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Measuring the Quality of the Tourism Product in the Tour Operator Business

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ABSTRACT

In the context of globalisation of tourism markets and increasing competition, there is a need of continuous improvement of the tourism product quality. This problem became especially urgent after the entry into force of the Ukraine–European Union Association Agreement. This article deals with the theoretical, methodological and practical problems of assessing the quality of the tourism product of regional tour operators in Ukraine. The main attention is paid to the analysis of the quality of the tourism product standard components having latent features. To study the quality of the service components form a tourism product by their latent features, the authors used the methodology of taxonomic analysis, which combines a number of statistical methods of comparison on multivariate objects, structural units, which are determined by a set of values of several features. The analysis of the tourism product quality was carried out on the example of ten tour operators in Odessa Region, Ukraine, providing services on the bus tour Odessa–Chernivtsi – Khotyn – Kamianets-Podslsky – Ternopil–Odessa under standard conditions. Based on the tourism product structuring, seven assessment indicators for the level of the tourism product quality were determined. Upon the calculation of distances to the reference object and the taxonomic index values, tourism enterprises were ranked by the quality of their tourism product in the competitive segment of the market and reserves for improving the tourism product quality by its components were determined. The authors determined that the method of combined taxonomy allows comparing the quality of one-type standard tourism products of Ukrainian tour operators dealing in the same market segment. The experience of experimental verifying the proposed approach to the assessment of the tourism product quality levels shows that the technique under consideration can complement the modern tools for measuring the tour operators' service quality. The results can be useful in practice to improve the research of comparative evaluation of the tour operators' tourism product quality by latent characteristics in a competitive environment.

INTRODUCTION

The quality of products and services is one of the most important factors of the enterprise successful activity under the conditions of market economy, as well as a component of the organisational and economic mechanism of management and maintenance of the tourism business subject effective activity. To meet the needs of modern tourists in quality services, the continuous improvement of the quality assurance, evaluation and management methods is required, which actualizes the further research directions.

According to experts of the World Economic Forum, our state only takes the 71st place in the ranking of the tourism infrastructure competitiveness, (The Global Competitiveness Report, 2017-2018). Therefore, the need to develop measures aimed at improving the quality of services and methods of their evaluation fully relates to the tourism business subjects that provide services in the national tourism market. This problem became especially urgent after the Association Agreement between Ukraine and the European Union entered into force. Economic development of the countries with transit economies is impossible without the active role of all economic institutions as regulators and coordinators of economic behaviour, which contain rules and mechanisms that ensure the successful implementation of economic activities (Draskovic, V., 2011). Tour operators that focus their efforts on achieving the tourism services higher quality alongside with a relative reduction in their costs, ensure not only a stable market position, but also a high profitability of economic activities. Under modern conditions of the tourism market globalisation, the tourism product quality has become a major factor in the competitiveness of tourism businesses.

To solve the problems of improving the quality of services of the Ukrainian tourism enterprises and their level of competitiveness, it is necessary to develop a certain scheme for assessing the quality of the tourism product based on a number of features: a way to obtain information about the quality of services that form the tourism product, sources of obtaining information, object of evaluation, and consumer feedback. The formation of a mechanism for assessing the quality of services allows the management of enterprises to improve the management tools for the tourism product quality significantly reduce the complexity of calculations and will enable the application of a reasonable purposeful choice of a set of measures to improve the quality of tour operators' services in a competitive environment.

1. LITERATURE REVIEW

The problems of quality of the service for tourists have been addressed by many researchers and professional managers. The paradigm of service quality assessment was first proposed by C. Grönroos (1984). He distinguished between the technical quality, which refers to the result of production, and the functional quality relating to the subjective level of service perception. Later on, scientists conducted a number of empirical studies on problems of the quality service in the activities of tourism businesses. According to the analysis of the scientific literature, most researchers propose the SERVQUAL model (Fick and Ritchie, 1991; Karatepa and Avei, 2001; Lewis, 1987; Saleh and Ryan, 1991) to measure the quality of tourism services. Lam and Zhang (1999) adopted the SERVQUAL methodology for service quality research in Hong Kong travel agencies, and based on the factor analysis results identified the factors most influential as to the quality of tourism service, such as reliability, responsiveness and confidence, empathy, resources and corporate image and perceptibility. Ryan and Cliff (1997) conducted a study of New Zealand travel agencies using the SERVQUAL methodology and made the concluded that only three factors of the author's SERVQUAL methodology (belief, reliability and material value) had been most adapted to measure the quality of tourism service (Parasuraman et al., 1988). A. Akbaba (2006) conducted a study to assess the quality of services of hotels in Turkey providing services to business travellers. The research results also confirmed the effectiveness of the SERVQUAL

