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BALANCE, FRACTALITY, AND SYNERGETICS IN CONTROL OF "SCIENCE-PRODUCTION- CONSUMPTION" SYSTEM DEVELOPMENT

Abstract. The problem of national economy conversion to an innovative development path is considered in this article. "Science-production-consumption" model is presented. The article also gives an innovative development mechanism and a version of innovative process joint financing. Also the balance condition for three public production divisions is formulated. The marginal ratio between science and production and the fixed ratio between production and consumption are determined. The up-to-date financial crisis reasons are specified, and the US and Russian Federation innovative development estimates are analyzed. The authors mention the factors that counteract the social and economic systems innovative development.

Keywords: time, space, value, use value, benefit, importance, national income, national product, production goods, model, structure, commensurability, balance, equilibrium, consolidation, corruption, intellectual property.

I. Introduction. For Russian economy (and other countries' economies) the crucial tasks are renovation and conversion to an innovative development and on this basis the increase of labor productivity that the population standard of living depends on. It's worth mentioning that community needs (even if its growth lacks) are constantly rising. The innovative development based on innovations generated in science suggests the appropriate control. The control functions are: future analysis, planning, establishment, coordination, supervision and encouragement (opposite to it – motivation). Scientific activity is specific and differs from activities in production and it is recognized, apparently, by all management. However, it is necessary to clarify the specific nature of scientific activities and implementation of control functions in this sphere. As in market conditions money relations prevail, it is preferable to deal with these issues from an economic point of view.

It is believed that F. von Hayek (Nobel Prize winner for his research on the theory of money, conjuncture oscillations, the trade-off of economic, social and institutional processes) like no other confirmed Ibsen's famous line that minority might be right, but the majority is always wrong. Meanwhile, the majority of the most competent economists in the answer to the question: "How do you imagine an economic theory in the next hundred years?" highlighted the high probability of theory thrust toward the evolution theory research. And J. Weisman, known for his desire to refer impartially to different theoretical orientations, noticed in his essay that in the not so distant future "heretics" could become priests [1, p. 136]. The theories are rarely created "from scratch" and evolution suggests the development of existing theories. However, it is known that "heretics" are more useful for science than "orthodox", and as "the majority" is for "evolution", it can be advanced by "useful heretics". In this case, the economic science that didn't become evolutionary in 19th or 20th centuries can become evolutionary in 21st century. It's all about the "heretics" and "apprenticeship" cut-off using private theories that essentially meet the interests of the United States.

II. Objective setting. The striking feature of activities in science focuses on the concept of "creation freedom", the most important provision of which is autonomy. The State must by no means and never require from researchers and developers something that would directly serve its purposes. The State, its politicians and bureaucrats ("people servants" that tempt to change their social status) must proceed from the conviction that academic institutions and other recipients of budgetary funds solving their own problems at the same time will serve the State purposes, the progress of its economic structure, the development and improvement of the economic and social human life and activities. Researchers and developers need autonomy not for itself, but to perform effectively their primary function that is to increase and spread knowledge. At the level of theoretical (fundamental) and exploratory (applied) research, the scientists that are engaged only in searching for the truth are characterized by low sensitivity to the world around them, they need the maximum freedom. Therefore, they object "instructions" or "requirements" of officials. Freedom suggests the

right of researchers and developers to choose an orientation of their work and shuts out the external control. If to take into consideration teaching activities, especially teaching social scientists, it (an orientation) is inevitably linked with the worldview of the scientist. If the teacher only transmits somebody's knowledge, it's just a craftsman but not a scientific and pedagogical worker, without who universities are no longer the "nurseries" of progress (including the sphere of economic affairs, and community development). Academic freedom of scientists is the first essential condition of not only success but of the scientific activity possibility itself.

Meanwhile the condition of "academic freedom" in Russian reality is ignored. If the Russian Academy of Sciences and its research and development establishments are considered to be the benefit of Russian science, the president of Russia Vladimir Putin intends to break scientific dominance of Russian Academy of Sciences and it is a key task of the global 10-year plan of science development that should be implemented by the Academy. In the journal "Nature" it is written: "A month ago the governing body of RAS started to act by offering the leading scientists of the subordinated institutions to draw up a list of results they expect to achieve by the year 2030, including estimated charges" [2, p. 22]. But to keynote this way is a complete nonsense. It makes more sense to require research and development establishments that conduct fundamental and applied research to present the results they have obtained, that are highly demanded and transferred to the development stage.

