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PROSPECTS FOR THE DEVELOPMENT OF CATERING SERVICES IN TOURISM AND HOTELS

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Abstract: In this article, the theoretical and practical basis of the normative assessment of consumer requirements for improving the quality of accommodation and general catering services for the population in tourism and hotels has been researched. Forecasts of medium-term multi-variant scenarios of the development of the system of tourism and accommodation and general catering services for the population of Kashkadarya region were developed based on a complex number of empirical models.

Keywords: Multivariate scenarios, complex numerical empirical models, model, econometrics, standard of living of the population, poverty assessment, index of people's level of education, coefficient of satisfaction of consumption, method of economic indices.

1. INTRODUCTION

Creating favorable economic and organizational-legal conditions for the rapid development of tourism as a strategic branch of the country's economy, more fully and effectively using the huge tourism potential of the regions, fundamentally improving the management of the tourism network, creating national tourism products and promoting them in the world markets, and promoting Uzbekistan in the field of tourism In order to form a positive image, extensive scientific researches are being conducted aimed at the organization and innovative development of high-quality catering services in tourism and hotels.

As part of the ongoing scientific research, it is important to ensure the safety of life and health of tourists and excursionists in the organization of tourism services, first of all, in the places where tourists are accommodated, in eating places, when moving around the territory of the republic, when organizing visits to tourism objects.

In the countries of the world, tourism is one of the promising directions that determine the strategic development of countries, individual regions and regions. According to the 2021 report of the UNWTO "World Tourism Barometer", "a slowdown in international tourism could lead to a loss of US$ 1.3 trillion in export earnings in the sector, which is eleven times more than the losses recorded during the global economic crisis of 2009".[5] however, tourism remains an important development factor throughout the world. In addition to the historical-cultural, natural-climatic, geographical-ecological attractiveness of a specific region or state, the level of attraction of the tourist flow is determined by the level of political goodwill, the potential of specialists, the appropriate infrastructure and the level of quality of various services. Therefore, tourism, as the most priority sector in providing employment, has become one of the criteria for economic stability. At the moment, this network is considered as the most important tool for increasing the tourism potential of countries. The worldIn assessing the quality of life of the population, great attention is paid to the increase in the share of their consumption of food products in public catering establishments, and the level of housing provision. In developed foreign countries, more than 50 percent of food products are consumed in catering establishments. Globally though this indicator is around 8 percent and remains very low [7]. According to the data of the German international statistics company (Statista), the size of the hotel and resort industry market worldwide grew until 2020, and has significantly decreased during the COVID-19 pandemic. Global hotel revenue decreased by 46% to $198.6 billion in 2020. At the same time, the industry is predicted to grow to 950 billion dollars in 2021, but in practice this indicator has not been

reached. According to the International Hotel Statistics Organization (Hoteltechreport), the full recovery may not take place even in 2023. Although the development of the accommodation and public catering network is associated with the increase in the quality of life of the country's population, and has risen to the level of an important criterion for its evaluation, in many countries, problems related to factors such as resources, infrastructure, and investment attractiveness are causing a decrease in the level of development of the sector.

2. RESEARCH AND METHODS

In the theoretical basis of the development of the field of accommodation and general catering services, this type of models acquires the character of development. The use of Type 1 models in field development theory is often overlooked. The main reason for this is the social reality of the network of accommodation and catering services, which is directly related to the inner psyche of a person.

For example, in the United States, which is the leading country in terms of GDP, the annual market size of accommodation and catering services in 2021 will grow by 24.7% compared to 2020 and will reach 853,143.4 million dollars, the average growth rate for 2016-2021 is 98.2 which is equal to percent. Even if tourism and other entertainment services are taken into account, its average share in GDP does not exceed 4 percent. Also, the accommodation and catering services market in Vietnam, which has moved from poverty to middle-income countries, is forecast to generate $28.4 billion in revenue in 2021, with an average growth rate of more than 19 percent over the next 10-15 years. In other words, in most of the countries that are in the process of economic development, a high growth rate is observed in the network of accommodation and catering services. The same opinions are presented in the conclusions based on scientific analysis of several foreign researchers [8]. In our opinion, although the level of development is not high, the countries where this process is accelerating, first of all, were able to correctly assess the factors of development and made the right choice. Then, in accordance with the above information, opinions and conclusions, among these factors, the development of accommodation and catering services is also very important.

The psychological SOR (stimulus-organism-response) model[9] of professors L. Goa and X. Bai of the Australian University of Tasmania is widely used by researchers in the development of the service network of the economy. In this, the main essence is the achievement of effective results of the mental system related to the satisfaction of consumer needs and supplier interests. The model is a theoretical object of forming a model marketing system in the field of services.

The TAM (technology acceptance model) model[10] of Professor F. Davis of the University of Michigan is a theory of technology acceptance and is used to model how users accept technology and its effective use. Classic models like these are playing a key role in shaping the modern theory of residential and catering service network development today. For example, the Chinese economist Sh.F. Chou in his studies related to the construction of sustainable marketing principles in catering, determining the important factors of ensuring the effectiveness of marketing innovations in the catering services market [11] combined the SOR and TAM models into the SEM (structural equation) of marketing management of catering services modeling) develops a model.

Development models that structurally parametrically express a new view of a specific object-oriented, integrated system, or its independent system, include the agromarket parametric model of K. Umachandrat, a researcher of the Indian multidisciplinary engineering management development organization. J.R. Bolt's Semiparametric and Parametric Classification Model for Direct Services Marketing, A. Khutoretskyi and N. Nefedkin's two-parameter game theory model of service concession [12] and others. Models like this have been serving as a theoretical basis for the formation of the innovative marketing system of economic sectors, including the service network.

In the process of our research, we used the principle of the factor approach to determine the priority directions for the development of the residential and catering network for the population.

There is a special recognition of methodological scientists about the importance of the factor approach principle in modeling the management and development of economic and social systems. According to I. D. Voronina and E. A. Egorov, "the factor approach is the most effective method of researching a holistic system, the object of which is a social system that does not have an objective numerical expression" [13]. According to S. Limarie and S. Maretti, "the factor approach is a principle that creates a wide opportunity for a comprehensive analysis of the socio-economic process" [14].

Foreign economists Sh. Aixua, Sh. Yunshua, F. Xiao, Sh. Haiong, D. In the researches of Hengnian, G.Prayang, M.Landre, S.Ryan[15], the obvious influence of urban planning infrastructure on the development of this economic network in countries with different levels of development is justified against the background of the issue of spatial distribution of hotels and catering facilities.