concept. However, in his opinion, to measure the quality of service, it is necessary to supplement the five-dimensional structure of SERVQUAL methodology with such components of evaluation as "convenience", "guarantee", "material value, "service sufficiency" and "understanding and care". S. Hudson, P. Hudson and A. G. Miller (2006) note that in the tour operator's sector, the operators rely on traditional methods of customer feedback, for example, surveying the tourists upon the end of the tour regarding their service on the rout (CSQ). Although these methods are important, they are not able to provide a complete assessment of service outcomes or measure tourists' travel expectations. Scientists emphasize that managers of tour operators can use different methods of SERVQUAL, MPA or SERPERF to justify decisions according to their own goals in assessing the quality of the tourism product, methods of satisfaction measurement and indicate the need for further research, which provide greater reliability of the evaluation results.

L. Caro and J. Garcia (2008) suggested an integrated model for assessing the quality of service in travel agencies. The researchers came to the conclusion that the clients of tourism firms form their service quality perception based on the evaluation of three primary circumstances: personal interaction, physical environment and outcome, which consists of seven measurement criteria: conduct, expertise, problem solving, equipment, ambient conditions, waiting time, and conditions valence. In their opinion, a combination of all these assessments is a common perception of the travel agencies service quality by clients. M. Lin, X. Wu and Q. Ling (2017) conducted the multi-level analysis of the staff impact on service quality in Chinese travel agencies and determined that the cross-level moderation analysis suggests that only within a high degree of organisational empowerment climate and service behaviour-based evaluation does employees' psychological empowerment have positive effects on service quality. L. Penko, G. Profumo and R. Scarsi (2017) conducted an empirical study to evaluate the quality of missions in the tourism industry on the example of 44 cruise lines operating in the standard ocean market of cruise companies. The researchers used the methodology of content analysis by evaluation components: goals / clients / segments; products; location; technology; care of survival; philosophy; concept of personality; care of public image; and care of employees. According to the said scientists, the proposed evaluation methodology is aimed at determining the mechanism of control over the service quality and cruise tourism workers' motivation.

R. Hallak, G. Assaker and G. El-Haddad (2018) offered a comprehensive model of the service quality impact on customer's loyalty in the context of selecting holiday destination using a sample of a survey of 249 United Kingdom and USA residents who visited Australia between 2008 and 2012. This research applies Partial Least Squares-Structural Equation Modelling (PLS-SEM) to examine these relationships. Perceived quality is operationalized as a multidimensional construct determined by six destination dimensions: natural and well-known attractions, variety of tourism services, quality of general atmosphere, entertainment and recreation, general environment, and accessibility. M. Caber and T. Albayrak (2018) studied the quality of tour operators' tours. The researchers believe that the existing scientific literature offers no reliable scale for the determination and measurement of the tourism service main parameters according to the program of typical one-day tours, so they offered their own methodology and scale of service assessment DAILYSERV for evaluating the quality of the tour. The suggested scale consists of 22 tour parameters and 6 estimating measurements of the quality of services: transport, guide, food and beverage store, shopping centre, stopping point, museums and touristic attractions.

Modern research on the problems of competitiveness of enterprises, tourism services, grouping and typology of tourist product, service standards and quality uses the methods of taxonomic analysis (Pliuta, 1989; Yehupov, 2009; Yankovyi, 2015; McKercher, 2016). K. Blind (2008) considered different typologies of service standards based on the features of services. According to the results of an online survey in 364 European service companies, the researcher addressed the service-related categories applying formal and informal standards. Resting on an assessment of importance of the services-related various standardisation aspects, the author defined a taxonomy of service standards containing five clusters of service standards: "Service Management", "Service

Worker", "Provision of Services", "Customer Interaction Management" and "Data Flows and Security". A. Bagheri, M. Moharrer, M. Bagheri and M. Zadeh (2018) conducted research to investigate the potential of Fars province cities in terms of investment in tourism infrastructure using numerical taxonomy. The research of the Ukrainian scientists S. Melnychenko (2015) on improvement of the tourism services quality management deserves attention. They examine the main business processes of a tourism enterprise aimed at creating a competitive tourism product. In the activity of a tourism enterprise, the authors identify seven principal business processes. One of them is "tourism services quality management". T. Tkachenko and M. Boiko (2012) determined methodological approaches to the management of relations with tourism services consumers, and besides, they suggested generalizing values of the quality indicator consumer characteristics that determine the consumer value of the tourism product regardless of the tourism type and travel purpose based on the application of the calculation method for the European index of consumer satisfaction.

