MODELING THE PROCESSES OF DEVELOPMENT OF THE DOMESTIC MARKET OF TOURIST SERVICES AND HOSPITALITY

Iuliia Kostynets[1], Valeriia Kostynets[2]

Abstract. The study is devoted to the issue of modeling the processes of development of domestic market of tourist services and hospitality. Accordingly, the *purpose* of the study is to model the development of domestic market for tourism services and hospitality. During the study, the authors concluded that under current conditions of competitiveness of tourist regions of Ukraine on a global scale is directly related to the mechanism of cluster management of tourism development, including domestic. The authors established that the subjects of cluster policy are legislative and executive bodies of state and/or local authorities, which in the process of its implementation interact with each other and with business associations, manufacturing enterprises, educational, scientific and financial institutions, transport and logistics companies, service organizations, etc. *Methodology*. The theoretical basis of the study were the fundamental principles of economics, approaches to the general and special methods of scientific knowledge, scientific achievements of domestic and foreign scientists on modeling the development of tourism and hospitality. When modeling the processes of development of domestic market of tourist services and hospitality, methods of analysis of economic dynamics, structural and functional analysis, scientific abstraction, as well as the graphical method, econometric methods of linear regression and other methods of economic and mathematical modeling were used. *The results and value* of the research are to develop an author's model of development of the domestic market of tourism and hospitality of Ukraine, the essence of which is to use a cluster approach. In the mechanism of cluster management of the domestic tourism market it is important to determine the means and methods of targeted state influence, including levers of influence of local authorities, in order to effectively develop the cluster system of tourist destinations in Ukraine. The proposed mechanism is the basis for the implementation of cluster policy as a system of relations between the state and economic entities to improve the competitiveness of the national tourist product through the formation and development of tourism and hospitality clusters. The authors have improved the scientific and practical approach to clustering, which is based on the construction of a cluster model of the domestic market of tourist services of Ukraine, which provides an effective state policy of development of individual tourist clusters and the domestic market of tourist services as a whole.

1. Introduction

Tourism as the most widespread phenomenon of the modern period can be considered as a significant socio-economic and political fact, capable of influencing the economic system and economic development of regions and countries as a whole. World experience and practice of socio-economic stability of developed countries show that their natural, climatic, historical and cultural resources, as well as ethnic features become a common asset due to the development of tourism, which can be equated to a highly profitable industrial business.

Analyzing the scientific achievements of foreign and domestic scientists (Aleeva, Mochalova, 2018; Bran, Manea, 2012; Bujok, Klempa, Jelinek, Porzer, Rodriguez Gonzalez, 2015; Garnov, Krasnobaeva, 2012; Gorelova, Tultaev, 2012; Ghemawat, 2018; Gronroos, 1985; Sahaidak, Kostynets, Kostynets, 2019; Yong-Hyun, Wang, Fesenmaier, 2002), it should be noted that they comprehensively cover the theoretical and practical aspects of the organizational and economic mechanism for the creation and effective functioning of tourism entities. However, the current situation in the tourism markets of the world in the context of globalization

Corresponding author:

[1] Kyiv National University of Technology and Design, Ukraine
E-mail: yulia.kostinets@gmail.com
ORCID: https://orcid.org/0000-0001-6427-675X

[2] Kyiv National University of Technology and Design, Ukraine
E-mail: valeriya1989@i.ua
ORCID: https://orcid.org/0000-0002-4222-7620

and globalization requires constant identification and assessment of the current socio-economic aspects of tourism, analysis of factors, causes and consequences that promote or hinder the development of tourism. In this aspect, the development and application of scientific approaches to the study of the factors of development of the modern market of tourist services, its segmentation, the formation of levers of economic regulation and improvement of forms and methods of management of tourism in the regions, in particular through the cluster approach to managing the development of the internal market of tourist services, acquire significant importance.

Accordingly, the purpose of the study is to model the processes of development of the domestic market of tourist services and hospitality. When modeling the processes of development of the domestic market of tourist services and hospitality the methods of economic dynamics analysis, structural and functional analysis, scientific abstraction, as well as the graphical method, econometric methods of linear regression and other methods of economic and mathematical modeling were used.

2. The need for clusters in the field of tourism and hospitality

In modern conditions, tourism can be seen as a catalyst for economic development of regions, allowing the maximum use of the full range of recreational resources, social, cultural, industrial and climatic potential of the territories.

There are many different types of tourism, the popularity of which varies depending on the season, region, political situation, category of consumers and current market trends. Each tourist decides for himself how to organize his vacation, what type of tourism he will enjoy, taking into account his needs, expectations and interests at the moment. Some tourists prefer recreational or health tourism, others prefer extreme or ecological tourism, but all are willing to allocate financial resources for cognitive tours.

