trigger of inequality and of its expansion with economic growth. The governmental policy of income redistribution and of social protection is also of considerable importance. Thus, many institutions are responsible for Kuznetz curve configuration, and the condition of these institutions influences the net effect. In other words, growth may take place against diminishing inequality, and inequality may deepen as a result of recession in a debt-based economy which features predominant redistribution of existing goods rather than creation of new goods and capital buildup for the benefit of the general public.

At present, in the beginning of the 21st century, several other trends may be pointed out in the economic growth. They have only just emerged in the last two decades of the 20th century, and continue to amplify. These are the trends that are shaping up vector direction in the growth of world and Russian economy.

Firstly, rapidly developing electronic culture caters to the high rate of the economic growth[12], abolishes national and cultural differences, alters the individual and collective motivation of agents with the appearance of a programmable mob dispersed over information space. For example, in the United States, an information-based economy allowed raising the annual growth rate of efficiency by the mid '90s from 1.5 to 3%, and of GDP – from 2.5 to 4 %.

Secondly, the growth of information sector in the economy levels the earlier difference in human intelligence. Today, the discrepancy between the difference in intelligence (no more than 1.5 to 2 times) and difference in income (10 to 15 times) is a driving force of the social conflicts during economic development.

Thirdly, humans tend to feel helpless about the rapid changes sweeping the world. This feeling affects understanding of and adaptation to new institutions. As a consequence, human behaviour becomes more pragmatic. The ethical aspect loses its standing while the wish to follow cultural standards assuring better conditions of life grows stronger. Hunting for satisfaction of their

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[11] J. Tinbergen. Income and Distribution. Amsterdam, 1975. – pp. 46-72.
[12] Though the average economic growth rate observed at present in the West falls short of that in 1950-1960, it is similar in nature to that in the post-World War II period, i.e. it is constructive. It appears that, by analogy, Russian economy demonstrated in 2000-2004 a considerable rate of economic growth, owing to favourable external conjuncture, post-devaluation effect and the recovery aspirations.

demands, humans come to a prisoner's dilemma. Furthermore, failing to place their own losses in a proper perspective, they cannot take the situation for what it is. This raises the possibility of a destructive effect of human behaviour on economy, which, in its turn, calls for further restraints – social, cultural and educational, for stricter control over public order and tougher social protection system.

Fourthly, the rate of the economic growth and the values of indicators describing the level of wealth, do not spell institution maturity and do not allow answering the question of why different economic systems develop to different trends.

Interesting conclusions were made by S.K. Datta and J.B. Nugent who had reviewed the statistical data of 52 countries in the period of 1960-1980. The data show that with a 1% increase in the portion of lawyers in manpower, the economic growth slackens by 4.76 to 3.68%[13].

Thus, legal regulation of agent activities, which has a direct bearing on institution modifications, can worsen the economic prospects of a country and quality of economic development. This issue is very much on the agenda in the USA today, where, for instance, direct contact between patient and doctor is hindered by the presence of a mediator, i.e. lawyer[14]. Because of this, institutions – both old and newly adopted – can either improve or degenerate the social welfare. Such instability and unpredictability is intrinsic to the process of institution transplantation from one social environment into another.

There are several fundamental approaches seeking to explain the problem of economic development. These approaches can be classed based on the main lines of the economic science: Keynesian (R. Nurkse, R. Prebish), neoclassic (W. Lewis, R. Solow, R. Lukas), neoinstitution (D. North), old institution (G. Murdal, T. Schultez, S. Kuznetz), and wealth economy (A. Sen).

The economic development models of Keynesian type[15] ("vicious circle of poverty", "jump", "two deficit model" theories) solve the key problem – how to overcome the economic backwardness of a country using mobilization strategy which boils down essentially to replacement of external financing sources by domestic, import substitution, concentration of internal investments to ensure a high ("breakthrough") rate of growth.