However, paying tribute to the scientific significance of the works of these scientists, it can be stated that a certain range of issues of methodological and methodical nature associated with the problem of determining the algorithm of comparative evaluation of the tour operators tourism product quality validation on latent grounds in a competitive environment, are insufficiently developed.

2. METHODOLOGY

The basis of the tourism product quality assessment is the assumption that the quality characterising indicators depend both on its objective characteristics (conditions of hotel accommodation along the route, conditions of meals and transportation) and on a number of values that are not directly observable or measurable (the degree of the tour compliance with the ideas of tourists, Based on the analysis of the scientific literature, it can be held that some quality indicators of the components that form the tourism product are latent indicators, that is, not directly measurable, but described by a set of the so-called symptomatic indicators (Alegre, Mateo and Pou, 2011; Yankovyi, 2015; Millan, Fanjul, and Moital, 2016). In this study, we give a tourism product the meaning of a standard package tour (a vacation organised by a tour operator, with arrangements for transportation, accommodations, etc., made at an inclusive price) offered by regional tour operators for the internal route Odessa – Chernivtsi – Khotyn – Kamianets-Podilsky – Ternopil – Odessa.

We hypothesise that the correct results of this tourism product quality appraising can be obtained using comparative multivariate analysis. The latter combines a number of statistical methods for comparison on multidimensional objects – structural units, which are determined by a set of values of several features. Based on the calculation of distances to the reference object and the values of the taxonomic index, it is possible to rank tourism enterprises by the quality of their tourism product in the competitive market segment. The tools for evaluating the quality of the tourism product, in our opinion, should include the method of taxonomic analysis, which has some significant advantages as compared to other methods of multivariate analysis. In particular, the taxonomy method is characterized by the mathematical apparatus simplicity and the absence of any requirements for the set of objects under study; it has more convenient scale of the estimates obtained, which facilitates the analysis and ranking of objects (Yehupov, 2008). Depending on the purpose of the study, taxonomic methods are divided into three groups: methods of ordering, methods of division, and methods of selecting representatives of groups. In our case, we should use the method of statistical units ordering whose algorithm was considered in detail in the developments of the Polish scientist Pliuta, V. (1989). The key indicator of this method is the taxonomic indicator of the development level, which is a synthetic value, the "resultant" of all indicators-signs that characterize the objects of the whole aggregate studied.

The taxonomic index serves as the basis for the linear ordering of these aggregate elements.

The process of taxonomic index building begins with the formation of the observation matrix elements (X):

$$X = (X_{ij}),\ i = 1,...,\ m;\ j = 1,...,\ n, \quad (1);$$

where X_{ij} is the value of the j^{th} indicator for the i^{th} object,
m is the number of objects; and
n is the number of indicators-signs.

The indicators of the observation matrix are heterogeneous as they describe different properties of objects, therefore, it is necessary to standardise them in accordance with the following formula:

$$Z_{ij} = \frac{X_{ij} - \overline{X}_j}{S_j}, \quad (2);$$

where $\overline{X}_j = \frac{\sum X_{ij}}{m}$, (3);

$$S_j = \sqrt{\frac{\sum (X_{ij} - \overline{X}_j)^2}{m}}, \quad (4);$$

where $\overline{X}_j$ is arithmetic mean value of the j^{th} sign,
S_j is the standard deviation of the j^{th} indicator, and
Z_{ij} is the standardised value of the j^{th} indicator for the i^{th} object.

In taxonomic analysis, all signs are divided into stimulators and destimulators. Stimulators include the signs positively influencing the level of objects development, and destimulators – the signs that have negative impact. The division of signs into stimulators and destimulators serves as the basis for the creation of the so-called standard development (of the reference object), which is the point P_o with coordinates Z_{01}, Z_{02},..., Z_{0n}:

$$Z_{oj} = \max Z_{ij}, \text{ if } j \in K, \quad (5);$$

$$Z_{oj} = \min Z_{ij}, \text{ if } j \notin K, \quad (6);$$

where K is a set of stimulators of the j^{th} sign for the i^{th} object.