In the scientific works of R.Verdichcha, P.Lago, K.Vries, M.Slot, M.Frakin, R.Damgrou, E.Lutters[16], the digital infrastructure is evaluated as the main factor that creates many development factors in the future. Even in the service sector, they note that the rise of digital transformation is inevitable. B. Urban, L. Matela, B. Bredemier, S. Hermann, K. Sattler, K. Prager, J. Rex[17] as a result of scientific researches in the field of modern services, in the organization of services in relation to factors such as competition, price, assortment of goods, service it is concluded that it occurs with a high level of innovative development.

In the scientific works of S.A. Denisov, A.A. Sorokin, M. Sukhari, M. Dressel, S. Schuch-Zoller [18] and other foreign scientists, the importance of scientific-theoretical foundations in the development of practice in the service sector

has been extensively covered. Also, in the opinion of S.A. Denisov, the field of services that is not based on any scientific research cannot exist, and as long as digital platforms and the online service system do not work, its future is zero.

In the studies carried out, the factor approach is limited to focusing on a set of factors characterized by a certain selected direction of development. The reason for this is the convenience of setting the priority directions specific to the type of development with the scientific bases that ensure the priority of the factors related to this set. Nevertheless, the development of the field has a synergistic character, and we believe that it is appropriate that the research process here chooses only the direction of improvement, without denying all the successful episodes of the previous, current periods. In this sense, the most optimal solution for the selection of factors in the process of our research is the formation of synergy of the influence of factors that have the status of priority in different directions of development. Provardi can create a set of synergistic factors. According to scientists, Also, all the variables of the development of the industry in real-time mode or in social reality, which cover the uncertain, sufficiently complex nature of the economic processes, are prone to nonlinearity, and are not balanced. In our opinion, a set of internal and external factors related to the whole system, whose level and quantitative measure changes while maintaining the effect characteristic in a dynamic process, is a set of synergistic factors of econometric research.

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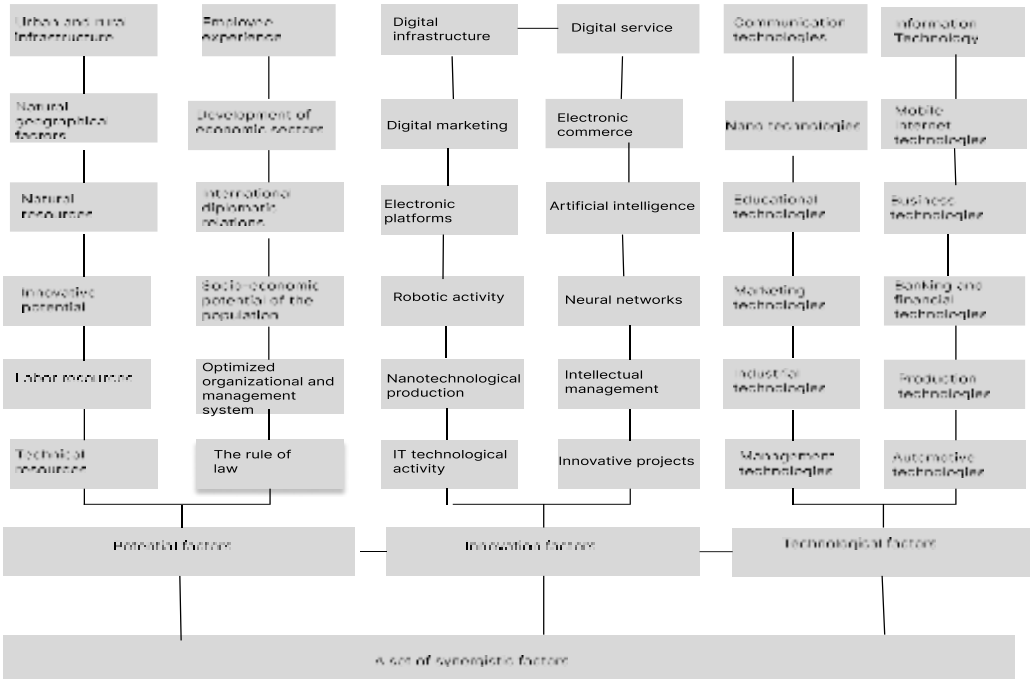
3. RESULT AND DISCUSSION

As a result of our studies related to the theoretical basis of the development of accommodation and catering services, we propose the following scheme of formation of a set of synergistic factors (Fig.1).



In the systematic research of a set of synergistic factors, which is considered as the identification of priority factors, the most effective are the network analysis according to the network symbol, as well as the perspective and

retrospective analyzes differentiated according to the time symbol.

To have optimal solutions using econometric methods in the development and organization of the sustainable development of accommodation and general catering services, the efficiency of resource use, to ensure the food security of the population based on the development of future forecast indicators of the industry, to increase the level of employment, to stimulate tourism special importance is given to research works. In the conditions of today's innovative development based on the principle of digitization of tourism service networks, attention is paid to the introduction of new methods and innovative technologies to the accommodation and public catering network, and the identification of priority directions of development based on the optimal use of the existing regional economic potential.

A number of reforms and practical measures are being implemented to establish the new Uzbekistan as an economically stable country. In particular, in order to improve the quality of life of the population, special priority is given to the development of accommodation and public catering services. In the development strategy of New Uzbekistan for 2022-2026, "creating an infrastructure conducive to the development of the tourism services sector, encouraging specialized entrepreneurship, increasing employment in the sector, launching new hotels and catering establishments in order to increase the tourism potential of our country, and improving mechanisms for improving the quality of service"[10], a number of priority tasks have been defined. In order to fulfill these tasks, modern research methods of accommodation and catering,

No. PF-60 of the President of the Republic of Uzbekistan dated January 28, 2022 "On the development strategy of New Uzbekistan for 2022-2026", dated October 5, 2020 "On approval of the Digital Uzbekistan - 2030" strategy and measures for its effective implementation Decree No. PF-6079, Decision No. PQ-5232 of August 25, 2021 "Additional measures to support the catering and tourism sectors", and this article serves to a certain extent in the implementation of tasks defined in other regulatory legal documents related to the field.