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[13] S.K Datta, J.B. Nugent. Adversary Activities and Per Capita Income Growth. World Development, 1986, vol. 14, №12. 1458 p.

[14] M. Alber. Capitalism against Capitalism. St. Petersburg, Economic School, pp. 160-161.

[15] R. Nurkse. Equilibrium and Growth in the World Economy. Cambridge, 1961. Leibenstein H. Economic Backwardness and Economic Growth Studies in the Theory of Economic Development. N.Y., 1957.

The neoclassic approach[16] regards economic development as a process of getting over backwardness caused by economic dualism and disproportions in the cross-sector economic links. The models were improved by incorporating a number of factors, such as "technology", "human capital", "reasonable expectations", by allowance for the contribution of education, medicine and ecology in economic development and overcoming the backwardness.

Actually, both of the above approaches deal with the macroeconomic problems of development only, and suggest credit-monetary or fiscal measures for the macroeconomic policy meant to boost investments, stimulate internal demand, resolve technical and economic problems, carry out structural modifications affecting the national economy on the whole. However, as distinct from Keynesian approach, neoclassic models look at the problem in structural representation, introducing a two- or three-sector model of the economy, and pursue the objective of modernization, of channeling resources from one sector to another. Modern neoclassic models of development take into account technology, human capital and associated institutions, but include these factors as illustrations in the modified process functions used in R. Solow model[17]. It should be pointed out that application of Keynesian models has lead to a growing foreign debt and aggravated the deficit problem, while the neoclassic recommendations resulted in growing inflation and social tension. This happened because the models of these two types did not fully allow for the quality of institutions and the trends in their operation.

D. North and R. Thomas[18] offer some theoretical explanation of the economic growth in transformation conditions from the viewpoint of neoinstitution approach. They name technology and property law institutions as principal growth contributors. Efficient organization of economy entails such operation of all institutional structures that supports the property law and gives incentives for implementation of individual preferences, which reduces the gap between the public and individual interests.

The conclusions made by the two authors in respect of the efficiency of the institutional structure and incentives, can explain the starting point of the economic growth trend only. They help correctly determine vector direction of the trend, but not the growth itself, which is affected by many different factors demonstrating different behaviour in different historical periods.

It is important to mention that no individual institution, on its own, can be fully responsible for economic growth characteristics, since on the one hand, it is

[16] A.W. Lewis. The Roots of the Development Theory. Handbook of Development Economy. Vol. 1, 3 rd. ed. Amsterdam, 1993. pp. 27-37.
[17] R.A. Solow. Contribution to the Theory of Economic Growth. Quarterly Journal of Economics, 1956, February. pp. .65-94
[2] D. North, R. Thomas. The Rise of the Western World. Cambridge University Press, 1973, pp. 1-2.

interconnected with and depends on many other institutions, and on the other hand, it alters with time, and the changes are reflected in growth characteristics. The economic growth is identified proceeding from variation of certain parameters, therefore, it is necessary to determine effect of the change of particular institution on variation of the above parameters, before being able to claim that this institution affects the growth.

As follows from the existing theoretical knowledge, the investment process curtails during recession because the initial expectations concerning successful implementation of particular projects do not come true. It is considered that new ideas, technological and scientific knowledge, and inventions accumulate in the bottom point of the descending branch of the economic cycle, hence setting the stage for a new rise. However, the example of Russian economy puts this viewpoint in doubt since the crisis that broke out had a purely institutional (transformation) nature, rather than cyclic.

Firstly, with a crisis, the economic activity dwindles away, unemployment increases, capacities go idle and demands to satisfy the essential needs become stronger.

Secondly, the efficiency of the economy in general and of institutions responsible for the innovation flow in particular, decreases.