One of the fundamental concepts of multivariate analysis is the distance between objects in the multidimensional space. In taxonomic analysis, Euclidean distance is most often used, which best corresponds to intuitive ideas of the proximity of objects in the three-dimensional space. In addition, Euclidean distance fits well with its mathematical form in the traditional statistical indicators such as standard deviation and variance (Eniukov, 1986).

The distance C_{io} between individual objects and standard development (standard object)) P_o with the use of Euclidean distance is calculated by the following formula:

$$C_{io} = \sqrt{\left[\sum (Z_{ij} - Z_{oj})^2 \times \lambda_j\right]}, \quad i = 1,...,m, \qquad (7);$$

where λ_j is the weighting factor with j^{th} indicator.

Weighting factors λj reflect the degree of importance of each j^{th} indicator. Their values range from 0 to 1. The sum of the weighting factors must be equal to one. In the theory of multivariate analysis, there are various ways of determining weighting factors. In practice, the latter are more often determined based on expert assessments. The obtained distances serve as initial values that are used in determining the taxonomic indicator of the object development level (μ_i), which characterises the degree of its similarity to the standard. This calculation is performed in the following sequence:

- The arithmetic average distance from the standard object ($\overline{C}_o$):

$$\overline{C}_o = \frac{\sum C_{io}}{m}, \qquad (8);$$

- Standard deviation of distances from the standard object (S):

$$S = \sqrt{\frac{\sum (C_{io} - \overline{C}_o)^2}{m}}, \qquad (9);$$

a) The taxonomic indicator of the development level of the i^{th} object (μ_i):,

$$\mu_i = 1 - \frac{C_{io}}{\overline{C}_o + 2S}, \qquad (10);$$

The higher the value of the taxonomic indicator for the i^{th} object, the higher the measure of its similarity to the standard is and, accordingly, the higher the level of development is. In addition to the classical algorithm (7-10) discussed above, the modified algorithm is also distinguished in the modern theory of taxonomic analysis (Yankovyi, 2015). The taxonomic indicator calculated on its basis, in contrast to the classical algorithm, reflects the measure of remoteness of each object from the anti-standard object, which has reached the lowest level of development. At the initial stage of the procedure of taxonomic analysis based on the use of the modified algorithm, all signs that are destimulators are converted into stimulators by the formula:

$$X_{ij} = 1 / X'_{ij}, \qquad (11);$$

where X'_{ij} is the initial value of the sign-destimulator.

We believe that it is more reasonable to determine the anti-standard based on the approach proposed by Y. Yehupov (2008). In particular, the latter recommends doing this on the level of minimum value of the matrix Z_{ij} elements. The use of this approach enables the maximum possible differentiation of the taxonomic indicator values (with the given values of signs-symptoms). When using the modified algorithm, the taxonomic indicator value for each i^{th} object (μ_i) is calculated by the following formula:

$$\mu_i = \frac{C_{io}}{\overline{C}_o + 2S}, \qquad (12).$$

Note that the differences in the methods of taxonomic indicator calculation inherent in the classical and modified algorithms, as a rule, cause differences in the values of estimates. The classical algorithm precisely determines the assessment of leading objects, a modified algorithm – of objects-outsiders. In our case (when using the method of taxonomy as a tool for comparative analysis of the tourism product quality), we need high accuracy in the estimates of all objects, both leaders and outsiders. Achieving this goal is possible by combining these algorithms based on the overall combined assessment calculated using their results for each object. The algorithm of comparative evaluation of the tourism product quality performed based on the combined taxonomy method includes the following steps:

- Constructing the matrix of values of estimated indicators for a group of analysed enterprises.
- Calculating standardised estimates based on formulas (2)-(4).
- Separating all the assessment indicators into stimulators and destimulators.
- Constructing a reference object (development standard), the coordinates of which are determined by the formulas (5) - (6).
- Determining the weighting ratios characterising the degree of importance of each assessment indicator for the formation of the level of the tourism product quality at the tourism enterprises.
- Calculating the distance from each object (tourism enterprise) to the reference according to the formula (7).
- Calculating the taxonomic indicator for each object based on the classical algorithm (formulae (8) - (10)).
- Converting destimulation indicators into stimulation indicators based on the formula (11).
- Setting the anti-standard coordinates.
- Calculating the taxonomic indicator for each object based on the modified algorithm (12).
- Calculating the taxonomic index for each i^{th} object (μ_i^o) by combining the results obtained based on classical and modified algorithms.
- Ranking of objects (tourism enterprises) according to the taxonomic indicator reduction.
- Preparing the conclusion by results of the comparative assessment of the quality level of tour operator's tourism product.