In the organization of regional tourism activities, the implementation of technological innovations in hotels and restaurants where tourists are accommodated, the formation of appropriate infrastructure and the establishment of high-quality catering services, the spatial differentiation of the eco-efficiency of regional tourism, the escalation of environmental problems and the level of air pollution above the standard safety level set by the World Health Organization 2 Environmentally responsible ecotourism, which is increasing 5 times (its share in the world market of tourism services is 181.1 billion US dollars per year, the annual growth rate is 14.3 percent) making the development of 1 out of every 8 deaths (oncological diseases, respiratory system diseases, birth defects in babies) caused by atmospheric pollution and the use of toxic chemicals are caused by environmental diseases. The most effective economic strategy to prevent environmental pollution is the development of ecotourism in potential areas.

It remains necessary to unite the efforts of the entire international community in order to make effective decisions that serve "green" and sustainable development in our country[2]

In this regard, special attention is being paid to scientific research aimed at researching the possibilities of new directions of ecotourism in potential areas, improving mechanisms for the development of hotel and catering services. In particular, to establish the activities of hotels focused on environmental goals for general catering services, to form its market requirements at the international level:

- to determine the specific features of the development of accommodation and catering services in tourism hotels;
- Conducting an economic-statistical analysis of the development trend of accommodation and catering services in hotels in Kashkadarya region based on consumption standards;
- development of optimal criteria for evaluating the intersectoral development potential of hotel accommodation and catering services using the factor and diagnostic analysis method;
- development of non-linear parametric defined econometric models based on the requirements for the consumption function in the consumption theory of Keynes and Friedman to calculate the marginal propensity coefficient for food consumption of the population of the region;
- development of an algorithm for calculating the optimal dimensions of the development of housing and public catering services for the population based on the construction of kinetic production functions with the characteristic of determining the extremum;
- it is necessary to develop promising models for the development of accommodation and catering services based on regional potential.

In the development strategy of New Uzbekistan for 2022-2026, a special emphasis is placed on the development of the service sector, including the development of roadside services, such as household and catering services, which are highly needed by the population in the centers of cities and districts, as part of the 34th goal[3]. It is also planned to implement special programs to improve the lifestyle of the population, to increase the tourism potential of the Republic's territories, depending on the improvement of mechanisms for the development of hotels and similar accommodation and catering services, to provide comprehensive support to the activities of service entities in the field, and to provide them with additional benefits. .

In fact, accommodation and catering services are a real reality that has developed on the basis of centuries-old experience of our people, the rise of cultural and spiritual character, and has become an integral part of the life of the population. This reality is also reflected in the description of this field by scientists. Usually, accommodation and catering

services are collectively referred to as an economic sector, but in reality, this sector is composed of independent sectors with complementary characteristics.

Therefore, the service sector is defined by individual sectors. In particular, in the official documents, accommodation (hotel) services are defined as "a means of accommodation, hotels, tourist bases and complexes, holiday homes and zones, boarding houses, campsites, motels, hostels, family guest houses, camping and tent camps, sanatoriums and hotels services - other objects that provide temporary accommodation services, as well as a set of services for providing temporary accommodation in surface transport re-equipped for the night"[4]. Sources [6] also define that "a hotel is an enterprise that provides complex services to people outside their homes, among which accommodation and catering services are equally important (complex forming) services." It follows from this definition that accommodation and catering services are included in one hotel service. However, in our opinion, it is natural that the definition of the catering service should be given separately from the residential service, as it is a special feature.

Sources provide different definitions of food service. In particular, "food services are a type of service activity that expresses their satisfaction by incorporating the level of service quality and specific characteristics for the organization of food provided to customers arising from the growing need for food of the population [24]" or, "general food - scientific hygienic requirements of the national economy industry that prepares and sells food and provides services to consumers. The catering sector includes factories that prepare semi-finished food products, kitchens, restaurants, teahouses, coffeehouses, buffets, restaurants, snack bars, etc... [25]" are among them.

Summarizing our knowledge on the basis of our theoretical studies, we offer the following definition of this economic sector: - accommodation and catering service is a mixed union of two independent sectors that partially complement each other and have different goals. consumer service and production activities.

In fact, the objectives here are different, and within accommodation services, catering services are considered additional services and are shown as a separate quality indicator. The activity of general catering service retains the nature of production. Therefore, the totality of service and production activities is observed here. Network enterprises also differ in types (Table 1).

Table 1:Typology of accommodation and catering services enterprises

TYPES AND CHARACTERISTICS OF ENTERPRISES					
By placement service			On the catering service		
Type	**Special feature (location, capacity, type of service, duration, price)**	**The level of availability in the territory of Uzbekistan**	**Type**	**Distinctive feature (location, capacity, assortment, seasonality, price)**	**The level of availability in the territory of Uzbekistan**
Hotel-luxury	city center; small or medium; various, many; short term; very expensive	less	Restaurant	in cities; medium, sometimes large; various, many; constant; very expensive	average
Apart-hotel	in big cities; small or medium; to oneself, less; medium term; variable, average.	average	Kitchen	In cities and villages, markets, hospitals, educational institutions, recreation centers; average; limited; constant; cheap	a lot
Hotel-resort	in spa areas; different capacity; all kinds, many; medium term; variable, expensive.	does not exist			
Motel	on the side of highways; small or medium; low quality service; short term; changeable, cheap.	average	Tea room	In cities and villages; medium, sometimes large; various, many; constant; average, expensive.	a lot
private hotel	outside the city and in rural areas; small, sometimes medium;	average	Cafe	In the center of cities and districts; Small, sometimes average;	a lot

	medium service; different term; variable, average.			Limited range; constant; average, expensive	
Hotel garni	in the city and the countryside; small; low quality service; different term; changeable, cheap.	a lot	Bar	In cities and villages; Small, sometimes average; Mainly drinks; constant; average, cheap	a lot
Boarding house	in the city and the countryside; small, sometimes medium; low quality service; different term; changeable, cheap.	less	Restaurant	In the city, sometimes in the district centers; Small; Limited; innocent;	average
Rotel	Mobile hotel in the form of a wagon	does not exist	Wedding hall	A large-capacity, special seasonal service facility for special wedding ceremonies	a lot
Botel	Ship on the water hotel	does not exist			
Flotel	In the city, there are water fields; large; many types of service; different term; expensive	less	Cafeteria	In shopping centers; Small, sometimes average; Limited range; constant; average, expensive	less
Flytel	Aerohotel	does not exist	Food stores	In shopping centers; Small; Limited range; constant; average, expensive	less
Family hotel	in the city and the countryside; small, sometimes medium; low quality service; different term; cheap	a lot			

There are specific main indicators of hotel activity on an international scale (Table 2).