Because of this, the flow of innovations subsides to naught, in the depression phase anyway. There are claims that it is difficult to explain the surge without admitting accumulation of innovations in the depression phase, and that it is impossible to explain the descending branch of the economic cycle without admitting concentration of innovations in the upper point of the rise phase. In the '90s, Russian economy demonstrated a downward trend, and this was accompanied by curtailment of innovations, of scientific schools and of intellectual activities, and by decrease of investments – without any accumulation of innovations.

The notion of "accumulation of innovations" is interesting because of the following. As recession gathers momentum and unprofitable companies grow in number, the portion of innovations per unit production increases because the output goes down. This is how it happens in a classical case of a deepening depression. However, in modern conditions, stagnation acquires the form of a slowdown in the rate of the economic growth. And the number of innovations does not increase; in fact, it may go down a little.

In crisis conditions, there is a drastic decrease in the demand for knowledge and skills, because the market value of the high-technology domains of the economy, characterized by a long-time payback and heavy participation of state

(in the form of funding of R&D work and fundamental research, including defence area), drops at once.

Next, there arise institutional conditions which at a certain stage of the upward trend of the cycle (recovery) encourage implementation of those innovations that were not put into life in the recession period and that make use of the new ideas that had appeared before and during depression.

This stage of economy evolution symbolizes economic recovery, when economy regains its previous level of development. In this stage, it is important to provide the required level of investments, hence supporting the critical mass of innovations to overcome the investment barrier[19]. During the crisis, the first to be implemented will be those innovative projects which feature the greatest payback.

In an economic system, in a certain period of time, the gross product may be greater or smaller than the level expected by the government and general public. This occurs as a consequence of diminishing or growing dysfunction of institutions responsible for the operation of the vital spheres of the economic system.

Primarily, economic changes are characterized by the introduction of new rules and standards, issued formally as legal acts and laws. These rules encourage the economic agents to work out new models of behaviour typical for a certain historical period, when a policy of economic modifications, implying a change in the basic social institutions and relations, is implemented intelligently. The economic system is not in time to enter an equilibrium regime as old institutions are replaced with the new. Therefore, theoretically, it is important to understand the causes (i.e. why and how the process of changes goes on) rather than the properties of an equilibrium system or the mechanisms of transition from one state to another. It should be taken into account that institutional changes are driven not only by technology, but by the political system as well, and the properties of the latter predetermine efficiency of economic system operation after the basic institutions are set in place. Thus, two types of evolutionary changes can be distinguished: a) genetic, responsible for spontaneous mutation of institutions and appearance of the new knowledge and technologies, and b) teleologic, i.e. the changes implemented in compliance with the declared public objectives using the political and legal system and economic policy measures. Changes of the first type are incremental. The second-type changes should be incremental as well, or else, there will be a conflict between the two types because of the different rate of changes and appearance of numerous deviation forms of economic behaviour. Non-payments, growing economic offences and shadow economy, increasing social stratification can be classed as second-type

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[19] See further details in: O.S. Sukharev. Dysfunctional Analysis in the Institution Theory of Economic Growth. Economic Theory Journal, 2004. № 1, pp. 58-80.

changes. It is difficult enough to draw a clear line between the economic changes of the above two types since economic policy dictates change parameters in both cases.

Economic agents operate following individual rules of behaviour, rules of interface with each other, rules of going on the market and leaving the business, which are implemented through the bankruptcy laws and regulations concerning counter-action to the buildup of monopolistic forces. Hence, on the one hand, an economic changes policy can provide a framework for efficient interaction of economic agents, or can make this interaction very expensive and hence inexpedient. On the other hand, this policy calls for certain harmonization with the standard recipes of the macroeconomic policy, used to maintain the state balances and resolve the problems of growth, unemployment and inflation, which have already become classical goals of a near-term policy. The policy of institutional changes lays down an institutional basis for modern economy, and hence can slow or boost the economy in the long term.