It has been known and well assimilated by scientists for a long time that in science the results are as accidental as the cost. Therefore, the sphere of science should be seen as an open off-balance system that comes itself from the anarchy to the growing setup of affairs with the production sphere. So, the external governance of science must be "general" and "detailed" should be left to the scientists. This governance shouldn't have physical or in kind, but an economic (monetary) basis. This external governance should be limited to funding from different level budgets determining the amount of these funds according to their efficiency level (feedback). The algorithm to determine the efficiency level must be known both to officials (including the highest rank) and researchers and developers, as well as to society as a whole to make it

sense normally the spending spree for science and its "freedom" that results in "excited" state that is given to production.

III. Results. The forecasts (distant future) and plans (nearest future) are developed by scientists (i.e. "inside the science"). To organize a research and development establishment or a group of scientists for any research orientation is also unlikely unless there is a person who leads the team. So, "coordination" and "encouragement" can only be from "inside the science".

The restriction of external influences supposes the self-government in the sphere of science or self-fulfillment of control functions. In other words, a synergetic approach to science control is required. Synergetics, as well as dynamic planning strategy, require the simulation of the whole sequence of events, step-by-step determination of dynamic changes and their time line. The strategic process can't be simulated on the basis of only one period. "Science cannot be "set free", while every step is not thought over in terms of the common purpose and thus we should achieve not only the development but also the dynamic correlation" [3, p. 82]. The need to consider the great number of periods may be substituted by the final future state of the system. And dynamic correlation, from the point of view of classical political economics, is a correlation of elements and parts of a developing system to a condition of balance and a condition of optimum commensurability of the parts and components of the system that should provide exchangeability or a conventional reproductive performance.

From the mentioned above it is clear that the economic and mathematical model is needed. To build something new it is desirable to have indicators that are fixed by statistics. As in case of the system individual parts study, the behavior of these parts will be in many cases very puzzling, it is necessary to have a model of the entire system. In our case, this is a "science-production-consumption" system. The model, of course, must have the prognostic function that is the basic for science and the first for control. If the model requires some "tuning", its prognostic property is doubtful. The models that are set to parameters and initial conditions to achieve the "truthiness" of simulation results from the perspective of economic theory or developers own views

are inappropriate for forecasting. An arbitrary choice of parameter values, i.e. a model "adjustment" to real time series. The model, of course, should not include any odd parameters and they must be of the same level (national economy, region or enterprise).

The desired model should simulate progressive and balanced state of the system. As it is known, the Nobel Laureate Maurice Allais strictly proved that the state of balance is adequate to the biggest efficiency of the economic system. Karl Marx also modeled the balance between the first and second divisions of the social production, and N.D. Kondratyev emphasized more than once that the balance is the guaranty of the crisis-free development of economy. There is also "the golden rule of capital accumulation" that is formally in Marx balanced reproduction schemes in the form of a surplus value half accumulation. Such division into halves (that can of course be continued) should logically be reflected in other moments of the same economic system. It follows that the marginal possibilities of growth or development are determined by $\frac{1}{2}$ of the surplus value and, consequently, $\frac{1}{2}$ of national income (NI) and national product (NP) annual growths.

There is an author political and economic resource and time dependent model of a three-unit cycle or system "science-production-consumption" that looks like:

$$3'_i = \int_{t_{i-1}}^{t_i} t dt + \int_{t_{i-1}}^{t_i} t^2 dt + \int_{t_{i-1}}^{t_i} t^3 dt,$$

where: t_{i-1} t_i -relative characteristics of moments of the beginning and ending of i stage; t_1 , t_2 and t_3 – relative values of productive power elements, respectively, of direct labor, subjects and means of labor; $3'_i$ – the relative value of inputs at i cycle (phase) [4].

The stage lengths are determined on the basis of the rating data (it's worth mentioning that there is a "fertile territory" for statistics state structures), the values calculated by the model are given in the table, and their graphical interpretation is shown in Fig. 1.

We give only some explanations to the table and fig. 1. In this figure the straight and curved lines of productive power elements "twist" around the "stem" with "a gratis unit" cross section- "natural power" that, in our opinion, predetermines a certain

lack of rigor in political economics mathematization. As the "natural power" has no value, the theory of Ricardo is "93% labor theory of value" as it was determined by a well-known American economist and Nobel laureate George Stigler. That means that in this theory the "value" is not 100% but is less by 1/16 (it's worth mentioning that the natural rate of unemployment is estimated at 6-7%). In practice, however, the cost or value is assigned to "the gratis natural power" at a certain stage of research and manufacturing cycle (RMC) (here it's worth mentioning that in real RMC the stages "implementation" and "assimilation" are combined in time that causes the "spurt" in charges on this RMC segment and the relevant difficulties). As a result there is a "cobweb model" or a similarity of "a neural network", and "triple helix" (unlike "double helix" of DNA in biology and thus an economic system is next more complicated than a biological one) – "life whirlwind" of "science-production-consumption" system.