Table 2: Hotel performance indicators

Indicator	Calculation method	average Figure (2010-2021)
Payout coefficient of numbers	equal to the ratio of the number of sold and total numbers	In Europe - 72.3% USA – 69.3% Asia - 68.7%
Bed occupancy rate	equal to the ratio of the total number of beds sold	In Europe – 84.1% USA – 75.1% Asia - 74.9%
Average Daily Rate (ADR)	equal to the ratio of the total income per day to the number of booked rooms	In Europe - $148/night USA – $122/night Asia - $105/night
The average income of Nomerni (RevPAR)	is equal to the ratio of the income of total sold numbers to the total number of numbers	In Europe - $97/night USA - $88/night Asia - $82/night
Average cost per customer purchase (ACPP)	the ratio of the amount of revenue received for the services provided by the hotel restaurant to the number of customers who used the restaurant's services	In Europe - $65 USA - $72 Asia - $46
Occupancy rate of restaurant seats	ratio of sold seats to restaurant capacity	In Europe - 62.5% USA – 58.2%

		Asia – 61.6%
Profitability	the ratio of profits to revenues	in Europe - 53.8% USA – 50.5% Asia – 47.4%
Profitability ratio	the ratio of the profit received to the capital spent	In Europe - 1.3 USA - 1.4 Asia - 1.3
Break-even diagram	the ratio of the received income to the planned income	In Europe - 95.9% USA – 97.8% Asia - 90.5%

International organizations (Hoteltechreport, etc.) that keep statistics on hotel activity, use indicators such as ADR (Average Daily Rate) and RevPAR (Revenue Per Available Room) at the international standard level as the main efficiency indicators.

In the same way, there are specific indicators of the activity of public catering establishments, and the system of indicators for a comprehensive economic analysis of the activity of enterprises is divided into eight main groups (Fig. 2).

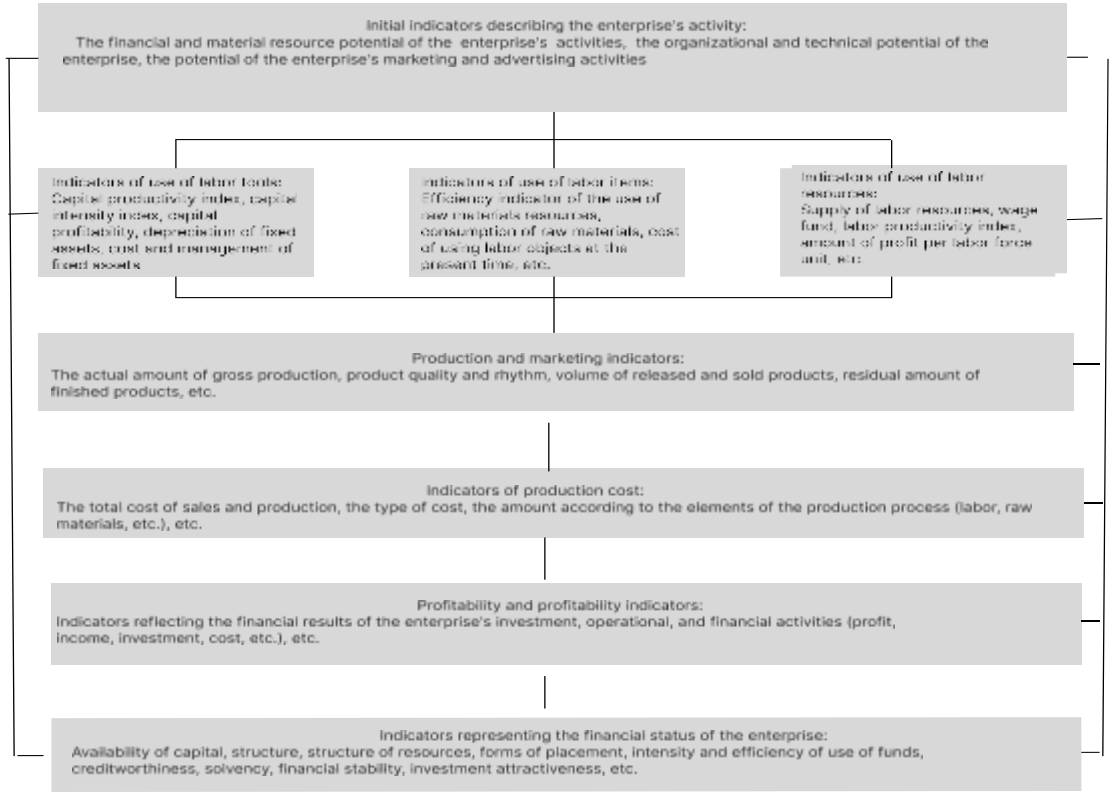


Figure 2. Grouped system of indicators for complex economic analysis of accommodation and catering enterprises

Analysis of the financial and economic activity of service enterprises is carried out on the basis of certain criteria based on the essence of the goals and tasks of the activity. In particular, industry analysis, taking into account the specific characteristics of accommodation and catering services, perspective analysis aimed at justifying management decisions before the implementation of economic activity, activity planning functions, perspective analysis used to calculate

prospective indicators, monitoring the state of ensuring the implementation of planned tasks during ongoing activities , retrospective analysis used in determining unused, available reserve sources, evaluating current activity results, single-farm and inter-farm analysis, financial aspects and results-oriented financial and economic.