Economic changes rest upon economic and psychological reactions of agents, users of goods, social functions and institutions. For instance, Russian users crave for the Western standards of consumption and – more broadly – for the Western social life standards (quality of life). Incidentally, such psychological motives forming a certain model of agent behaviour, based on a monetary decision making criterion, create difficulties for the economic growth of the countries striving to break the vicious circle of poverty. Generally, there are two options: either to influence the model of economic behaviour of individuals and subdue their desire to rapidly reach high living standards, or formulate public goals of the development and movement towards new social standards, and offer to the economy a way of reaching these objectives. Needless to say, the path to such objectives cannot be unsystematic, because to acquire high standards of consumption, it is necessary to produce goods and provide services of adequate quality and in adequate amount. This needs investments – I_p into product sector and I_u into service sector which should also embrace new institutions needed by the economy. Social standard can be measured against the use value which could be measured through indicator of investments necessary to attain a unit use value. If economy cannot secure investments necessary to reach the unit use value comparable to that in the West, it is necessary to identify the causes of such situation and plan new institutions which will change the situation, and implement a programme of structural modifications, taking the system, step-by-step, to the new social standards considered to be acceptable and essential.

Adepts of the old institutional school understand economic development (differentiating between development and growth) as an increment in meeting the basic needs of all members of society with a narrowing gap between the

richest and the poorest[20]. Institution development is regarded not only as raising the growth rate of economy but also as increasing investments into the human capital, with diminishing poverty. As distinct from the neoinstitution theory, here the institutions are regarded as rules of behaviour, organizational structures, property laws, contracts (including labour laws), forms of human capital and materiel infrastructure[21].

In the development theory approach suggested by A. Sen, development is understood as a process of expanding the real rights and freedoms enjoyed by the humans. Freedom and basic human rights are intrinsic to development[22]. The strong point of this approach is that it allows a broader perspective of development as compared to the approach in which development is understood as a growth of GDP or employment, income, consumption, etc. The difference between growth and development from the viewpoint of operation of institutions, was pointed out for the first time by Gunnar Murdal. Truly, human rights and freedoms influence quality of long-term economic development, however, it appears that being a prerequisite or condition for development, they represent but one group of institutions, while effect of other meaningful institutions – development factors – acquires a lower priority. This appears to be a weakness of A. Sen's doctrine. The freedoms and basic human rights may be assured, but in a different way in each particular case, therefore, the quality of these institutions will be very different, if national economic systems are compared.

5. INSTITUTION EFFICIENCY AND RELATIONSHIP OF OLD AND NEW INSTITUTIONS: QUALITY ASSESSMENT

To our belief, institution development comprises three components: development of institutions, controlled institution modification, and development of human capital. Furthermore, these three components, demonstrating synergic relationship, should pursue the objective of providing demanded variety of social functions in the economy and providing agent access to them, irrespective of personal income of the latter.

Thus, development of social institutions is a core of a long-term economic growth and the essence of economic development in a broad sense. It is of crucial importance to take into account the situation when institutions lose their quality, intentionally or not. In the long run, this accounts for the economic backwardness of many nations, while the growth rate has little, if any, to do with this. Therefore, it seems that the institution development and development in general should imply reduction of the number and extent of the dysfunctional states of social institutions.

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[20] G. Murdal. Current Problems of the "Third World". Moscow, Progress, 1972.
[21] T. Schultez. Investment and Human Capital. N.Y., 1971.p. 249.
[22] A. Sen. Development as Freedom. Moscow, Novoie izdatelstvo, 2004. pp. 21, 23.

Proceeding from the definition widely used in institution analysis, it may be concluded that there exist stable inefficient standards – institutions – borne by a "lock-in" effect.