Table. Integral values of relative amounts in "science-production-consumption" process

stage	duration, years	integration limits	Relative amounts			Total
			direct labor	labor subjects-products	labor means	
1. Fundamental research	3	0,000 -0,250	0,03125	0,00521	0,00098	0,03744
2. Applied research	3	0,250- 0,500	0,09375	0,03646	0,01445	0,14486
3. Developments	3	0,500-0,750	0,15625	0,09896	0,06447	0,31968
Sum 1÷3	9	-	0,28125	0,14063	0,07990	0,50198
4. Implementation	3	0,750-1,000	0,21875	0,19270	0,17090	0,58135
Sum 1÷4	12	1,000	0,50000	0,33333	0,25000	1,08333
5. Production (assimilation)	12 (3)	1,000 -(1,250) (1,750) -2,000	(0,28125) 1,50000 (0,46875)	(0,31771) 2,33333 (0,88020)	(0,36035) 3,75000 (1,65527)	(0,95931) 7,58333 (3,00422)
Sum 1÷5	24	2,000	2,00000	2,66666	4,00000	8,66666
6. Consumption	12	2,000-3,000	2,50000	6,33333	16,25000	25,08333
Sum 1÷6	36	3,000	4,50000	9,00000	20,25000	33,75000

It is also necessary to note that if the values simulated by the model are presented on a plane or in two coordinates, the real system operating standards are written down the same way and this operation will be sufficient if they are lined up in three

helices that reflect the space three-dimensionality. However, the theory of civilizational cycles denies to a large extent the idea of the upfront or even helical economic-technological development of humanity as a whole. For example, the ancient Sumerians knew manufacturing and implementation techniques of galvanic elements, the Chinese – aluminum production, the Indians – platinum smelting (that requires extremely high temperatures) and crystal fine finishing. Subsequently, in Europe it was rediscovered, and some ancient secrets were lost forever [5, p. 10]. But the "lost knowledge" is equal to "dwelling" or "moving in a circle", but the first control task is to "stand out of moving in a circle" and to get an evolving social and economic system. However, it should be kept in mind: if the system control is too complicated and incomprehensible for the majority, and the system behavior does not suit the mass, the odd complexities are "dumped" (control charges cannot be boundless).