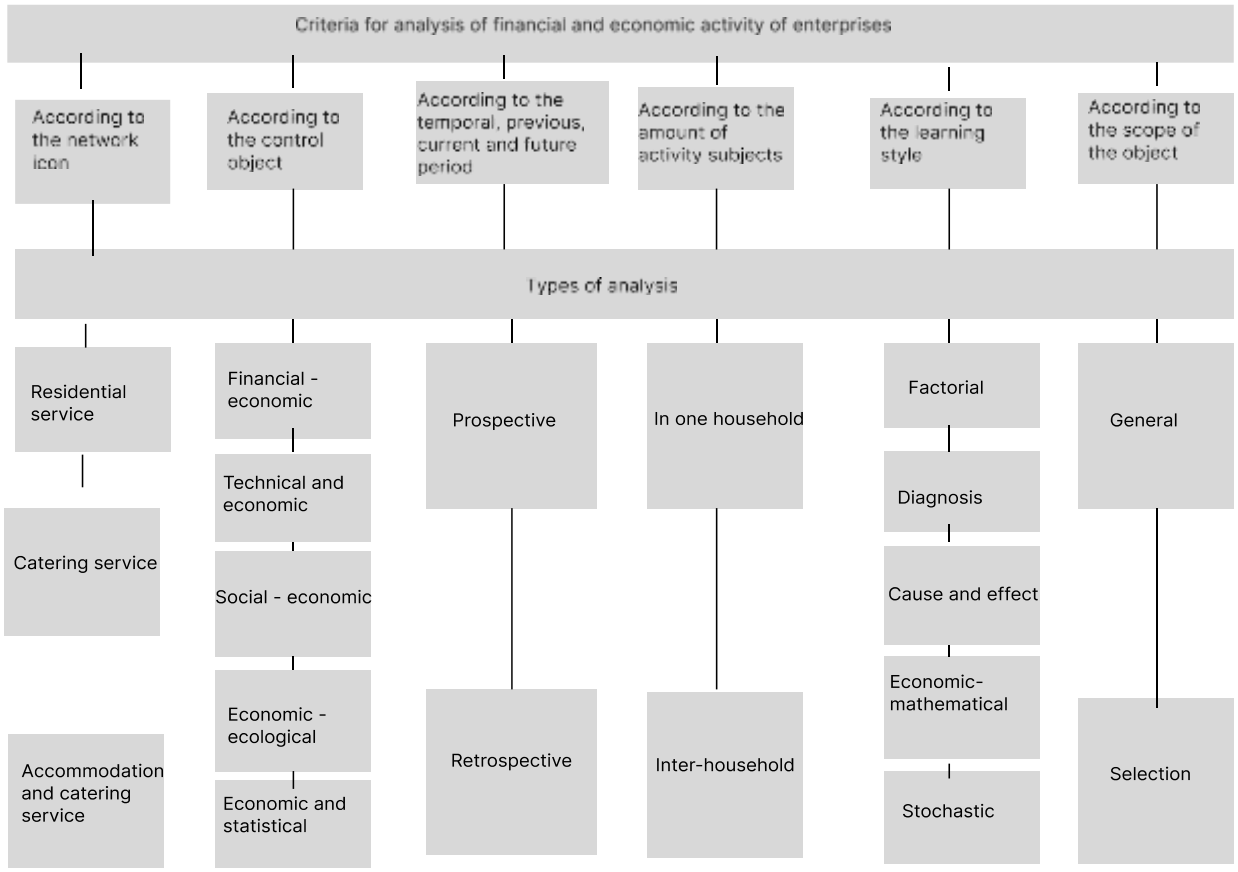


Figure 3. The scenario of the classification of the analysis of the activity of accommodation and general catering establishments by criteria

In our research, analysis methods were used according to various criteria, including financial-economic, economic-statistical, prospective and retrospective, factorial, economic-mathematical, stochastic, general and selective analysis according to the branch symbol.

The development of accommodation and catering services has different development factors according to the characteristics of space and time. It is related to the directions of development. In our opinion, any economic sector relies on four types of development, that is, the development is based on the country's uniqueness, the potential associated with the internal possibility, the technological based on the achievements of science, the tools applied in the field, technical and technological experiences, the broad thinking of mankind, the ability to create new things, modern technologies. It is carried out on the basis of innovative and synergistic development directions, which are connected to the activity of effective use, and are summarized on the basis of certain algorithms and principles.

The source of determination of the indicator of cross-sectoral development potential is of various complexity and its exact structure is not given in any source. The logical reason for this is that there are too many components of the structure organization and there is no possibility to choose them optimally, that is, the concept of relative superiority of components is not important. UN Industrial Development Organization expert-researcher S. Park and Canadian MkMaster University professor S. Kennech [27] study the inter-sectoral relations between production and services as a factor of development, scientifically justifying the fact that all sectors can be an input source for development models. In their opinion, if the level of development of an economic sector, related sectors in a certain direction becomes insignificant,

The indicator of the potential of cross-industry development is determined by the multiplication with the participation of indices characterized by two opposite aspects. The first aspect is the presence of components that have a positive influence on the indicator of inter-sectoral development with an opposite trend to the growth trend, and the second aspect is a positive trend.

According to the first aspect, the minimum index of the indicator of inter-sectoral development potential, which is significant according to the minimization feature of relativity levels, is calculated, and the maximum index of the indicator of inter-sectoral development potential, which is significant according to the maximization feature of relativity levels, according to the second aspect, is calculated.$RSK_t^{min})RSK_t^{max})$

$$RSK_t = \left((1 - RSK_t^{min}) * RSK_t^{max}\right)^{\frac{1}{2}} * 100\% \qquad (1)$$

Here the calculation is done in t-period (current year or previous years). Also, and the indices depend on the parameters, and we take the parametric expression as follows:$RSK_t^{min} RSK_t^{max}(k, n, s)$

$$RSK_t^{min} = MIN(k_1, n, s);\ (1.2) RSK_t^{max} = MAX(k_2, n, s)$$

Here: – the number of components with the required reverse and right trend, respectively; - the total number of networks under consideration; – selected network mode.$k_1, k_2 ns$

Naturally, it can be said that the value of is equal to the sum of the ratios calculated by the ratio of the sum of the values of this component in the total networks, and the same rule also applies. As a result, we have the following equations:$RSK_t^{min} RSK_t^{max}$

$$RSK_t^{min} = \sum_{j=1}^{k_1} \frac{A_s^j}{\sum_{i=1}^{n} A_i^j};\ ,\ (1.3) RSK_t^{max} = \sum_{j=1}^{k_2} \frac{B_s^j}{\sum_{i=1}^{n} B_i^j}\ s \in \{\overline{1,n}: n \in N\}$$

Here () is the amount of the j-component in the s-network selected in the region; () is the amount of the j-component in all other considered branches of the region.$U_s^j U = A, BU_i^j i \neq s$

It is not difficult to see that the structural indices of the cross-sectoral development potential indicator change across the cross-section. Nevertheless, according to their essence, the positivity of the situation is observed in these relations, i.e.$[0; 1] RSK_t^{min} \to 0;\quad RSK_t^{max} \to 1$

In accordance with these relations, we determine the threshold values for the indices, that is, the critical value. This value represents the point of change of the intersectoral development potential indicator from a positive state to a negative state or vice versa. It is calculated depending on the selected components and the number of networks under consideration, that is, the following relations are relevant:

$$n * RSK_t^{min} < k_1,,\ (1.4) k_1 < n; n * RSK_t^{max} > k_2 k_2 < n;$$

Another positive aspect of the process of calculating the index of inter-industry development potential is that it is easy to see which component (factor) has a negative or positive influence on its value and to assess the level of influence. The important point here is that when the components are closely correlated, it is usually possible to include the relative indicators of these components in one model.