INSTITUTION EFFICIENCY RANGE
inefficiency   efficiency
0

| « − » | « + » |

institutional
traps
"lock in"

Dysfunctional states
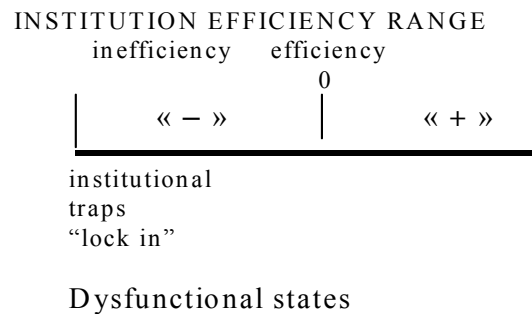
Fig. Institution efficiency range

It can be seen in the Figure that the "lock-in" effect appears in the negative part of the institution efficiency range, while according to out understanding, dysfunction covers both the negative (inefficient) and positive (low efficient) branches of efficiency, i.e. characterizes institutional quality.

The concept of "economic dysfunction" of institutions offers a systematic approach to the problem of institution behaviour, appearance and stable existence of rules (institutions) with different efficiency. Its main advantage is that it allows looking at the causes of institution inefficiency, defining inefficiency itself as a loss of qualitative characteristics of existing standard, and as a cut in the monetary flow supporting operation of particular institutions. This approach seems to hold promise as regards quantitative representation of the dysfunction, resolving the problem of sizing dysfunction, and evaluation of efficiency (inefficiency) of existing institutions.

It is known that Duglas North[23] singled out the following mandatory conditions the understanding of which provides an insight into the mechanism of the institution changes taking place in an economic system: stability of institution characteristics, the source, extent and direction of changes. However, to our belief, while regarding the price-to-technology ratio trend and property law institution to be generator of changes, North ignores the fact that in the subsequent historical period of economy development, there is an institution which has the same formal attributes but is absolutely different as to its quality characteristics. Technological changes and changes in the property law entail quality changes, while prices act as an institution, however specific, reflecting the value of goods, i.e. act as a kind of evaluation institution.

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[23] D. North. Institutions, Institutional Changes and Economy Operation. Moscow, Economic Book Fund "Nachala". 1997, 180 p.

The problem of treating institutions as a certain formation created by a coalition of primary economic agents for the purpose of production and utilization of goods by members of the coalition, was considered in terms of the Arrow-Debre economy, considering the stages of creation and operation of institutions in market environment. Organization, as a juridical body, also acts as an institution. However, institutional equilibrium is added to this model as a case of a general economic equilibrium. Institutions are presented as an outcome of decisions made by voting and as a product of relationship between demand and supply. However, the process of collective goods production follows a somewhat different logic, dissimilar to that of the Arrow-Debre equilibrium model in which market forces of self-organization provide for the laws of interaction between prices and quantities.

Below is demonstrated an expert assessment technique which affords analytical description of the laws of competition and of development of two randomly chosen institutions – an old and a new one, adopted for the economic system in the course of planning, to get a good result.

Definition. The use value (UV) is an indicator which allows generalized assessment of institution quality and user preferences

$$\text{Use Value} = \sum_{j=1}^{J} w_j \sum_{i=1}^{I} w_i^j \eta_i^j \ ,$$

where w_j, w_i^j are weights of group and individual indicators of institution quality (goods), respectively; η_i^j is the extent to which individual indicators meet the properties preferred by the user.

This variable is described by the ratio between individual indicators (actual for this institution and preferred by the user), depending on the results of comparing these indicators and with this calculation for a particular institution. The above parameters are determined by questioning experts. The procedure is based on a three-level system of evaluation of:

1) individual quality indicators measured in terms of "technical characteristics" of institutions which serve as a basis for making conclusions concerning a subgroup of quality indicators;
2) integrated quality indicators which allow assessment of cumulative institution properties;
3) weighting coefficients of quality parameters and calculation of the use value of institutions.

Once weighting coefficients are calculated, a conclusion is made on the extent to which individual quality indicator k_i^j meets user requirements. After that, the use value is calculated.

