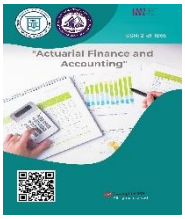

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IMPROVING THE MECHANISM OF INCREASING THE ECONOMIC POWER OF INDUSTRIAL ENTERPRISES ON THE BASE OF ECONOMETRIC MODELS

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Abstract. Production processes in industrial enterprises are expressed on the basis of simulation models. Techniques are expressed and proposed that allow showing the general characteristics of the entire system through a model based on a system-integrated approach, that is, by reaching the p-level in determining the economic power efficiency indicator. calculation model and scheme describing the production capacity of industrial enterprises.

Key words: Industrial enterprises, simulation model, economic power, system, system-integrated approach, enterprise efficiency, functional regulations, economic analysis.

Introduction. Industrial enterprises have a high economic power if the production supply and turnover are high, even if the production efficiency index is low. For example, the former union was second only to the United States in terms of economic power due to the large population and the satisfaction of their needs (large turnover), despite the fact that the indicator of economic efficiency was lower than that of developed countries. [2]

It is determined by evaluating the efficiency of each industrial enterprise (economic power) and the circulation of industrial goods.

$$N=HI \qquad (1)$$

Here: N– the economic power of the industrial system; I- production offer and circulation of goods; N– indicator of economic efficiency.

Based on the formula (1), despite the low quality indicator of the industrial level in Uzbekistan, as a result of the increase in the population, industrial efficiency causes an increase in economic power.

Research methodology

In order to ensure the completeness of the system of industrial networks, a systematic approach is appropriate for each element of its structural structure.

For this purpose, the industrial field is considered as a complex system, and the quantitative and qualitative aspects of its representative laws are studied. Imitation is important in the analysis of the activity of the industrial network, which is considered as a complex economic process.

Analysis of literature on the topic

In this case, the essence of the process being studied is expressed through signs, used indicators, endogenous and exogenous parameters. Then, based on economic laws, the necessary simulation equations are derived. It is possible to obtain results by changing the control parameters. These equations are a simulation model of the studied economic process, phenomena.

A.A.Denisov emphasizes the evaluation of the efficiency of each industrial enterprise (economic power) and determination through the circulation of industrial goods.[2]

B.Berkinov and H.S.Mukhitdinov say that through the development of industrial sectors, simulation indicators and systematic modeling methods of management are useful for creating an automated information base in modeling the development of social processes in the regions, increasing the standard of living of the population. [1]

At the same time, it should be recognized that there are a number of advantages inherent in the simulation modeling system. The main of them are: ease of learning, relatively low costs associated with model development, reliability of the compiler, automation of collection, processing and presentation of modeling results, the ability to connect to modules written in universal programming languages, and ease of programming.

At the same time, scientists Yu.S.Kharin, V.I.Malyugin and V.P.Kirlitsa recognized that this system has its own shortcomings. In particular, its lack of flexibility, the fact that it can be applied to the development of models belonging to a certain category of statistical modeling, are justified. [3]

N. Makhmudov stated that it is appropriate to use systematic integrated simulation models in the assessment and forecasting of each industry branch, taking into account the main influencing factors of economic indicators in the industry. [4]

Because in system-integrated simulation modeling, complex processes are first experienced and simulated in EHM. On this basis, management decisions are made and the economic capacity of production in industrial enterprises is analyzed, synthesized and forecasted.

These models constantly feel the forces of motion relative to themselves. This, first of all, makes it possible to analyze issues related to the state of internal flexibility of the system.

Analysis and results

In the verification of the efficiency of the economic power of industrial enterprises, both vertical (between individual elements of the system management) and horizontal (in each product life cycle) are carried out through an integrated approach. A model based on a systemic-integrated approach makes it possible to show the general characteristics of the entire system.

$$\frac{\partial Xk(t)}{\partial t} = Xk\dot{d}(t) - Xk\dot{x}(t) \qquad (2)$$

$Xk\dot{d}(t) = Xk\dot{d}_1(t) + Xk\dot{d}_2(t) + \cdots + Xk\dot{d}_n(t)$– total income per population from n types of industry;

$Xk\dot{x}(t) = Xk\dot{x}_1(t) + Xk\dot{x}_2(t) + \cdots + Xk\dot{x}_n(t)$– total expenditure per population on n types of industry.