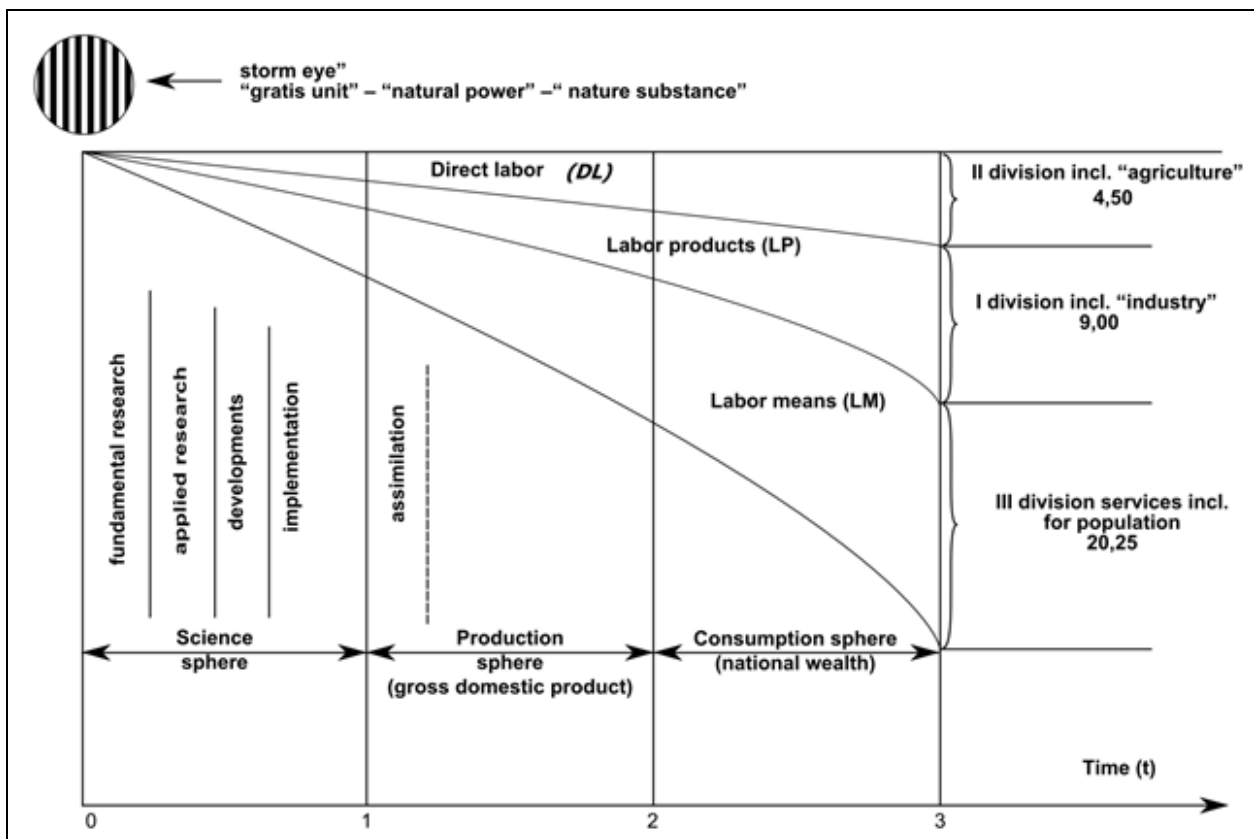


Fig. 1. Parts and components diagram of "science-production-consumption" system

It is also necessary to pinpoint that if the working time (labor) are distributed in the optimum way (i.e. the law of time economy is followed and the labor is saved), and a wage and nonwage capitals are shared likewise, the capital saving is obtained. This is the initial principle of a classical political economy. According to figure 1

when moving from science to all elements and parts of the system "are filled up with ' labor (value), and when moving from consumption – with money (antivalue).

National wealth (NW) is connected to the consumption sphere and labour subjects-products, national income (NI) – to the direct labor and the number of economically active population, national product (NP) – to labor subjects-products, and fixed assets - to labor facilities, to the past labor, and all together they characterize the production sphere. In its turn, II division (production of consumer goods) is connected to the direct labor and total number of consumers, I division (manufacture of production means) – to labor subjects-products, and III division (service) – to the amount of labor facilities. It should be noted that the services themselves are not included in the national wealth directly. The ratio DL: LP: LF is decreasing through time, the ratio II: I: III is also reducing, but the labor efficiency is growing (and this growth is provided by science). Thus, these ratios (sets that characterize the science, production and consumption) are self-similar (fractal), and "the self-similar sets are an aggregate of helices [6, p. 89]. So the view of reality as an aggregate of helices (in one plane) cannot be prohibited. The quantum nature or control character do not prohibit it either. According to the model the capital of 0.5 units from 2.00 units of the national income or a half of surplus value is taken to the sphere of science. It corresponds to accumulation of the surplus value half in Marx reproduction scheme and to "the golden rule of capital accumulation" that was discovered later. This rule is: if the accumulation is too big, it guarantees a high level of production (growth), but the biggest part of it doesn't go to consumption and but to the accumulation and society will not be able to enjoy the fruit of growth. If the accumulation is of negligible importance, the consumption will be higher, but the consumed part will decrease. As the science produces nothing to meet directly human needs, the capital branching to this area equal to a half of the surplus value should be considered marginal.

The balance for two divisions of social production at static growth is: $IIc = I(v+m)$, where c is a nonwage capital, v – wage capital, m -surplus value. According to our model $IIc=3.0$, $Iv=1.50$, $Im =1.50$ and the balance is: $3.00 =1.50+1.50$. When the final III (services) division is added to I and II divisions (and "close" the system) the

condition of equilibrium is: $IIIc=I(c+v+m)+II(c+v+m)$. According to our model $IIIc=13.50$, $I(c+v+m)=9.00$, $II(c+v+m)=4.50$ and $13.5=9.00+4.50$. The equal amounts of national wealth determined by the national income formula are equipped in the sphere of nonmaterial services production and in the sphere of material goods production. It is quite clear that if there is an increase of the relative number of nonmaterial and a reduction of I and II divisions, it would lead to the reduction of goods supply (means of production) in this sphere and the ratio $c:v$ reduction that will cause the working efficiency reduction in this area.