If we add k_i^j – the value of the i-th individual quality indicator of the j-th group and assume that there might be only one value of $k_i^j = Y_i^j$, which may vary in the range
$[z_{i\ min}^j; z_{i\ max}^j]$ and in practice can take the value of $k_i^j = X_i^j$, then the extent to which an individual indicator meets user demands, η_i^j , will be defined as follows: $\eta_i^j = Y_i^j / X_i^j$ with $Y_i^j > X_i^j$ and $\eta_i^j = X_i^j / Y_i^j$ with $Y_i^j < X_i^j$. If individual indicator lies within $[z_{i\ min}^j; z_{i\ max}^j]$ and $k_i^j = Y_i^j$, then $\eta_i^j = 1$. If it goes beyond the upper or lower boundary and does not correspond to the value of Y_i^j, then $\eta_i^j = 0$. In this case, the sum of the weights of the groups of institution quality indicators $\sum\limits_{j=1}^{N} w_j = 1$, where N is the number of quality indicator groups.

Now, considering the above, the problem of institution quality assessment can be discussed in the context of its two aspects.

Firstly, deterioration of the institutional quality of an economy in a relevant phase of its life cycle, occurs due to insufficient satisfaction of user demands (use value <1), when user becomes aware of other institutions possessing more attractive quality characteristics (e.g., Western social standards for developing countries).

Secondly, deterioration of institution quality – the same as low income of people, may have no bearing at all on user preferences which depend on the expectations rather than income, i.e. the products themselves do not lose their user properties because of the above circumstances, but the institutional quality goes down.

There is, though, another – third – option. In this case, the use value of an institution falls below "1" with the diminishing income and consumption, because the "imported" institutions of higher quality, or having quality advantage owing to advertising, are transplanted to the country.

Let us introduce the notion of use value institution as that of a good (product), UV_ϕ. Now let us suppose that the use value of the new institution $UV_n > 1$ and of old institution is $UV_0 < 1$. The use value institution can be presented as

$$UV_f = \frac{\sum\limits_{i=1}^{n_n} H\Pi C_i + \sum\limits_{j=1}^{n_o} H\Pi C_j}{n_n + n_o},$$

where n_n is the number of new institutions, products (technologies), n_o is that of the old institution and products.

UV_i is use value of an i-th new institution;

UV_j is use value of a j-th old institution.

If total production volume is $Q_p = n_n + n_o$ and $n_n = \alpha Q_p$, then $n_n = \dfrac{\alpha n_o}{1-\alpha}$.

Writing expression for UV_f and taking into account that $\dfrac{\sum_{i=1}^{n_n} UV_i}{\sum_{j=1}^{n_o} UV_j} = f(\alpha)$, we

obtain: $UV_f = \dfrac{[1+1/f(a)]\sum_{i=1}^{n_n} UV_i}{\dfrac{n_n}{a}} = \dfrac{\sum_{i=1}^{n_n} UV_i}{n_n}[1+1/f(a)]a = UV_n[1+1/f(a)]a$.

With $UV_f < 1$, $UV_n[1+1/f(a)]a < 1$. $f(\alpha) = \dfrac{UV_n n_n}{UV_o n_o} = b\dfrac{a}{1-a}$,

where b is the ratio average UV of the new and old institution (good).

Finally, we obtain

$$UV_n < \dfrac{1}{[1+(1-a)/b]}, \quad a, b \neq 0.$$

Let us make some conclusions proceeding from the ratio obtained.

1. For an economic system with large component dysfunction, the average use value of new goods – institutions cannot be greater than the value indicated in the right-hand part of the expression.
2. The greater is the use value of old institutions (goods) with a fixed portion of the new institutions appearing in the system, the lower is the peak use value of the new institutions.
3. If the system moves completely to new institutions in conditions of large dysfunction, a = 1, the peak use value $UV_n < 1$ and the system suffers a crisis of the new institutions.

We would name the following main causes of the loss of the institution quality: failure to control institutional changes; rivalry between institution and agents; too rapid process of institution modifications and introduction of new institutions; economic policy degrading the quality of the institutional system because of the motives behind the economic agent behaviour.