3. EMPIRICAL RESULTS AND DISCUSSION

The tourism product quality was studied by the example of Odessa Region tour operators. For experimental studies, chosen were ten tourism enterprises of various organisational and legal forms and scope of activities that provide services on standard terms and conditions in the domestic travel market in relation to the bus tour Odessa – Chernivtsi – Khotyn – Kamianets-Podilsky – Ternopil – Odessa. All information about the enterprises included in the sample is submitted in an impersonal form, that is, they are given two-digit figures, under which they will appear in the process of presenting the results of our study. To assess the quality of the tourism product, a survey of tourists (the sample included 200 consumers) who returned from the tour was conducted. Based on the tourists' survey, the company "01" was determined as the leader among the ten studied tour operators. The organisational and legal form of the tourism enterprise "01" is Limited Liability Company and its form of ownership is private. The company has operated in the market since 2005, it is a tour operator and has an IATA license; its seven offices function in the following cities of Ukraine: Odessa, Mykolaiv and Kyiv. The main office is located in Odessa.

To compare the results of the analysis of the tourism product quality levels, the tourism enterprise "04" was chosen as the main object of the study. Its form of ownership is a limited liability company operating in the market since 2000; it is a tour operator and has an IATA license. The company "04" works as a tour operator of international and domestic tourism and organises both group and individual tours. Analysing the feedback of its services consumers and results of the

survey, we believe that despite the fairly stable situation the company lacks an integrated system of services quality management.

The analysis of modern scientific research gives us grounds to consider the quality of the tourism product as a set of properties and characteristics of the latter, which give it the ability to meet the conditioned or anticipated needs of consumers (Alzaydi, Al-Hajla, Nguyen and Jayawardhena, 2018; Bedradina, 2018). This interpretation is fully consistent with the definition of the International organization for Standardisation (ISO 9001:2008. Quality Management Systems – Requirements, 2008).

To continue determining the level of the tourism product quality, it is necessary to structure it first. We considered the composition of services, which is formed according to the conditions of the bus tour Odessa – Chernivtsi – Khotyn – Kamianets-Podilsky – Ternopil – Odessa to be a standard tourism product (TP):

$$TP = \{DP, TQ, AQ, EQ, FQ, TC, NA\},$$

where

DP is the availability of different versions of service programs as part of the tourism product in this tour,

TQ is the quality of transport service,

AQ is the quality of accommodation (according to the selected hotel category and room category),

EQ is the quality of excursion programs,

FQ is the quality of food (according to the tariff plan of the hotel and class of service),

TC is the degree of the tour compliance with the views of tourists, and

NA is the number of negative incidents on the way (complaints).

Choosing the method of structuring the tourism product was not random. It has also been tested in several other studies on the quality of tourism and hospitality services (Xu, 2010; Baumgarten, 2014; Ariffin et al., 2018). Based on the structuring of the tourism product, seven indicators of assessing the level of the tourism product quality were determined. According to the results of processing the data of the survey of tourists, the weight (importance) of each of the seven indicators was defined. The actual value of the tourism product quality level according to the given indicators was established with the use of a 10-point scale of assessment. Judging by the results of the study of the tourism product quality level for ten tourism enterprises within the framework of the tour in question, we have compiled a matrix of values of indicators obtained in the measurement of the tourism product quality and their weighting ratios, which were determined based on average expert estimates (Table 1). The first six indicators relate to stimulating factors, the 7th indicator – to destimulating ones.