As we can see, the presence of integrative properties is characteristic of the system, which is present in the system, but is not characteristic of any of its individual elements, or consists of their sum.

The task of this model is to calculate the efficiency of the entire system of industrial sectors, not the sub-system. It follows that it is appropriate to use this model for each industry.

Naturally, our goal is to calculate the economic power in the systematic analysis by reaching the p-level in determining the H-efficiency indicator. We can define this as the following base two logarithm efficiency [2]:

$$H = -\log_2(1-p) \qquad (3)$$

Here: H is the natural efficiency indicator of meeting needs in the industrial network (utility character of the object); r-level of satisfaction of the need for industrial products; (1-p)–probability of not achieving the goal.

As we can see from the formula (3), the level of satisfaction of the population's need for industrial products increases depending on how high the level of economic efficiency is.

If the need is fully satisfied, p=1 (which, of course, will never be fully satisfied), the efficiency will be infinite $H_0=\infty$. If the need is half satisfied, i.e. p=0.5, then efficiency will be $N_0=1$. If the population need p=0 is not satisfied, the level of efficiency $N_0=0$ will be zero.

In the global economy, there is a market for goods, capital, and labor as well as for services. This market consists of a complex system, the main task of which is to satisfy the needs of the population for services. The real sector market is based on the industrial sector of the wide and rapidly developing world economy. In the world economy, industrial enterprises serve as the main factor in increasing the level and quality of life.

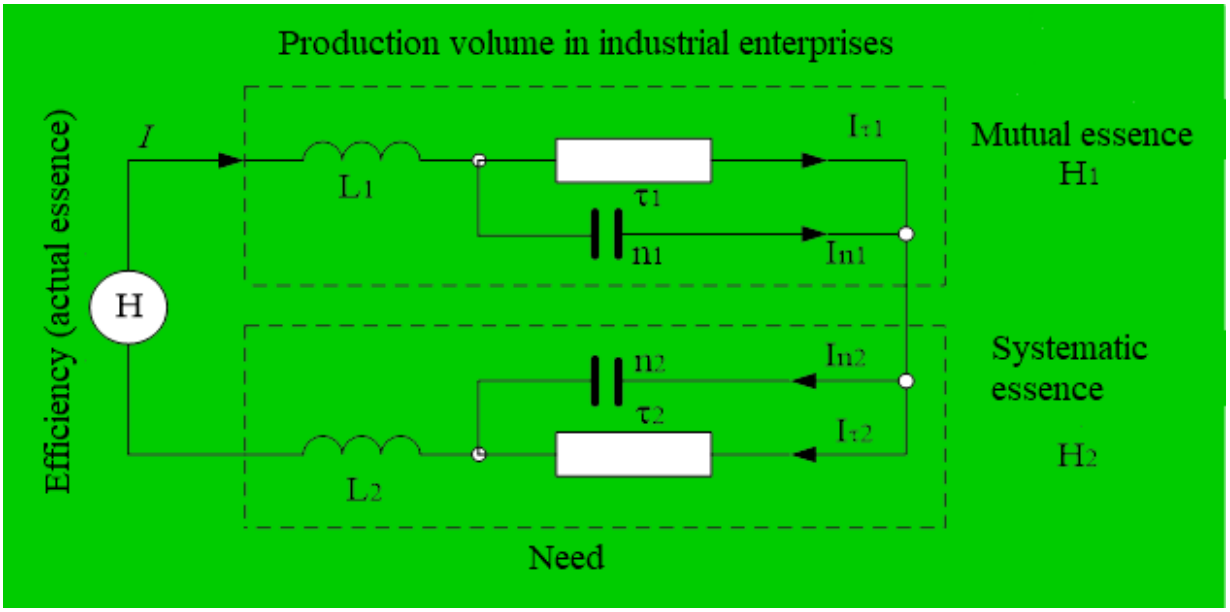

Figure 2. Scheme describing production capacity in industrial enterprises.[1]

[1] Development of authors.

Thus, the higher the N efficiency, the greater the need. Therefore, the level of economic efficiency of industrial enterprises is a stimulating force in increasing the quality indicator. We can see this in Figure 2.

Here: H– efficiency indicator (the power that activates the economic process); N_1– mutual essence (results from production costs); N_2– economic systemic essence (the final value of the service or industry after excluding costs for the consumer. For example, if the service offer or industry is free, the cost incurred for the industry N_2 is the same as the efficiency indicator N). In other words, if the industry is free, then the value of demand N_2 corresponds to the efficiency N of the entire industry level.