If there is a division of the social production into services, industry and agriculture, the following trends can be seen: services aim at 75%, industry – at 25%, and agriculture – at 0% of NP [7, p. 601]. At such division it's necessary to keep in mind that, in practice, more and more operations of I and II divisions go to services and the agriculture is becoming more and more granted. In addition it is necessary to consider the following services feature: the service is rendered when the customer accepts the price and pays for it. Statistics take stock of the services according to the formula of $NP=v+m+0,5m$. If we "expand" the model to the limit of 4.00, where DL is meaningless as well as the agriculture, only parts I and II of the division will be kept in the form of "industry" and "service" at the ratio 21.33:64.00 or 1:3 (25%: 75%), that is marginal for the capitalist economy. Thus, the political and economic model reflects the trends that exist in the economy of the United States.

It's also worth paying attention to the following. Production is separated from the consumption by the market "wall". So neoclassicists observing the economy from the side of consumption cannot say anything intelligible on production, they are not interested in it. If the economic system is observed from the side of the science, it's possible to judge quite definitely the science and production. It's also possible to increase the duration of "observation" and judge the normative parameters of consumption sphere. Of course, the system parts amounts will vary if the explorer found location on the time vector changes. It is clear, however, if the manager does not pay attention to all parts of the system, the parts that are not "included» start to behave as they like and the crisis inevitably occurs. The current crisis can be explained by an

excessive enthusiasm for "financial flows" and "consumption" in developed countries (when the "production" is moved off to the periphery – a determinative core of any economy and when the consumption standards are ignored).

In the sphere of science, as it is known, there is a tendency to the price equality of one subject regardless of the SPC stage. If at FI stage two themes are established each having the price of 0.5 units, at PI stage – four themes, each having the price of 0.5 units, and at P stage – eight themes, each having the price of 0.5 units, then at Vn and Os stages there is only one development and it will be merchantable in case of the intensive work of its creators with the desire to achieve high results. As a result, as it is written by L. I. Evenko, it turns out that: "According to statistics, in the United States only 1/2 of new research projects are completed, 1/3 of them are commercially actualized and only one out of eight projects is merchantable (one out of ten – one and a half decades ago)" [8, p. 202]. If an amount of labor subjects-products at four stages of the science sphere (0.33333 units) and at the implementation stage (0.31771) is taken into account, the commensurability at the stages can be (for control purposes) seen as: $(1:2:4:8)+[1]=16-[1]$, i.e. in the form of geometric series with a denominator 2. There is an overturn at the boundary between the science and industry: $DL > LM$ changes to $DL < LM$. However, it should be thought that the "set" commensurability is strictly followed by executors, but the financing growth makes the next stage of the SPC more attractive. It will promote the reduction of the negative profit and breaks between the operations of adjacent stages and a faster commercialization of scientific results. In his turn, S.D. Haytun writes: "The most notable manifestation of a fractal evolution is its radial nature. It means that it occurs through a branchpoint cascade and the "frizzier" the twirling stick is, the more perspective it is in evolutionary terms [9, p. p. 157, 158]. Branching or bifurcation (or hierarchy of search that allows to save time) at SPC stages is a manifestation of fractal properties.

The innovative development mechanism, of course, is the same for the national economy as well as for regions and enterprises. The innovative development mechanism in political economy categories is the following. The input data: $v=1.00$; $c=4.00$ and $\sqrt{(v \times c)}=v+m$ or $\sqrt{(1 \times 4)}=1+1$. The costs (the capital branch) in the sphere of sci-

ence on "direct labor" and "labor subjects" are $0.50+0.33 = 0.88$ (look at the table). The cost on "labor means" do not move toward the production and is a "negative profit", it's impossible to perform the scientific cycle operations without them. The value of 0.83 units (as the value of "labor products" in science is scientific information) is doubled at the implementation stage, i.e. grows up to 1.66 units and is distributed between v and c in the sphere of production in the ratio 1: 4 (equipment with a higher capacity tends to be more expensive, and people who coped with innovations have a right to have a better payment). As a result we get: $|\sqrt{(1.33 \times 5.33)}| = 2.66$. i.e. the annual national income growth is 33% (from 2.00 to 2.66). If the costs in science are 0.66 units, the costs economic efficiency on science is 2 rub./rub. This is quite enough to increase systematically and methodically (constantly, rhythmically, without "leaps") the financing of the whole set of innovative activities, i.e. to increase "the capital branch" in the science sphere to be competitive. It is clear that the achievement of such return takes away all "claims" to science in keeping the commensurability. If such return is proved, the science receives the desired and necessary freedom from society. Evaluation of a specific development is carried out by replacement of political economy categories in its algorithm for the appropriate specific indicators [10, p.p. 45-46; 11, p. p.109-117].