Table 1. Primary Values of Quality Assessment Indicators for the Tour along the Route Odessa – Chernivtsi – Khotyn – Kamianets-Podilsky – Ternopil – Odessa

Indicators	Enterprise										Weighting ratios
	01	02	03	04	05	06	07	08	09	10	
1. The presence of different version of service programs in the composition of the tourism product for this rout, points	9	7	8	7	4	3	8	7	6	6	0.1
2. Quality of transportation, points	8	8	8	7	7	7	6	8	7	7	0.15

3. Accommodation quality (by the hotel category chosen and room category), points	6	5	7	6	6	5	7	7	5	6	0.2
4. Excursion programs quality, points	8	6	7	5	5	4	4	6	5	6	0.1
5. Feeding quality (according to the hotel tariff plan and service class), points	7	6	6	6	6	5	6	7	6	6	0.15
6. The degree of compliance between the tour and tourists' ideas about it, %	80	65	75	70	60	55	65	70	65	75	0.2
7. Number of negative incidents on the way (claims), units	2	4	3	4	5	6	4	3	5	4	0.1

Source: made up by the authors.

Based on the above algorithm of the united taxonomy, let us perform a comparative analysis of the quality levels of the tourism product, tour "Odessa – Chernivtsi – Khotyn – Kamianets-Podilsky – Ternopil – Odessa", proposed by ten tourism enterprises of Odessa Region. The results of the standardisation of estimates based on formulae (2 - 4) are shown in Table 2. The outcomes of calculating the distance to the reference object, the values of the taxonomic indicator and the ranking of tourism enterprises based on the classical algorithm (formulae 7 - 10) are presented in Table 3.

Table 2. Standardised Values of Quality Assessment Indicators, Tour Odessa – Chernivtsi – Khotyn – Kamianets-Podilsky – Ternopil – Odessa (Using the Taxonomic Analysis Classical Algorithm)

Indicators	*Enterprise*									
	01	*02*	*03*	*04*	*05*	*06*	*07*	*08*	*09*	*10*
1. The presence of different versions of service programs in the composition of the tourism product on this rout, points	1.5440	0.4411	0.9925	0.4411	-1.2131	-1.7645	0.6617	0.4411	-0.1103	-0.1103
2. Quality of transportation, points	1.0371	1.0371	1.0371	-0.4445	-0.4445	-0.4445	-1.9261	1.0371	-0.4445	-0.4445
3. Accommodation quality (by the hotel category chosen and room category), points	0.0000	-1.2247	1.2247	0.0000	0.0000	-1.2247	1.2247	1.2247	-1.2247	0.0000
4. Excursion programs quality, points	1.8974	0.3162	1.1068	-0.4743	-0.4743	-1.2649	-1.2649	0.3162	-0.4743	0.3162
5. Feeding quality (according to the hotel tariff plan and service class), points	1.5855	-0.1762	-0.1762	-0.1762	-0.1762	-1.9378	-0.1762	1.5855	-0.1762	-0.1762
6. The degree of compliance between the tour and tourists' ideas about it, %	1.5941	-0.3985	0.9299	0.2657	-1.0627	-1.7269	-0.3985	0.2657	-0.3985	0.9299
7. Number of negative incidents on the way (claims), units	-1.7321	0.0000	-0.8660	0.0000	0.8660	1.7321	0.0000	-0.8660	0.8660	0.0000

Source: calculated by the authors.

Table 3. Tour Quality Taxonomic Analysis Outcomes Based on Classical Algorithm, Rout: Odessa – Chernivtsi – Khotyn – Kamianets-Podilsky – Ternopil – Odessa

Enterprise	*Distance from standard* ($C^{к}_{io}$)	*Taxonomic indicator* ($\mu^{к}_{i}$)	*Enterprise rank* ($R^{к}_{i}$)
01	0.5477	0.8234	1
02	1.7695	0.4295	6
03	0.8495	0.7261	2
04	1.5594	0.4972	5
05	2.1223	0.3157	9
06	2.9819	0.0385	10
07	2.0888	0.3265	8
08	0.8942	0.7117	3
09	2.0737	0.3314	7
10	1.4166	0.5433	4

Source: calculated by the authors.

The distances from the anti-standard, the value taxonomic indicator and ranks of tour operators calculated based on the modified algorithms (Formula 12) are shown below in Table 4.

Table 4. Tour Quality Taxonomic Analysis Outcomes Based on Modified Algorithm, Rout: Odessa – Chernivtsi – Khotyn – Kamianets-Podilsky – Ternopil – Odessa

Enterprise	*Distance from anti-standard* ($C^{к}_{io}$)	*Taxonomic indicator* ($\mu^{к}_{i}$)	*Enterprise rank* ($R^{к}_{i}$)
01	3.3117	0.9305	1
02	1.9313	0.5427	5
03	2.8073	0.7888	3
04	1.8946	0.5323	6
05	1.4521	0.4080	8
06	0.7494	0.2106	10
07	1.8534	0.5208	7
08	2.8093	0.7894	2
09	1.4358	0.4034	9
10	2.0797	0.5844	4

Source: calculated by the authors.