In modern conditions of management in the tourism industry there is a significant crisis situation. Despite the existing difficulties with recreation in foreign countries, familiar to domestic tourists, reorientation to domestic tourism is practically not happening. In many regions there is a lack of quality tourist infrastructure, even in the presence of recreational or cultural and historical potential. A large part of today's tourists are not satisfied with the standard range of tourist offers – beach vacations or sightseeing tours with visits to museums. Many tourists are attracted by the "complex product" with a large number of components that can be changed depending on individual needs. Accordingly, there is currently a need to create clusters in tourism and hospitality.

Thus, in the process of organizing the cluster it is necessary to determine the list of benefits for each of the cluster participants and ways of their optimization; formation of a set of necessary initial data (analytical, statistical, mathematical, empirical, etc.); preparation of a package of documents for institutionalization of the cluster, giving it the status of a legal entity; expertise of developed intra-cluster concepts, strategies, programs, projects, plans and the formation of a comprehensive strategy for the implementation of local cluster initiatives; formation of a system of monitoring and control of the implementation of cluster initiatives strategy; assistance in assessing the potential product of the cluster for compliance with national and international standards; integrating strategies for implementing cluster initiatives with city and regional development strategies; publicizing cluster initiatives at public hearings, assessing whether they meet the expectations of experts and the local community; and promoting international relations and cooperation at various levels; organization of information and communication support, in particular, the organization of PR-campaigns, social advertising, creating a positive image of the cluster, informing businesses about the opportunities and benefits of cluster associations and cooperation within the cluster; development of appropriate educational and methodological support; organization and conduct of trainings, seminars, conferences, other information and communication activities for potential participants of clusters; other technical, financial, consulting assistance (Kostynets, 2018).

The activity of many clusters has shown a higher level of their results and competitive advantages compared with the activities of business entities that are not included in certain structural associations, which means that clusters play a leading role in achieving competitiveness (Pushkar, Fedorova, 2011). At the same time, one of the main tasks in the system of increasing the competitiveness of the national economy is to identify the potential for intrasectoral clustering or clustering at the regional level.

It should be noted that the cluster strategy of economic development should be seen as a set of actions and plans of the government (state economic policy) to implement the network principle of governance for the transition to a cluster model of development, the ultimate goal of which is to improve the well-being of citizens by accelerating economic growth. The formation of cluster strategy is based on the principles of the cluster policy (Aftandilyants, 2018). Accordingly, the overall state regulation of economic development in the field of tourism and hospitality should be carried out taking into account the cluster strategy for the development of domestic tourism and hospitality market of Ukraine.

3. Modeling processes of development of the domestic market of tourist services and hospitality industry

To build a model for the development of the domestic market of tourist services and hospitality, it is necessary to determine the factors and criteria of clustering.

Accordingly, it is necessary to determine the most significant factors of tourism and hospitality development in Ukraine, on the basis of which to build a model of the domestic market of tourist services and hospitality in Ukraine to model ways and means of achieving a positive effect. To confirm the significance of these factors and identify their dependencies it is necessary to conduct a correlation and regression analysis by constructing a multiple linear regression model.

Below is the constructed multifactor regression equation for all groups of species factors:

$$Y = a_0 + a_1 X_1 + a_2 X_2 + ... + a_n X_n + C, \qquad (1)$$

Where Y is dependent variable;
$X_{1,2,...,n}$ – independent variables;
n – number of independent variables;
a_0 – free term of the equation;
$a_{1,2,...,n}$ – parameters of the multifactor model;
C – equation residues.

According to econometric and statistical patterns, the parameters of the multifactor model can be found by acting with matrices according to the formula:

$$a = (X'X)^{-1} X'y \qquad (2)$$

First, it is necessary to construct a multifactor linear regression of the economic development of the domestic tourism and hospitality market and determine the strength of the relationship between the factors for 2015–2020. Determine the dependence of the share of tourism and hospitality in GDP as the main indicator of its strategic development (Y) on the consumer price index (X_1), the number of tourism entities in the market

(X_2), the average number of employees in tourism (X_3), number of employed population in the economy of Ukraine (X_4), the share of investments from the state budget for the tourism development (X_5), the number of tourists served by tourism entities (X_6), the number of incoming (foreign) tourists (X_7), the profitability of tourism entities (X_8) and the number of hotels in Ukraine (X_9) according to the State Statistics Service of Ukraine.