If NP is 2 units, in production sphere of $\Delta v = 0.25$, $dc = 1.00$, the capital branch to science is for $DL = 0.50$ and $LM = 0.25$. If $NP = 2.66$ g, $\Delta v = 0.33$, $\Delta c = 1.33$, and $DL = 0.66$ and $LM = 0.33$. As a result the division of NP is: $0.33 + 1.33 + 0.66 + 0.33 = 2.66$ g (see fig. 2). Condition of the self-similarity of non-uniformly scaled values, of course, supposes the division of ΔNP according to the NP structure. It must be kept in mind that v and c are renewed as a result of the production circle.

Information available in scientific literature, and model studies suggest that in the field of scientific and technical progress the commensurability varies about the "base" in the form of geometric series with a denominator 2. This "base" is taken as the basis for the joint financing of innovative activities (see figure 3).

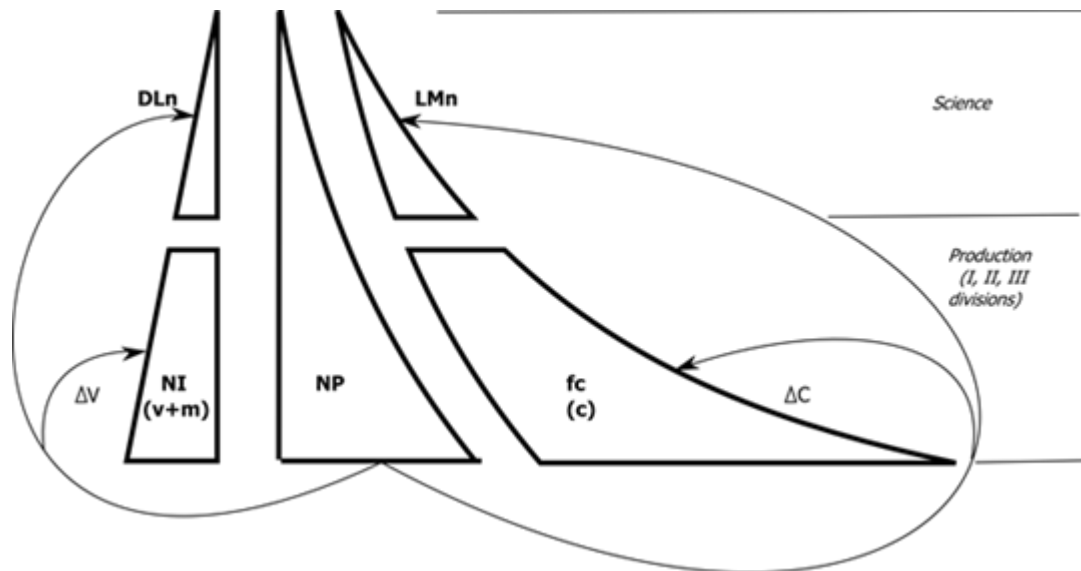


Fig. 2. Innovative development diagram

The joint financing of innovative development suggests the parts participation pro rata the obtained benefits. It is obvious that their common interest is in profit (the modified form of the surplus value). The enterprise and its owners do not care about the value, for example, the GDP of the country, region, or the share of innovative products. The development of infrastructure (production and social) can be only if there is a profit. The NLP binding to the profit, of course, supposes the reduction of taxes range and the superstructure costs reduction.