If the need for industry is met from one region to another, it will look like this:

$$H = H_1 + H_2 \qquad (4a)$$

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$$p_0 = p_1 + p_2 - p_1 p_2 \qquad (4b)$$

Here: r0 is the a priori (internal) level of need satisfaction; r_1 – mutual level of need satisfaction; r_2 - the real level of satisfaction of the need. In this case $p_1 \le p_0,\ p_2 \le p_0$. [5]

τ_1 and τ_2– Producers of industrial products and resistance to their movement, it is necessary to take into account obstacles that may be encountered in meeting the needs for industrial products.

n_1 ва n_2– Саноат корхоналарининг ишлаб чиқариш имкониятлари (*J* нормал захира шароитида).

n_1 and n_2– production capabilities of industrial enterprises (J under normal reserve conditions).

L_1 and L_2– Creates regulatory standards that regulate any changes in the need for industrial products.

We express the equation of the process shown in Figure 2 in the following form. [2]

$$H_1 = L_1 dI/dt + I_{\tau 1}\tau_1;\ I_{\tau 1}\tau_1 = \frac{1}{n_1}\int I_{n1}dt;$$

$$H_2 = L_2 dI/dt + I_{\tau 2}\tau_2;\ I_{\tau 2}\tau_2 = \frac{1}{n_2}\int I_{n2}dt;$$

$$I = I_{n1} + I_{\tau 1} = I_{n2} + I_{\tau 2}, \qquad (5)$$

In this case, industrial enterprises are considered as a general solid system, and its (procedure) stages are as follows:

to study the possibility of industrial production, to analyze its components, to reveal the interrelationships between individual elements;

collecting information about the working mechanism of the industrial system, researching information flows, observing and experimenting with the analyzed system, and developing models;

checking the adequacy of models, analyzing uncertainty and sensitivity;

ресурс имкониятларини тадқиқ этиш;

determining the goals of systematic analysis in industrial mines;

formulation of criteria;

developing alternatives;

making choices and making decisions;

implementation of analysis results.

Now if we calculate the economic capacity or efficiency of production of industrial enterprises, we will certainly see that there is a difference between the types of industrial sector. Биз буни H_1' ва H_1'' деб белгилаб олсак унинг йиғиндиси қуйидаги кўринишга эга бўлади:

If we define it as H_1' *and* H_1'' its sum will look like this:

$H_1 = H_1' + H_1''$ as well as $H_2 = H_2' + H_2''$ It is based on the assessment of the needs for the types of industrial products and the volume of production.

$$H_2'' = H_1'$$

For this purpose, funds are spent on industrial enterprises in order to develop the volume of production of industrial products.

The analysis for the purpose of perfecting the management system of any industrial enterprises also depends on a set of important regulations. Functional regulations include speed and quality of processing plans, accurate organization of subdivisions, operational calculation and control, strict distribution of functional responsibilities in each subdivision of the structure.

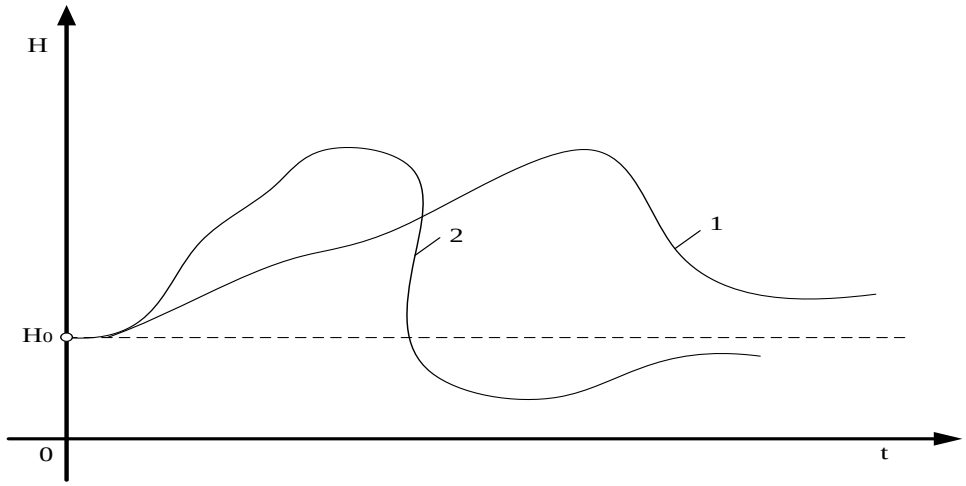

Figure 3. Supply (1) and consumption (2) line of industrial enterprises.[2]