A linear relationship (multicollinearity) may exist between the factors, respectively, one of them should be excluded from the model, since the inclusion of linearly dependent factors leads to the construction of a fully or partially unpredictable regression model. The selection of factors is carried out by means of a correlation matrix. Let us build a correlation matrix to determine the factors on which the share of tourism and hospitality in GDP depends.

At the intersection of columns and rows is the correlation coefficient, which becomes important within [-1; 1]. If the correlation coefficient is within [-0,2; 0) U (0; 0,2] – the correlation is very weak; [-0,5; -0,2) U (0,2; 0,5] – correlation is weak; [-0,7; -0,5) U (0,5; 0,7] – correlation is average; [-0,9; -0,7) U (0,7; 0,9] – correlation is strong; [-1; -0,9) U (0,9;1] – correlation is very strong.

The analysis has revealed that the share of tourism and hospitality in GDP (Y) is weakly correlated with the consumer price index (X_1), the number of tourism entities (X_2), the share of investment from the state budget for the tourism development (X_5), the number of tourists served by tourism entities (X_6), the number of incoming (foreign) tourists (X_7), the profitability of tourism entities (X_8). The strong correlation is with the number of hotels (X_9) and the number of employed population in the economy of Ukraine (X_4).

It is important to exclude factors with weak correlation and build the regression equation Y from X_4 and X_9 by method of least squares, because it allows to get such estimates of parameters, for which the sum

Table 1

Correlation matrix of the relationship between the share of tourism and hospitality in GDP and the factors influencing it

	Y	X1	X2	X3	X4	X5	X6	X7	X8	X9
Y	1									
X1	0,3469	1								
X2	-0,2686	-0,0031	1							
X3	-0,6296	-0,7782	0,5135	1						
X4	0,7257	0,2830	0,3359	-0,2466	1					
X5	0,4078	0,9868	0,0367	-0,7880	0,4060	1				
X6	0,2520	-0,5277	0,4695	0,5542	0,6107	-0,4370	1			
X7	0,4570	-0,4881	0,2107	0,3768	0,6354	-0,4040	0,9538	1		
X8	-0,2433	-0,6227	0,0133	0,6448	-0,4228	-0,7178	0,2968	0,3155	1	
X9	-0,8325	-0,6092	0,5727	0,9139	-0,3294	-0,6096	0,3210	0,0805	0,3486	1

Source: authors' calculations

of squares of deviations of actual values of the result indicator from calculated ones is minimal.

The result is a regression equation as follows:

$$Y = -34{,}67 + 0{,}00277X_4 - 0{,}0020X_9 \qquad (3)$$

The model should be evaluated for adequacy and compliance with real data by the coefficient of determination R^2 (R-squared), Student's t-test criterion, Fisher's criterion (F-test), estimation of equation residues, estimation of predicted and actual values of Y.

The coefficient of determination is one of the most effective assessments of the adequacy of the regression model, a measure of the quality of the regression equation, the characteristics of the predictive power of the analyzed regression model. R^2 determines the dependence of the performance indicator (Y) – in this case the indicator of the share of tourism and hospitality in GDP – on all factors, ranging from (0; 1). If $R^2 \to 1$, there is a close relationship between the variables, the model is adequate and corresponds to the real data, if $R^2 \to 0$ – vice versa. In our case $R^2 \approx 0{,}9217 \to 1$, that means that the share of tourism and hospitality in GDP (Y) is strongly dependent on the number of hotels (X_9) and the number of employed population in the economy of Ukraine (X_4).

Student's t-test criterion gives the observed value of t-statistics. Its value is used to verify the significance of the appropriate estimation of the regression parameter. There are two hypotheses: hypothesis H_0 about the equality of zero of the corresponding coefficient (factor X does not affect Y); hypothesis H_1 about the inequality of zero of the corresponding coefficient (factor X affects Y). In this case, the hypothesis H1 (t-test $X_4 = 2{,}9605$; t-statistics $X_9 = -3{,}8910$). That means that the number of hotels (X_9) and the number of employed population in the economy of Ukraine (X_4) affect the share of tourism and hospitality in GDP (Y).

Fisher's criterion (F-test) is used to test the model for adequacy using the probability value. There are two hypotheses: hypothesis H0 about the equality of zero of all regression coefficients (the model is not adequate); hypothesis H1 about the inequality of zero (the model is adequate). If the probability value is less than the accepted value of α (5%), the null hypothesis is rejected. All coefficients of the constructed regression are not equal to 0 and F-test (0,022) is

less than the assumed value of α, so hypothesis H_1 is fulfilled – the constructed model is adequate and can be used to predict the share of tourism and hospitality in GDP and to allocate tourism clusters by region of Ukraine.