These four causes provoke low efficiency and rejection of new institutions, taking responsibility for the failure of many reforms in different economic systems.

Main conclusions

1. Institutions are created by people to simplify exchanges and interactions and may perform the functions of public goods. They are responsible for the nature of economic development, production and competitiveness; form development goals, directions of economic policy and routines providing for economy competitiveness. This allows speaking about the process of institution creation.

2. Institutions can be in a state when their qualitative parameters start going downhill, unintentionally, with a corresponding loss of efficiency. This may be caused by anything, associated both with reduced monetary support to the operation of a particular institution value, or with the loss of objective, field of application, functional content, growing operation costs, lower resistance to various influences. This state is defined as institution / economic system dysfunction. An important line for getting rid of dysfunction are investments in people, because they pursue an implicit objective of improving knowledge and assessment system (institutions). This allows precise identification of the functioning parameters of institutions whose negative change will be a dysfunction. Because of this, proceeding from the maxima that man creates institutions, human investments can be regarded as preventive investments into overcoming dysfunction of social institutions.

3. The strategy of competitive economic development can be implemented by attaining a high use value of institutions as public goods, with acceptable size of investments into production of a unit use value.

TOTAL CONCLUSION

There we should sum up the propositions of the present article.

The evolutionary economy makes it possible to develop a new paradigm of economy management on the macrolevel, having moved the accent on the analysis of economic structure behaviour change, while the processes going on the macrolevel are explaining the problems of macrolevel.

The "innovators" and "conservatives", representing two groups of economically active agents, participate in the competition between themselves and inside the group, though the rule of natural selection known in biology is not extended to this competition, because the result is greatly depended on the initial conditions, the agent's position in the monetary range area, the current monetary support of the activities and the susceptibility to the change of the behaviour model.

Clearly, the interactions between the innovators and conservatives should not be described by the primitive scheme of the biological natural selection, as besides the processes of economic self – organization, the important role in this system belongs to social – psychological and information (knowledge

reproduction) foundations of behaviour, which should not always be inserted in the scheme of self – organization (in case of the system entropy increasing), which Foster speaks about (Foster, 2000).

The conclusion about the necessary stimulation of the "innovators" as the component of the exceptional importance for the effective economic policy has been made by the "evolutionists", the analysis of which lacks in structuralistic content.

In the economic area the innovators can emerge potentially from three social groups: the unemployed, the conservatives and the "old" innovators; so the second and the third variants are expensive least of all and more verisimilar. Therefore, the effective economic policy should be directed not only for creation the conditions for innovations and "innovators", but also for reinforcement of the conservative behaviour model, as its destruction may sharply increase the unemployment with corresponding negative consequences for future investments and economy development as a whole.

The conception of "creative destruction" is losing gradually its former "theoretical" power as with its help it is difficult to explain new economic phenomena arising out of the current dynamics of global capitalism, when the business activity recession may be accompanied by the intensification of the certain country economic domination and the introduction of advanced technologies and products into serial production with decline in jobs in high – tech sectors. That is possible only when the "innovator – conservative" link is undergoing the local break-off, i.e. the "innovator" becomes independent from the resources base of the "conservative" and, in particular, may use the political decisions and, substituting them, the global financial market for rapid filling of its monetary range and realization of the selected aims.

The new model of the "innovator – conservative" system may become the base for flexible economic policy development directed to the stimulation of the emergence in the economic field of the agents with certain behaviour model characterized by the lower expenses of transactions, as well as to ensure its certain combination, which is more effectual for social development.

In perspective it gives the possibility to lay a new paradigm of the economy macrolevel management. There are many unsettled problems, in particular, the problem of building the line of demarcation between the model of "innovator" and "conservative", the problem of the methods for identification of these models and its mathematical formalization, considering the psychological features of behaviour. These rather complicated problems comprise the subjects of the further investigations .

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