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SIMULATION MODEL OF INTEGRATED DEVELOPMENT SERVICE IN RURAL AREAS AND FORECASTING

For the purpose of improving livelihoods, providing for the life of the rural population, improving the service areas of violence and developing programs, the development of rural progress, using simulation modeling, it is necessary to develop a long-term forecast.

To determine the motives for the relations of social sphere processes, it is expedient to use simulation modeling. Simulation modeling, in contrast to analytical modeling, means a more detailed scheme of actions and internal structures of the object under study.

The simulation model is characterized by reflecting cases in the model, processed preserving their logical structures, the time sequence, the relationship between the variables and the parameters of the system under study.

Imitational models can be defined by different means. These tools include stages from the compilation of differential and integral equations with the help of functional analysis elements to computational algorithms and writing programs on a computer.

Each stage has an intrinsic effect on the final result and the mistakes made in them are marked by errors admitted in the foregoing stages.

General scheme of the experiment calculation of the simulation model is shown in 1-dimension.

Here in the beginning the essence of the signs of the process being studied, the indicators used, are expressed through endogenous and exogenous parameters. After using economic laws, the necessary imitative equations are introduced. You will receive several results by changing the managed parameters. These equations are simulation models of the studied economic processes, incidents.

At the moment, it is possible to calculate a number of preferences belonging to the system of simulation simulations. The main ones are:

- ease of learning;
- relatively less costs associated with the development of the model;
- confidence of the compiler;
-automation of the collection of simulation results, processing and provision;
- Ability to connect programs to modules written in universal languages;
- Convenience of programming.

In conclusion, it can be said in the ststastic simulation that the simulation model has a greater value than other models. When modeling the economic growth of farms, the analysis and processing of the results of statistical modeling is of great importance. In addition, in this process, the right choice of software, the reliability and completeness of information about the activities of the farming economy makes it possible to correctly evaluate the economic profitability of their activities with the help of statistical modeling.

Resources are limited means not always possible to fully meet the need of the population. This can be conditionally designated as follows;

$$\sum_{i}^{n} M_i \rangle \sum_{i}^{n} R_i \qquad (1_a)$$

If in the planned period

$$\sum_{i}^{n} \left(M_i - R_i\right) \longrightarrow \min \qquad (1)$$

Then the solution of the compiled plan will be optimal.

Here: Mi - security i th resource by the indicators of the norm, Ri - security i th resource according to plan. This expression will be used as a criterion for optimizing the improvement of the life of the rural population.

The economic and mathematical model of the complex development of the living conditions of the rural population is as follows: knowing the population size in the territory and labor resources, it is necessary to determine in the planned period the need for the growth of the planned proposal in relation to all levels of the norm.

We introduce the following notation in the functional form:

$$Au_t = f_1(t); \qquad (2)$$

$$A_t = f_2(Au_t); \qquad (3)$$

$$QA_t = f_3(t); \qquad (4)$$

$$QA^{mr}{}_t = f_4(QA_t); \qquad (5)$$

$$A^{hq}{}_t = f^h{}_5(t), \quad h=1 \div n \qquad (6)$$

Here: *At*- the number of the region's *t*- that year, thousands of people;

QAt- the number of villages rape in the *t*-th year, thousands of people;

Aut- growth in the number of the population in the *t*-th year, thousands of people;

$QA^{mr}{}_t$ - labor resources in the *t*-that year, thousands of people;

$A^{hq}{}_t$ - the number of villages rape in the *h*-region *t*-that year, thousands of people;

To carry out reforms, it is necessary to increase the capacity for servicing of violence. Islohotlarni amalga umerish uchun auliga hizmat ksarsatish imkoniyatlarini mishiris zaruriati paido baladi. For simulation, we introduce the following notations for money and consumer services:

P_t – Money services for the population of the region in the *t* that year, one thousand soums:

P^t_e – by *e* the nature of the monetary service of the population of the region in the *t* that year, one thousand soums;

P^t_i – volume *i* of genera of other services in *t* that year, one thousand soums;

P^D_t – monetary support per capita of the region in the *t* that year, one thousand soums;

P^{eD}_t – by *e* gender, the per capita income of the region in the *t* that year, one thousand soums;

Mt – general household services *t* that year, one thousand soums;

M^i_t – *i* that household service t that year, one thousand soums;

M^τ_t – the number of workers in *t* that year, people;

M^B_t – number of workshops and households in *t* that year, pieces;

M^s_t – provided household services in rural areas in *t* that year, in thousand soums;

M^{pv}_t – household services in the Tertiary in the *t* that year, in thousand sums;

M^{SD}_t – average household service per capita in rural areas *t* that year, in one thousand soums.

Using the notation, we obtain the following functional dependence:

$$P_t = f_7(A_t, t); \quad (7)$$

$$P^t = \sum_{e=1}^{n} P^t_e \; ; \quad (8)$$

$$P^{eD}_t = P^t_e / A_t \; ; \quad (9)$$

Household services will receive the following form:

$$M^B_t = \varphi_1(t); \quad (10)$$

$$M^s_t = \varphi_2(t); \quad (11)$$

$$M^i_t = \varphi_3(A_t, t); \quad (12)$$

$$M^t = \sum_{i=1}^{n} M^t_i \; ; \quad (13)$$

$$M^{SD}_t = M^t_i / A_t; \quad (14)$$

$$M^t = M^t_e * I_t(t); \quad (15)$$

One of the most important factors related to the level of life of the population is the use of transport services. To solve this problem, we use the following formulas:

$$TP_t = \lambda_1(A_t, t);$$

$$TP^0_t = \lambda_2(TP_t, A_t, t); \quad (16)$$

here: TP_t - transport services in the *t* th year, one thousand people;

TP^o_t – traffic turnover of transport services in *t* that year, km;

Effective organization of transport services gives a number of opportunities as:

- Reduction of the delivery time of agricultural products from the producer to the consumer;
- dramatically decrease the quality of products;
- linkage of agriculture with other branches of the national economy;
- production of agricultural products on the world market.

When implementing the model at the first stage, the use of the data management system requires the use of modern information technology. The mechanism of the architecture and design of the database management system makes it possible to implement the user interface with different application packages. The algorithm of the simulation model of social development of the rural population developed by us made it possible in the research process to propose the principles of bringing statistical data and the results of sociological research to some invariant form. On this basis, the leading socio-economic characteristics of rural development were determined, and the specifics of the progress of innovative processes. This allowed us to shade the main factors that exert a large or, on the contrary, insignificant influence on the life of the rural population. The selection of a set of common characteristics makes it possible to classify the processes into groups and subgroups, and to determine the causes of changes in the phenomena under study, reflect the place and role of the factors studied in socio-economic development and their impact on the development of rural life.