The need of the residents of the region for accommodation and catering services is directly related to their quality of life. The demand of the population is formed based on their need for food. If the level of consumption of the population is in accordance with the norms of consumption, the index of inclination to food can be in a state of natural stagnation. When a difference is observed, it becomes very important to estimate the change in the propensity score. In turn, the average and limited (MPC) types of the indicator of propensity to consume are distinguished.

Based on this importance, based on our study of the theory of consumption functions[33-34], we considered it appropriate to create a multi-scenario structure of the food consumption function of the population of the region in the type of Keynesian consumption function. Because the consumption function is not claimed to be linear.

Here, models of linear, parabolic, logarithmic, semi-logarithmic, exponential, level, logistic form depending on the output variable - endogenous per capita food consumption expenditure (Hr) and independent variable - exogenous average per capita income (Dr) can be considered.

Today, determining the equilibrium point of the service market is becoming more complicated due to the highly variable nature of the troectory of service entities and consumer interests. This process is a real reality that is fully studied, evaluated, and taken into account in the scientific justification of all proposals aimed at future implementation in the issues of service network development. The results of our research are no exception. For this reason, we felt the need to calculate the optimal dimensions of the development of accommodation and catering services to the population based on the development of econometric models that take into account the characteristics of demand and supply.

Interactions in the nature of supply and demand go back to the methods of mathematical analysis theory for determining functions that satisfy the reciprocal monotonicity conditions. According to it, let a pair of positive-definite real variables and functions in a given interval satisfy the following conditions:$X = [x_1;\ x_2] y_1 = g_1(x) y_2 = g_2(x)$

I. voluntary, for; attitude is appropriate;$xx \in X \frac{dg_1}{dx} > 0 \frac{dg_2}{dx} < 0$

II. The set X contains an element such that the equality holds.$x_0 g_1(x_0) = g_2(x_0)$

III. A function defined on the set X is found such that this function reaches its extremum at a point.$y = y(g_1, g_2) x_0$

In our opinion, the simplest form of this function is defined as follows, i.e

$$(1.5) y = g_1(x) * g_2(x)$$

Here, – exponential, – rank functions. In fact, according to the condition of checking the extremum of the function (1.5), the 1st-order derivative of the function is equal to zero, and the root of the equation is taken as the extremum. In that case$g_1(x) g_2(x)$

$$y' = g_1'(x) * g_2(x) + g_1(x) * g_2'(x) = 0 \text{or } (1.6) \int \frac{g_1'}{g_1} dx = -\int \frac{g_2'}{g_2} dx$$

And the root of the differential equation gives rise to the relation. The exponential and degree determination of these functions allows the fulfillment of condition II. As a result, we can write (1.5) as follows: $g_1 = {g_2}^{-1}$

$$y = e^{\varphi * f(x)} * f(x)^{\omega}, (1.7) \varphi * \omega < 0$$

In particular, when , of (1.7). $f(x) = x$

$$y = e^{\varphi * x} * x^{\omega}, (1.8) \varphi * \omega < 0$$

we will have the appearance.

In the theory of kinetic production functions, the pair of parameters of the econometric model of the form (1.8) determines the optimal distribution of the variable (resource)[33]. $(\varphi, \omega)x$

We mentioned four main types of accommodation and catering services development above. One of them is to develop the network based on regional potential. This type of development is very important because all types of development are directly and indirectly related to it. Based on the purpose of the research, we consider the following methodological approach appropriate.

1) selection of regional potential indicators at the level of macroeconomic indicators that determine the state of socio-economic development of the region - this ensures the stability and breadth of the location of the development position of the residential and public catering network;

2) assessment of the correlation density between the selection indicators - this makes it possible to correctly form the expression of their general relationship with the main indicator of the network;

3) construction of linear econometric models of assessment of regional potential indicators related to the main indicator of the residential and catering network - this creates an opportunity to assess the impact of the potential indicators on the main indicator of the network;

4) determination of mid-term forecast values of regional potential indicators - this determines their mid-term average economic growth rates;

5) to determine the indicators of development of the accommodation and catering network based on the regional potential in the future, using the coefficients of elasticity calculated according to the potential indicators and the projected average growth rates.

The results of this methodological approach, based on the existing socio-economic potential of the region, allow to determine the average and conditional minimum limits of the naturally provided development, to determine different priority directions of development, to evaluate the target indicators of the development of the network in the future.

It is known that one of the methods of forecasting the development of the industry is forecasting using econometric models. Various econometric models are used for forecasting. Including one-equation regression models (one-factor and multi-factor linear), time series models (trend, complex additive forecast model, autoregression model, etc.), in forecasting socio-economic processes from a system of simultaneous equations (independent, recursive, dependent) widely used. In this case, the main requirement is that the model satisfies the conditions of adequacy, while the model must fully preserve the objective nature of the process being studied.

In modern econometric studies, it is common to build forecasting models based on a specific scenario.

A wide range of forecasting methods can be used to calculate forecast values for accommodation and catering development. Among them, the method of econometric modeling, which is part of the method of formalization of forecasting in the exploratory and normative direction, is distinguished by having a number of advantages. The following are the main advantages of forecasting using econometric models:

- calculates forecast indicators at the mega, macro, meso, micro levels of development and fully encourages long-term forecasting;
- constitutes a certain scenario of the development of separate production and sectors;
- provides the possibility of multi-variant forecasting;
- has a methodological and technological priority in increasing the accuracy of forecasting, substantiating its reliability;
- the only method of forecasting complex, stochastic nature, uncertain socio-economic processes.

In general, the econometric approach in forecasting the development of accommodation and public catering services represents the state of development of the network for the previous and current period, analyzes, evaluates the results of planning, evaluates the future state of development based on current trends in the exploratory direction of forecasting, and forecasts the main directions of development based on a normative approach.

Here, the econometric models developed on the basis of various econometric methodologies have the functions of expression, calculation, analysis, comparison, evaluation, determination, optimization in the direction of development and ensure the effectiveness of the research.

With the help of multi-factor linear, trend and ARIMA models compiled using the Gretl program, forecast indicators of the price index in real values compared to 2010 were calculated for the main indicator (Table 3).