The higher the income from the production of industrial enterprises, the more they try to increase the average production of industrial products. In embedded mode $H_1 = H_2 = H/2$. In this case $\tau_1 = \tau_2 = \tau$, if the average normal time of industrial enterprises is not equal to the average production time of product demand $H_2 \neq H_1$, the volume of industrial products exceeds the demand or cannot supply enough products (Fig. 3), in a short time (1) the supply of industrial enterprises increases, (2) the volume of demand for industrial products decreases. [6]

Therefore, it is necessary to equalize the balance of the balancing period of the industrial level (Fig. 3).

Also, if in the 1st block the industrial product is converted into money, in the 2nd block the money is converted into an export of the industrial product, then in the 3rd block the industrial product is converted into money, and the 4th block is converted into payments of the industrial product in monetary value (Fig. 4).

[2] Development of authors.

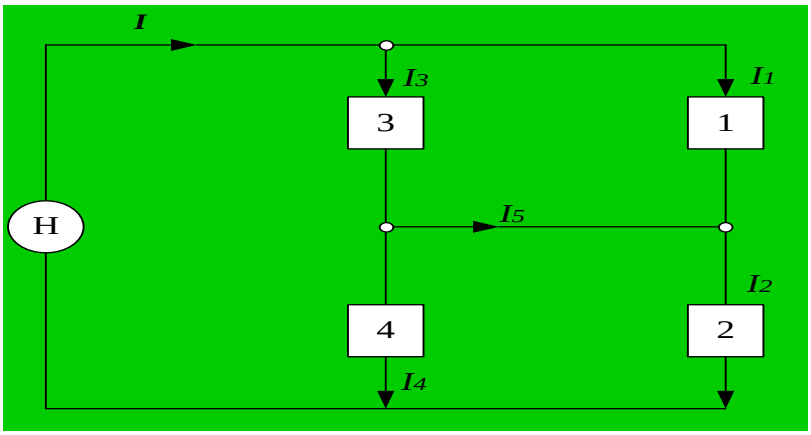

Figure 4. Scheme of transformation of industrial products into money, money into products.[3]

Саноат корхоналарида ишлаб чиқариш мувозанатлаштирилганда $I_3=I_4$ бўлади, ишлаб чиқариш ҳажми етарли даражада бўлмаганда ишлаб топилмаган пул оқими I_5-истеъмолчига кетади, саноат маҳсулотлари ҳажми ортиб кетганда солиқ тизимига оқади, саноат корхоналарининг даромади I_4 I_3 сарфидан ошади.

When the production in industrial enterprises is balanced, $I_3=I_4$, when the volume of production is insufficient, the unearned money flow goes to the I_5-consumer, when the volume of industrial products increases, it flows into the tax system, the income of industrial enterprises exceeds I_4 consumption of I_3.

$$I = I_1 + I_3 = I_2 + I_4;\ I_2 = I_1 + I_5;\ I_3 = I_4 + I_5. \qquad (6)$$

Even if the economy is balanced, i.e. $\tau_1\tau_4 = \tau_2\tau_3$, the calculation of n and L will have $I_5 \neq 0$, that is, if the sufficiency or insufficiency I_5 flows from left to ten, $I_2>I_1$ (demand is greater than the volume of industrial products), the price of products will increase. If $I_3>I_4$, the budget expenditure is greater than the income, the budget deficit leads to an increase in the price of industrial products. If $I_1>I_2$, (the volume of industrial products is greater than consumption), prices will decrease. [7]

As we can see from Figure 4, as a result of the transition from finished products to money, from money to products (raw materials), a cycle of production is formed. During this period, a program for the development of industrial enterprises will be developed.

Conclusions and suggestions

In conclusion, it is necessary to develop plans for the development of industrial enterprises in the republic, regions, cities and districts, that is, to increase the volume of production and the quality of products, and to monitor the status of their implementation.

It is necessary to create complex measures of the management system of industrial enterprises, plan and control the activities of industrial enterprises.

Taking into account the needs of industrial enterprises, it is necessary to increase the volume of production using the budget funds in enterprises with low capabilities, to control its implementation and spending.

[3] Developed by the author.

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