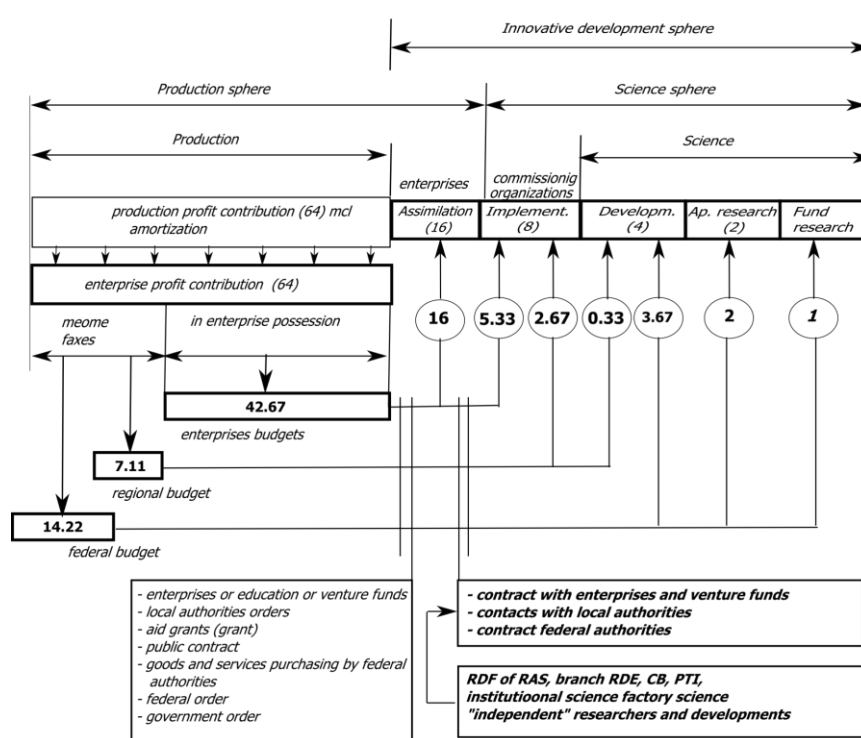


Fig. 3. Variant of joint financing of the innovative process from federal, regional and enterprise budgets

Modern economic statistics leaves much to be desired. Statisticians suggest that the situation will improve with the conversion or development of the SNA-2008. However, all SNA are based on the permanent conception according to that the land and the capital are seen as factors involved in creating of the value together with the labor. However, this is "the toothless" conception and it is not appropriate to manage the economy growth and development. The labor and capital are mixed there, and the source of development seems to be "spread" on labor, capital and land (its fertility and infrastructure, but it is a constant capital). The indicators that give warning of the approaching crisis are lost. The supporters of this conception see the "development source" as a banker-financier, who, according to J. Schumpeter, gives out loans to carry out "new combinations" on behalf of the society. But the up-to-date financial crisis showed that the banker is more interested in his bonus and not in the society interest. So figure 3 lacks bankers and their loans. However, it's worth reminding: to manage it is necessary to measure. If the state statistics structures do not provide the officials with the right information, they (officials) should understand their limitation (for example, statisticians do not provide an answer to the question: what part of services is provided to (I) and (II) divisions, or to "industry" and "agriculture" and what part of services is provided to the population). At the same time, the "best thoughts" of many officials are directed to the issue of changing their social status: how to turn from "people servants" into the "capitalists". On the grounds of this the knowledge, understanding and ideas about solving this or that problem of those who the officials are trying to manage are higher.

If 0.25 units in relation to the constant capital of 4.00 units make up the amortization size at average service life of 16 years, and 0.33 – 12 years then it is possible to talk about the law-tendency of SPC duration to reduction. At 0.33 unit amortization, it will constitute 16.66% in relation to 4.00 units. The funds diversion in the innovative development sphere to the extent of the difference between NP and NI that is 0.66 units (33.33% of 2.00 units of NI) and a half of 0.66% in the sphere of science, i.e. 0.33 units or 12.5% of NP is comported with the diversion in science that is 0.50 units or 25% of NI, i.e. a half of the surplus value. If the ratio of NW and NP

gravitates toward some constant value, then it is possible to talk about the law-trend of this ratio to the consistency (it's worth mentioning that the value of NW is end or bottom in "science-production-consumption" system). The excess of consumption over the standard (if there is a standard, the departure from accepted standards is negative for the economic system) in the United States and other countries causes the up-to-date global financial crisis (the growth rates of NW and the growth rates of consumption outrun the GDP growth rate and form a "consumer society" that exists to some extent due to the "soap bubble" of the national wealth and the government debt). The expectations for the first phase of the information technology stage turned out to be overcharged, and consumption meets these expectations, is accompanied by money growth and is reflected in the government debt growth of the United States. As the study shows the stated excess in the United States started in 1980, and by 2000 it reached 5% of the GDP. In Russia there was an opposite situation, the consumption standard wasn't obtained. It encourages the macroeconomic stabilization and decline in inflation, but causes the apparent demand "compression", and it reduces the possibilities of the national economy development on the raw material base.