Tour Quality Comparative Analysis Outcomes Based on Combined Taxonomy Method, Rout: Odessa – Chernivtsi – Khotyn – Kamianets-Podilsky – Ternopil – Odessa, are given in Table 5 below.

Table 5. Tour Quality Comparative Analysis Outcomes Based on Combined Taxonomy, Rout: Odessa – Chernivtsi – Khotyn – Kamianets-Podilsky – Ternopil – Odessa

Enterprise	*Classical algorithm*		*Modified algorithm*		*Combined results*	
	$\mu^{к}_{i}$	$R^{к}_{i}$	$\mu^{м}_{i}$	$R^{м}_{i}$	$\mu^{о}_{i}$	$R^{о}_{i}$
01	0.8234	1	0.9305	1	0.9305	1
02	0.4295	6	0.5427	5	0.5124	6
03	0.7261	2	0.7888	3	0.8044	2

04	0.4972	5	0.5323	6	0.5467	5
05	0.3157	9	0.4080	8	0.3807	9
06	0.0385	10	0.2106	10	0.0722	10
07	0.3265	8	0.5208	7	0.4319	7
08	0.7117	3	0.7894	2	0.7968	3
09	0.3314	7	0.4034	9	0.3884	8
10	0.5433	4	0.5844	4	0.5988	4

Source: calculated by the authors.

CONCLUSION

Based on the combined taxonomy algorithm, the quality levels of the tourism product of ten tourism enterprises operating in Odessa Region of Ukraine were studied by comparative analysis. As a result of taxonomic analysis of the tour quality data, route Odessa – Chernivtsi – Khotyn – Kamianets-Podilsky – Ternopil – Odessa, it was found:

- The enterprise "01" whose taxonomy indicator is only 7% behind the reference value was found to be the absolute leader as to the quality of its tourism product ($\mu^o_1 = 0.9305$).
- There is a significant gap between the three leaders (enterprises "01", "03" and "08") and other tourism enterprises.
- The pronounced outsider was revealed, which is the tourism enterprise "06". In particular, its level of taxonomic indicator ($\mu^o_6 = 0.0722$) is 5 times less than the same of the nearest enterprise, which takes the 9th position.
- The enterprise "04" takes the 5th position among the ten investigated enterprises as to the level of the tourism product quality and together with the tourism enterprises "02" and "10" forms the group of average firms.

However, despite the average position in the ranking, the enterprise "04" significantly lags behind the group of leaders: by 41.25% behind the enterprise "01" and 31.38% behind the enterprise "08", which closes the top three.

The used technique enables comparing the quality of one-type standard tourism products of tour operators dealing in the same market segment. In this case, it is decided that the tourism product is of the highest level, if the degree of its quality model approximation to the reference model is larger than its taxonomic indicator value. Thus, the experience of the experimental verification of the proposed approach to the tourism product quality levels assessment shows that the technique under consideration can complement the modern tools for measuring the quality of services of tourism operators. According to the results of the calculation of distances to the reference object and ranking of tour operators, it can be concluded that the enterprise "04" has significant reserves for improving the quality of the tourism product on the specified tourism route. Components that determine the level of quality of the operator's tourism product are latent indicators. It is established that correct results of its evaluation can be obtained using the methods of the combined taxonomy. The obtained outcomes support and complement the multi-dimensional scheme for assessing the quality of tour operators' services for conceptualising the perceived quality of the tourism product as it is suggested in the studies of evaluating the quality of tourism services and the formation of consumer value of the tourism product (e.g., S. Hudson, P. Hudson and G. A. Miller, 2006; T. Tkachenko and M. Boiko, 2012).

Our proposed approaches to assessing the quality of the tourism product allow the travel operators' management to focus their efforts on improving the service characteristics of the tourism product. The practical directivity of the results of the taxonomic analysis of the tourism product quality lays in the fact that it makes possible a multivariate classification of tour operators by, for example, groups of leaders, average firms and outsiders. This is particularly relevant in connection with the constant need in expanding the sales market for tourism services and the formation of an

agency network by identifying the most promising partners in the competitive environment of the tourism market, and allows determining the measures for forming the tourism services consumer loyalty.

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