Table 3: Parameters and adequacy indicators of the ARIMA(2,1,2) model for forecasting the volume of residential and catering services in Kashkadarya region

Model 9: ARIMA, used in Ukraine 2002-2021 (T = 20)
Zavisimaya peremennaya: (1-L) VACS
Standartnye oshibki rasschitany na osnove Hessiana

	Coefficient	*St. lover*	*z*	*P sign*	
const	1.39392	0.512473	2,720	0.0065	***
phi_1	1.18214	0.434336	2,722	0.0065	***
phi_2	-0.742396	0.463642	-1,601	0.1093	
theta_1	-0.990162	0.597459	-1.657	0.0975	*
theta_2	0.882551	0.638580	1,382	0.1670	

Srednee zav. sweets	1.282795	St. ocl. factory sweets	1.664766
Srednee is innovative	−0.000146	St. ocl. innovative	1.374001
R-squared	0.980218	Ispr. R-squared	0.976509
Log. probability	-35.51988	Crete. Akaike	83.03975
Crete. Schwartz	89.01415	Crete. Hennana-Quinna	84.20602

		Actual frequency	*Mnimaya is frequent*	*Module*	*Frequency*
AR					
	Coren 1	0.7962	-0.8445	1.1606	-0.1297
	Coren 2	0.7962	0.8445	1.1606	0.1297
MA					
	Coren 1	0.5610	-0.9047	1.0645	-0.1617
	Coren 2	0.5610	0.9047	1.0645	0.1617

Table 4: Results of forecasting the volume of accommodation and public catering services in Kashkadarya region

Forecast years	**Volume of residential and catering services of Kashkadarya region, in real values, billion soums (VACS)**					
	ARIMA	**Growth (%)**	**trend**	**Growth (%)**	**multifactorial**	**Growth (%)**
2022	30,26	6.47	35.60	25,26	33.01	16,15
2023	32.92	8.79	38.76	8.88	36,21	9.69
2024	35,48	7.78	42.06	8.51	39.81	9.94
2025	37,31	5.16	45,49	8.16	43.90	10.27
2026	39.54	5.98	49.06	7.85	48.60	10.71
2027	41.87	5.89	52.76	7.54	53.99	11.09
Average growth rate (%)	**6.7**		**10.9**		**11.3**	
2027 vs. 2021 (equal)	**1.47**		**1.86**		**1.90**	

According to the data of Table 3.15 presented in the Eviews 10 program, when determining the adequacy indicators of the constructed models and the width of the 95 percent confidence interval of the forecast values, the relative superiority of the multifactor linear empirical model is noticeable. Indeed, the Akaiki information criterion for the multivariate linear model is 2.37, the error of approximation is 5.1 percent, and the average width of the confidence interval is 10.01. For these indicators, trend and ARIMA models, respectively, the Akaiki information criterion is 52.23 and 83.04, the approximation error is 5.9 and 7.2 percent, and the average width of the confidence interval is 11.6 and 14.0.

4. CONCLUSION

Thus, we select the results of the multifactor linear empirical model for the forecast values of the volume of residential and catering services of Kashkadarya region calculated in real values. In that case, the average growth rate of

real value of residential and catering services of Kashkadarya region will be 11.3% in the next six years, and it will reach 53.99 billion soums in 2027. This value is equal to 1.9 times compared to 2021.

According to the results of the above evaluation of elasticity coefficients, the increase in the volume of residential and catering services of Kashkadarya region in the following years, the increase in the number of items in the network and the amount of basic funds will have a significant impact. Also, the development of the service sector in the region will be one of the most important factors. For this reason, it is possible to determine the trend of changes in the share of accommodation and general catering services in the total services in the following years, and to define new, important, priority directions for the development of the sector.

5. REFERENCES AND RESOURCES

[1] Appendix 1 of Decree No. PF-60 of the President of the Republic of Uzbekistan dated January 28, 2022 "On the Development Strategy of New Uzbekistan for 2022-2026". // National database of legislative information, 29.01.2022, No. 06/22/60/0082 //https://lex.uz/docs/5841063

[2] Speech of the President of the Republic of Uzbekistan at the Second International Summit "Green Growth and Cooperation for Global Goals - 2030", May 30-31, 2021, https://oz.sputniknewsuz.com/20210530/mirziyoev-seuldagi-sammitda- participated-main-ideas-18989066.html

[3] Appendix 1 of Decree No. PF-60 of the President of the Republic of Uzbekistan dated January 28, 2022 "On the Development Strategy of New Uzbekistan for 2022-2026". // National database of legislative information, 29.01.2022, No. 06/22/60/0082 //https://lex.uz/docs/5841063

[4] Decision No. 03-mh dated March 26, 2019 of the State Committee for Tourism Development of the Republic of Uzbekistan "On approval of the model regulation on the procedure for providing hotel services in the territory of the Republic of Uzbekistan". National database of legal documents, 20.05.2019, No. 10/19/3160/3153

[5] UNWTO World Tourism Barometer and Statistical Annex, January 2021. https://www.e unwto.org/doi/abs/10.18111/wtobarometereng.2021.19.1.1

[6] M.T. Alieva. Hotel management. Textbook. - T.: 2007. -335 p.

[7] Teplova L.E. Osnovy potrebitelskoy cooperative. Uchebnoe posobie. 2-e izd. Vita-Press, 2005 - 160 p

[8] R. Greer et al. The diffusion of circular services: Transforming the Dutch catering sector / Journal of Cleaner Production 267 (2020) 121906 / Electronic source:https://www.sciencedirect.com/search?qs=catering%20services %20in%20developing%20countries.

[9] Gao, LL and Bai, XS (2014) A Unified Perspective on the Factors Influencing Consumer Acceptance of Internet of Things Technology. Asia Pacific Journal of Marketing and Logistics, 26, 211-231. //Electronic resource:http://dx.doi.org/10.1108/APJML-06-2013-0061.

[10] Davis, F. (1989) Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. MIS Quarterly, 13, 319-340. // Electronic resource:https://doi.org/10.2307/249008.

[11] Sheng-Fang Chou et al. Identifying the critical factors for sustainable marketing in catering: The influence of big data applications, marketing innovation, and technology acceptance model factors // Journal of Hospitality and Tourism Management. Volume 51, June 2022, Pages 11-21//

[12] Khutoretskii A., Nefedkin N. Two-Parametric / Game-Theory Model of a Service Concession in the Communal Heating Sector. Journal of Corporate Finance Research, Vol. 14, No. 1, pp. 55-68, 2020

[13] Voronina I.D., Egorov E.A. Faktornyi podkhod k upravleniyu razvitiem sotsialnykh sistem regionalnogo uvronya. SEN., 2013. Str. 22-32 //http://www.mathnet.ru/links/77d98bb7627e06dcf8d74502eb054bcf/ubs30.pdf.