The results of the correlation and regression analysis of the factors of strategic economic development of tourism and hospitality in the national economy of Ukraine are summarized in Table 2.

It should be noted that the most significant factors of economic development of tourism and hospitality in Ukraine are the number of employed population of Ukraine and the availability of tourist infrastructure, in particular hotels. The resulting regression model can be used to predict the targets of economic development of tourism and hospitality in Ukraine. To form effective tourist clusters it is proposed to take into account the relatedness of tourist regions on the basis of common borders and availability of tourist resources, the level of tourist infrastructure, etc. and to use this model to identify tourist clusters in the domestic tourist market. Figure 1 shows the distribution of regional sectors of tourism and hospitality in Ukraine, depending on the significant factors of correlation and regression model.

In general, the implementation of cluster policy should also be aimed at identifying, forming, supporting and consolidating clusters of small and medium-sized enterprises in the tourism business and hospitality, meeting the actual needs of business entities interested in improving their competitiveness by implementing joint projects within the cluster.

4. Conclusions

It should be noted that the essence of the model proposed by the authors of the development of domestic tourism and hospitality market in Ukraine is to use the cluster approach. In the mechanism of cluster management of domestic tourism market it is important to determine the means and methods of purposeful state influence, including the leverage of local authorities for the effective development of the cluster system of tourist destinations in Ukraine. The proposed mechanism is the basis for the implementation of cluster policy as a system of relationships between the state and business entities to improve

Table 2

The results of the correlation and regression analysis of factors of economic development of tourism and hospitality in the national economy of Ukraine

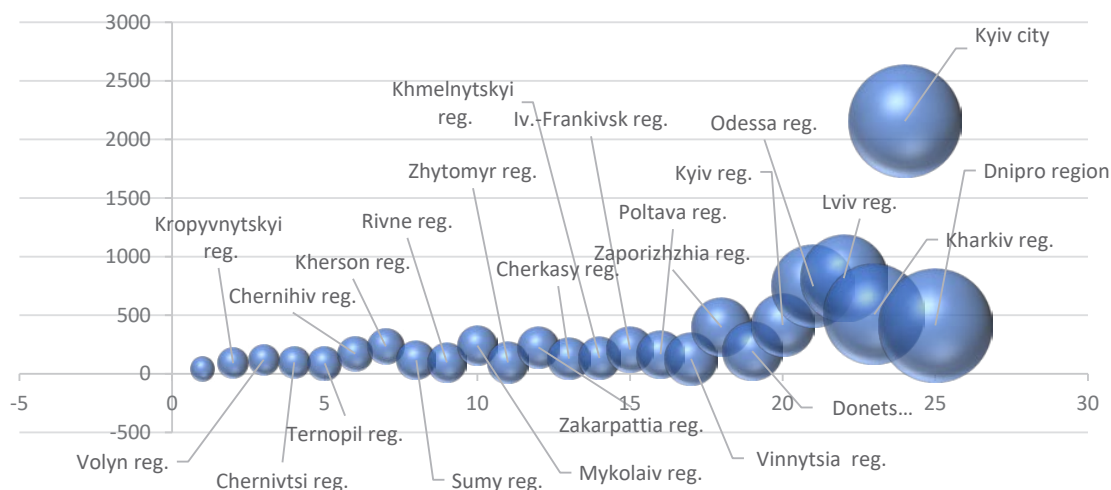| Target indicator	Influencing factors	Coefficient of determination R^2	F-test
Share of tourism and hospitality in GDP of Ukraine, %	– number of hotels (X_9) – the number of employed population in the economy of Ukraine (X_4)	0,9217	17,6637
$Y = -34{,}67 + 0{,}00277X_4 - 0{,}0020X_9$			

Source: developed by the authors

Figure 1. Distribution of regional sectors of tourism and hospitality in Ukraine for the purpose of their clustering

Source: developed by the authors

the competitiveness of the national tourist product through the formation and development of clusters of tourism and hospitality.

In conclusion, it is important to note that in order to implement effective public policy on the development of regional tourist clusters and domestic market of tourist services in Ukraine, it is necessary to conduct qualitative research to determine the actual number of existing tourist associations and hotel enterprises within the cluster. This task should be carried out mainly by local and regional authorities, because they have more differentiated information about the development of local businesses. At the same time, it is important for the authorities not only to ensure overall control over the activities of tourism and hospitality enterprises to pay taxes and monitor migration processes, but also to ensure the development and implementation of an effective mechanism of interaction between government agencies and all stakeholders of the enterprises. Equally important is the development of programs to support small and medium-sized businesses in tourism in Ukraine, which is a prospect for further research.

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