There are some predictions of innovative development of the Russian Federation economy. It's worth mentioning that officials are interested in a variety of predictions and that their developers argue and pay less attention to the analysis of the officials' performance. Thus officials determine the importance of these predictions by the "substantiality" of scientific institutions and the staff number that develops these forecasts. While, they are not interested in approach on the basis of which the forecast is built. For example, if the prediction is built on perceived development trends extension [12, p. 129], it inevitably "extends" the whole up-to-date negative to the future. The prediction of IMEMO (Institute of world economy and international relations of Russian Academy of Sciences) assumes that the proportion of research and development costs in GDP in 2030 in the United States will be 3.10% and in Russia – 1.9% [12, p. 132]. But the information on the United States is doubtful, because in Sweden and Israel these costs are already more than 4%, so by 2030 this proportion in the United States is likely to be about the size or barrier of the information tech-

nology stage termination for which these costs are 4% of GDP (without rigor). As for Russia, the forecasters probably know better their country and the value of 1.9% of GDP by 2030 appears to be correct (if to take into account the inefficiency of fighting corruption, decile coefficient growth, capital outflow and so on, that does not promote the society consolidate to solve the large-scale tasks). However, this value corresponds to the level of scientific and technical stage termination and consequently there is a four-time difference between the labor efficiency levels in the United States and Russia.

To coordinate actions it is necessary that all participants and parts have the uniform understanding of an occurrence. Innovative development is a creative process with participation and satisfaction of the majority of the economically active population interests. This process is accompanied by an absolute and relative increase in the cost of direct labor, labor goods and means in science at the appropriate balanced growth of specific economic indicators of social production divisions due to the transformation of novelties into innovations to meet the rising needs of people.

The main encouraging reason to finance the innovative development from the direction of business (private owners) is a rivalry (monopoly is a "prize" in this fight and an economic efficiency is twice higher than an average one), and from the direction of the society (state) it is the rising needs of the population. The rivalry should not be destructive but constructive and makes sense not only for enterprises but also for regions and countries. However, there are some factors that do not promote the conversion to innovative development. They are mainly generated as a result of the "Washington consensus" references realization (privatization, liberalization and macroeconomic stabilization) in transitional economics. Now it is already clear that privatization didn't provide the appearance of "effective owners" as the efficiency is not connected to the ownership relationship but to the control quality. The liberalization led to the free movement of capital (or rather to the profit export and amortization by "ineffective owners"). Abroad, this "capital" is turned into (in case of the Russians) mainly in property and services consumption. The macroeconomic stabilization is brought to the money supply contraction that allows to reduce the inflation but ex-

cludes the development due to the domestic demand growth. These negative points should be eliminated for the sake of balance and innovative development. Only some of them will be mentioned.

So to solve the large-scale tasks the involvement of a large number of people and the consolidation of society are required. However, if the decile coefficient increases, it is impossible to talk about any consolidation (and pensionary reforms will not be successful). It's not worth expecting the improvement of the education and medical services quality, if the salary ratio of top managers (administrators) and associate professors, teachers and doctors is extreme and continues to grow. Corruption and its growth do not promote the innovative development either. Corruptionists (as well as the up-to-date financiers) are more interested in artifices and life according to European standards, rather than innovations. The fight against corruption cannot be successful if it is conducted only by the law machinery the employees (officials) of which also have the desire to change their social status. The whole superstructure "staff" understands that in course of time they will be gradually made redundant. To do it the permission to increase the number of officials must be requested to the society but not to the President or Parliament (as officials will carry their point due to their large number). It is also necessary to cast away the utopia that officials will stop stealing if they are better-paid. It is known down the ages that the bribe size increases proportional to the official salary size. In addition, if the official salary is established without any connection to the average pay in the national economy, this official becomes indifferent to the economy state and the country fate. As for redundancy payments, they should be higher than in the national economy. The existing appanages and benefits for officials should be applied after retirement in case of sufficiently long and yeoman service. Finally, it should be noted that (financial moguls and officials who tend to be capitalists) monetary capital holders are not interested in growth of an intellectual property holders share, because the latter are ill-controlled by the first. Here it is necessary to add those who are concerned about the "capita export" because the balance and innovative development of the national economy do not make sense to them.

Conclusion. Resource-based time-dependent model of the "science-production-consumption" system reflects well the reality. The existence of "gratis natural power" causes the commensurability uncertainty in this system and constantly keeps it "excited". The depletion of static growth possibilities necessitates the capital branching in science. The innovative development provides a faster growth in comparison with the static growth. The difference between NP and NI is bigger than at static growth. An economic system based on entrepreneurial manufacture mode has limits in science and non-manufacturing business growth in relation to the goods production sphere. When the system is going to be similar to these two limits in commensurability, and structure, the system becomes more and more "closed", it degenerates and it is evolutionary replaced by more progressive (according to development periodicity).

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