[14] Lemarié, Sté., Marette, Sté., The socio-economic factors affecting the emergence and impacts of new genomic techniques in agriculture: A scoping review, Trends in Food Science & Technology (2022), doi:https://doi.org/10.1016/j.tifs.2022.07.013.

[15] Zhou Aihua, Zhang Yuansuo, Fu Xiao, Zhu Haiyong, Dong Hengnian. Study on the spatial distribution of Beijing's Time-honored brand catering and its influencing factors[J]. World Regional Studies, 2015, 24(01):150-158. / Prayag G, Landré M, Ryan C. Restaurant location in Hamilton, New Zealand: clustering patterns from 1996 to 2008. International Journal of Contemporary Hospitality Management, 2012, 24(3):430-450

[16] Roberto Verdecchia, Patricia Lago, Carol de Vries. The future of sustainable digital infrastructures: A landscape of solutions, adoption factors, impediments, open problems, and scenarios. Sustainable Computing: Informatics and Systems. Volume 35, September 2022, 100767/ Maaike Sloan et al. Digital infrastructures as the basis for implementing digital twinning. Procedia CIRP 109 (2022) 568–573

[17] Boris Urban, Lekhooa Matela. The nexus between innovativeness and knowledge management: A focus on firm performance in the hospitality sector. International Journal of Innovation Studies 6 (2022) 26-34 / Birte Bredemeier et al. Insights into innovative contract design to improve the integration of biodiversity and ecosystem services in agricultural management. Ecosystem Services 55 (2022) 101430

[18] SA Denisov et al. Model of a management system for deterministic scientific services of digital platform. Procedia Computer Science 186 (2021) 1–10 / M. Suhari et al. Challenges and best-practices of co-creation: A qualitative interview study in the field of climate services. Climate Services 25 (2022) 100282

[19] Electronic resource:https://lib.usue.ru/resource/free/12/s69.pdf// Kuznetsov B.L. Teoriya synergeticheskogo razvitiya ekonomicheskikh sistem: Nab. Chelny : Izd-vo Kam. Mr. Eng.-Econ. Acad., 2010.
[20] Zhou Aihua, Zhang Yuansuo, Fu Xiao, Zhu Haiyong, Dong Hengnian. Study on the spatial distribution of Beijing's Time-honored brand catering and its influencing factors[J]. World Regional Studies, 2015, 24(01):150-158. / Prayag G, Landré M, Ryan C. Restaurant location in Hamilton, New Zealand: clustering patterns from 1996 to 2008[J]. International Journal of Contemporary Hospitality Management, 2012, 24(3):430-450
[21] Roberto Verdecchia, Patricia Lago, Carol de Vries. The future of sustainable digital infrastructures: A landscape of solutions, adoption factors, impediments, open problems, and scenarios. Sustainable Computing: Informatics and Systems. Volume 35, September 2022, 100767/ Maaike Sloan et al. Digital infrastructures as the basis for implementing digital twinning. Procedia CIRP 109 (2022) 568–573
[22] Boris Urban, Lekhooa Matela. The nexus between innovativeness and knowledge management: A focus on firm performance in the hospitality sector. International Journal of Innovation Studies 6 (2022) 26-34 / Birte Bredemeier et al. Insights into innovative contract design to improve the integration of biodiversity and ecosystem services in agricultural management. Ecosystem Services 55 (2022) 101430
[23] SA Denisov et al. Model of a management system for deterministic scientific services of digital platform. Procedia Computer Science 186 (2021) 1–10 / M. Suhari et al. Challenges and best-practices of co-creation: A qualitative interview study in the field of climate services. Climate Services 25 (2022) 100282
[24] Mirzaev Q.D. and others. Important features of the organization of catering services. Scientific electronic magazine "Economy and innovative technologies". No. 3, 2017. 6 p.
[25] QOMUSINFO: Online encyclopedia of Uzbekistan //https://qomus.info/encyclopedia/cat-u/umumiy-ovetlanish-uz/
[26] M.T. Alieva Gostinichnyy management. Textbook. - T.: 2007. -335 p.; Walker D.R. Vvedenie v gostepriimstvo.Uchebnoe posobie. Moscow, 2002; Kotler F., Bowen DJ, Mackenzie DJ. Marketing. Guest accommodation. Tourism. Textbook. 2-e izd. Arab i dop. M.: YUNITI-DANA, 2002. 1063 pages; Electronic resource:https://roompricegenie.com/average-rate-adr/
[27] Se. Park, S. Kenneth. A cross-country input-output analysis of intersectoral relationships between manufacturing and services and their employment implications. World Development. Volume 17, Issue 2, February 1989, Pages 199-212.
[28] Keynes J.M The General Theory of Employment, Interest, and Money. Harcourt Brace Jovanovich, New York, 1936, p.96; Pech W., Milan M. Behavioral economics and the economics of Keynes. The Journal of Socio-Economics. Volume 38, Issue 6, December 2009, Pages 891-902; Flaschel P., Sethi R. Classical dynamics in a general model of the Keynes-Wicksell type. Structural Change and Economic Dynamics. Volume 7, Issue 4, December 1996, Pages 401-428
[29] Joraev F.D. Econometric modeling of development and optimization of agricultural production (in the case of Kashkadarya region). Doctor of Philosophy (PhD) Dissertation in Economics. Urganch - 2022. 60 pages
[30] www.lex.uz / National database of legislation of the Republic of Uzbekistan
[31] https://www.statista.com/statistics/1221034/ecotourism-market-size-global/#statisticContainer.
[32] Electronic source:https://lib.usue.ru/resource/free/12/s69.pdf // Kuznetsov B.L. Teoriya synergeticheskogo razvitiya ekonomicheskikh sistem: Nab. Chelny : Izd-vo Kam. Mr. Eng.-Econ. Acad., 2010.
[33] Suyunovich, M.K., Shakhriyorovich, K.J. Innovative Development Mechanism Of Digital Transformation Processes In Regional Industry./ Journal of Pharmaceutical Negative Results, 2022, 13, страницы 492–502
[34] Suyunovich, M.K., Abdihamidovna, N.F./ Prospects Of Digitalization Of Craftsmanship Development In The Region./ Journal of Pharmaceutical Negative Results, 2022, 13, страницы 345–352.